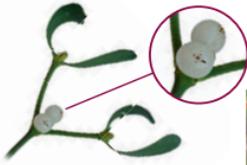


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Gallery 6

38 Mistletoe p. 131



70 Honeysuckle p. 218



Snowberry

47 Dogwood p. 155

Red-osier Dogwood



Dogwood

69 Elder p. 217

Elder



PRIVETS



58 Ash p. 178

Black Currant



Flowering Currant

7 Currant p. 76



Red Currant

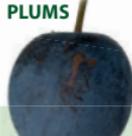


Gooseberry

Cherry Plum



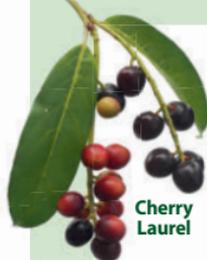
Blackthorn PLUMS



APPLES



13 Rose p. 89



Cherry Laurel



Bird Cherry

Wild Cherry

15 Buckthorn p. 103



ALDER BUCKTHORN

BUCKTHORN

96 Juniper p. 295



berry-like but actually a soft cone

95 Yew p. 295



open seed almost surrounded by flesh (aril)



COTONEASTERS (can be in clusters)

BERRIES tough-skinned

HAWTHORNS



Rowan, WHITEBEAMS

Wayfaring-tree

54 Holly p. 169



68 Viburnum p. 217



Gelder-rose

egg-shaped; black when ripe

globular

Burnet Rose



ROSES

FRUIT thick-skinned (hips)

orange



14 Sea-buckthorn p. 102



26 Spindle p. 115

Black Bryony p. 236



White Bryony p. 114



Honeysuckle p. 218

A number of climbers have conspicuous fruits which can be confusing e.g. when twined through a hedgerow with other fruiting trees

**11** Pea  
p. 80



typical pea pod

**34** Maple + Horse-Chestnut  
p. 128

FIELD MAPLE



Norway Maple

Sycamore



FRUIT (capsule) stiff spines

NUT (conker)

Horse-chestnut capsule has much fewer, stiffer, spines than the unrelated Sweet Chestnut

FRUIT (chestnut) enclosed in scaly cup with soft spines



Sweet Chestnut



NUT (chestnut)

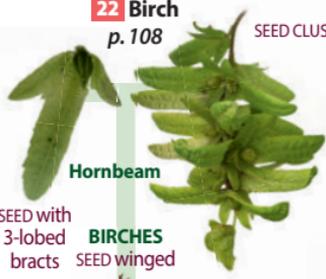
**58** Ash  
p. 178



Ash

SEED 1-winged

**22** Birch  
p. 108



Hornbeam

SEED with 3-lobed bracts

**BIRCHES**  
SEED winged

Downy Birch



Silver Birch

**ALDERS**

SEED in cone-like structures

YOUNG FRUIT



OLD FRUIT



Hazel

NUT surrounded by deeply lobed bracts



**OAKS**

FRUIT (acorn) in scaly cup



Turkey Oak

FRUIT enclosed in a scaly cup



**19** Beech + Oak  
p. 106

Beech

open scaly cup exposing FRUIT (nut)



NUT (mast)

SEED CLUSTER



**17** Elm  
p. 104



Wych Elm SEED nearer base

'Field Elm' SEED nearer tip



Pine

Spruce

Larch

Cypress

With some similarity in appearance to alder fruit; the cones of pines, spruces, larches and cypresses (gymnosperms) are relatively straightforward to identify to species

▶ p. 291

FRUIT points up

**35** Mallow + Lime  
p. 129



Lime

Small-leaved Lime

FRUIT hangs down



FRUIT CAPSULE

SEED

**21** Walnut  
p. 108



Gallery 7 1/2

Identify trees and shrubs without leaves by twig and bud features as follows: are the **lateral buds** arranged oppositely or alternately?; is there a **scar ridge** (indistinct in some) that connects the **leaf-scars**?; then by the shape and angle of the **terminal** and **lateral bud** and details of the **bud scales** (if present).

Lateral buds ± opposite

SCAR RIDGE **present** | BUD SCALES **present**

**34 Maple + Horse-chestnut** p. 128  
TERM BUD ± 'bishop's mitre'



**Norway Maple**  
BUD wholly or partly reddish-brown



**Sycamore**  
BUD green; SCALES dark edges



**Field Maple**  
BUD brown; SCALES fringe-hairs white



LF-SCARS conspicuous  
**HORSE-CHESTNUTS**  
TERM BUD >12mm; pointed oval; brown + sticky

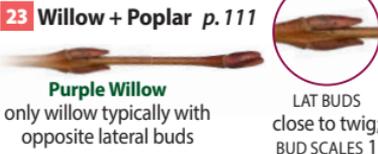
**SS Walnut** [BUDS alternate; small] – see p. 45



**15 Buckthorn** p. 103  
**Buckthorn**  
TERM BUD usually replaced by thorn

TWIG usually spiny; LAT BUDS can be offset

SCAR RIDGE **absent**



**23 Willow + Poplar** p. 111  
**Purple Willow**  
only willow typically with opposite lateral buds  
LAT BUDS close to twig; BUD SCALES 1



**26 Spindle** p. 115  
**Spindle**  
TWIG green; 4-ridged when older  
LAT BUDS close to twig; BUD SCALES 2-6 pairs

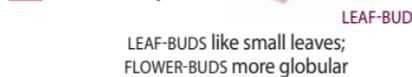
BUD SCALES **absent**

**59 Figwort + Mullein** p. 179



**Buddleia**

**68 Viburnum** p. 217



LEAF-BUD

LEAF-BUDS like small leaves; FLOWER-BUDS more globular



**Wayfaring-tree**

TWIGS hairy



**Guelder-rose**

TWIGS hairless

**47 Dogwood** p. 155



BUDS like small leaves  
TWIGS red when aged

**69 Elder** p. 217



BUDS conical; usually with new leaf-tips showing  
TWIGS grey when aged

**58 Ash** p. 178



**Ash**

ALL BUDS large + black



**Lilac**

'TERM' BUD 2 large; green + red; LAT BUDS green + red

TWIG pale greenish-brown



**PRIVETS**

'TERM' BUD small; green- to purplish-brown

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# Winter twigs compared

**Winter twigs terms**



## Lateral buds alternate

1/2

BUD SCALES 0	BUD SCALES 1	BUD SCALES 2 or 3		BUD SCALES ≥3	
		'boxing glove'	± same size	long + pointed	pointed oval to rounded

BUD SCALES 0

**15** **Buckthorn**  
p. 103

**Alder Buckthorn**



LEAF-BUDS covered in dense hairs

BUD SCALES 1 | **23** **Willow + Poplar** p. 112 [STRIAE are thin, lengthwise ridges under the bark]

<b>Osier</b>			TWIGS green; LAT BUDS greyish-yellow to reddish-brown; pressed to stem; relatively closely spaced; BUDS L 5–9 mm
<b>Crack-willow</b>			TWIGS yellowish- to orange-brown; ageing grey-green; LAT BUDS ± same colour as twig; pressed to stem; usually curved on one side; BUDS L 6–12 mm
<b>White Willow</b>			TWIGS olive-green to reddish-brown; LAT BUDS reddish-brown; or same colour as twig; white silky hairy; BUDS L 5–8 mm
<b>Goat Willow</b>	 2ND-YR TWIGS striae absent		TWIGS brownish-green (underside usually green); usually hairless; LAT BUDS reddish-brown; LF-BUDS L 3–5 mm; much smaller than FL-BUDS L 5–12 mm
<b>Grey Willow</b>	 2ND-YR TWIGS striae present		TWIGS dull brown-grey to dark red; hairy when young; LAT BUDS usually brown to red-brown; typically hairy; LF-BUDS L 3–5 mm; much smaller than FL-BUDS L 5–10 mm
<b>Eared Willow</b>	 2ND-YR TWIGS striae present		TWIGS reddish; hairy when young; 2ND-YR TWIGS striae present; LAT BUDS reddish-brown; LF-BUDS L <3 mm; smaller than FL-BUDS L ±5.5 mm
<b>Creeping Willow</b>	 low-growing shrub		TWIGS red to grey-brown; usually densely silky; LAT BUDS reddish-brown with tiny white dots; ALL BUDS L 2–4 mm;

BUDS with 2–3 scales | 'boxing glove'

**35** **Mallow + Lime**  
p. 129

**Lime**

BUDS those of *Small-leaved Lime* are smaller, rounder and spaced more closely on the twig than those of *Lime*



BUDS L 5–10 mm



**Small-leaved Lime**

BUDS L 3–6 mm



**55** **Hazel** [SCALES 6–8; green – see p. 45]

For general queries, contact [info@press.princeton.edu](mailto:info@press.princeton.edu)

Gallery 7 2/2 Lateral buds alternate



BUDS with 2-3 scales | ± same size SS Sweet Chestnut (*opposite*) buds can have 2 scales

22 Birch p. 108



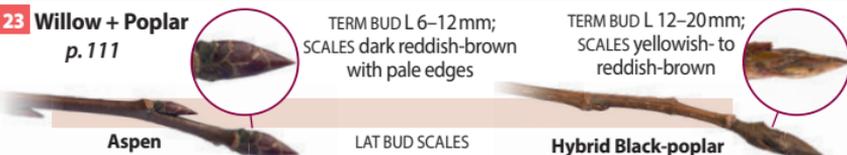
14 Sea-buckthorn p. 102



Grey Alder	Alder	Italian Alder
TWIGS hairy; BUDS L 6-10 mm; on hairy stalk (L 2-8 mm)	TWIGS hairless; BUDS L 6-10 mm; on hairless stalk (L 2-4 mm)	TWIGS hairless; BUDS L 4-8 mm; on hairless stalk (L 3-10 mm)

BUDS with ≥3 scales | long + pointed

23 Willow + Poplar p. 111



19 Beech + Oak p. 106



Buckthorn buds could be regarded as alternately arranged - see p. 42

BUDS with ≥3 scales | long + pointed to pointed-oval

13 Rose p. 89



23 Willow + Poplar p. 111



22 Birch p. 108



Grey Poplar [TERM BUD L 5-10 mm (SCALES 6-12); LF-SCAR pale brown] - see p. 111

**BUDS usually with ≥3 scales | pointed-oval to rounded**

**Gooseberry**  
 BUDS white to brown  
 TWIG usually spiny  
 TWIG pale grey-brown

**Flowering Currant**  
 TWIG reddish-brown

**7 Currant p. 76**  
 BUDS blackish-brown  
 BUDS ± pointed

**Red Currant**  
 TWIG pale grey-brown

**Black Currant**  
 TWIG pale to purple-brown

BUDS greenish to purplish; aromatic reddish glands  
 BUDS yellow-green to purplish; aromatic yellow glands

**16 Elm p. 104**  
 BUDS spreading from twig;  
 LF-BUDS 4-6 scales

**20 Bog-myrtle p. 67**  
 BUDS clustered near tip; scales dark brown with pale margins  
 ♀ L 2-3 mm with 6-8 scales; ♂ L 5-8 mm with 20-30 scales

**19 Beech + Oak p. 106**  
 BUDS clustered at tip in oaks

**Turkey Oak**  
 BUDS with hairy stipules

**Pedunculate Oak**  
 BUDS L 3-8 mm; reddish-brown; usually hairless

**Sessile Oak**

**Sweet Chestnut**  
 BUDS larger (L 5-15 mm); paler brown; usually hairy  
 BUD SCALES 2-6

**21 Walnut p. 108**  
 LF-SCARS large

**SS Horse-chestnut [BUDS large (p. 42)]**

**13 Rose p. 89**  
 Hawthorn  
 TWIG reddish-brown; shiny; THORNS to 15 mm + BUDS 2-5 mm  
 BUDS ± globular

**Blackthorn**  
 TWIG blackish-brown; dull; THORNS to 40 mm; + BUDS 1-2 mm

**Wild Plum**  
 TWIG grey to reddish-brown; greenish below at most  
 BUDS ± pointed oval; all lateral

**Cherry Plum**  
 TWIG mostly green

**Wild Cherry**  
 LAT BUDS somewhat clustered

**APPLES**  
 LF-SCARS 'stepped'

**whitebeams**  
 LF-SCARS 'stepped'

**TERM BUD pointed-oval**  
 TERM BUD pointed-oval; green to red-purple with broad brown margins

**22 Birch p. 108**  
 BUDS green; 'boxing-glove'; SCALES ± 8

**Hazel**  
**SS Limes [SCALES 2-3; brown] - see p. 43**

**94 Pine p. 292**  
 larches  
 TWIG yellow-grey; ridged  
 BUDS globular; 7-20+ scales

**11 Pea p. 80**  
 Laburnum  
 TWIG green  
 BUDS silky hairy

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Flowering plants consist of the **Pre-dicots** and the **Angiosperms**. The **pre-dicots** are a small group of ancient families that include magnolias and Bay and are represented naturally in B&I only by the aquatic water-lilies (p. 67).

The angiosperms comprise the vast majority of plants in Britain and Ireland and include just over 140 families with almost 2,300 native or naturalized species.

This book covers the 93 families (723 species) most likely to be encountered.

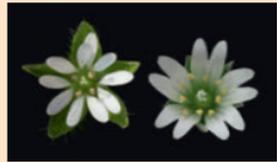
Rather than simply being petals, a flower is the reproductive structure which, in the simplest form, consists of male anthers and female stigma(s) and ovary. All flowering plants have these basic features, with either male and female parts within the same flower (**bisexual**) or on the same plant (**unisexual**, *monoecious*) or on different plants (*dioecious*).

Generally speaking those plants that rely on the attraction of insects for pollination have showy petals (and scents); those with petals much reduced or absent typically use movement (such as the wind) for pollination.

In addition to basic reproductive parts, many have additional structures. For example, the **bracts** and **sepals** of showy flowering plants, and the **lemma** and **palea** in grasses, all serve to protect the reproductive parts of the flower.

From an identification perspective, improved confidence in identification goes hand-in-hand with a greater understanding of a flower structure and the diverse range of additional parts. A significant number of species' identifications rely on being able to locate and assess these features – ovary position, lemma shape and number of stigmas are examples.

Although these may seem daunting at first, it is worth persevering – full details can be found on pp. 14–20 and are referenced at appropriate points in the key that follows.



Although perhaps not the most apparent difference, Common Chickweed (left) has 3–8 stamens and Common Mouse-ear (right) has 10.

## Flowering plant identification

Herbaceous flowering plants can be split into three broad groups based on how conspicuous (or not) the flowers are. Species that are representative of each of the families included in these groups are depicted in a range of feature-based galleries.

Is the plant a **non-woody (herbaceous) green flowering plant** (one of the groups shown opposite)?

?

No

If the plant has flowers but is woody (e.g. a tree or a shrub); a better identification pathway is:

**WOODY PLANTS** ▶ p. 31

If the plant is not green (lacks chlorophyll):

**PLANTS NOT GREEN** ▶ p. 27

Yes

Assign the plant to one of the groups defined opposite and then scan through the relevant gallery indicated in order to find a close match for your plant



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This key is based upon the characteristics of the individual flower; for compact, tightly clustered or composite flowerheads close examination of an individual flower may be needed.

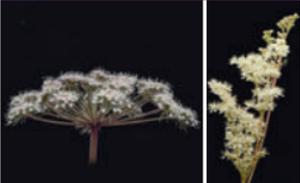
Does the plant have **conspicuous** flowers ?

Do the 'flowers' appear large but are actually a tight collection of small flowers in a head?



► **Gallery 10**  
p. 52

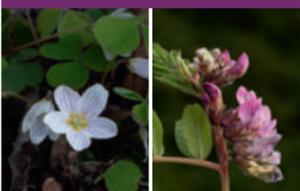
Are individual flowers small and in a flat or clustered inflorescence?



► **Gallery 9** p. 51 ► **Galls 11–19** pp. 54–61

\*pp. 48–49 contain essential underpinning information and descriptions of the differentiating features needed in the identification of plants with conspicuous flowers

Are the flowers large and single (or a few in a group)?\*



Does the plant have **inconspicuous** flowers ?

Are the flowers fully formed but tiny?...



► **Gallery 20** p. 62 ► **Gallery 21** p. 62

...or are the flowers not well-developed?



Rushes could key out here as structurally they are very similar, but a close examination will see that they have flowers with petals and sepals that look the same (tepals)

Does the plant lack, or seem to be **lacking, petals + sepals** ?

Does the plant have **broad leaves**?



Does the plant have **long, narrow leaves (grass-like)**?



see Galleries 11 (p. 38) and 21 (p. 63)

**Gallery 21 (left page)**

**Gallery 21 (right page)**

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HERBACEOUS FLOWERING PLANTS

## Conspicuous flower identification

In the plants with conspicuous flowers there are a number of characters which, once assessed, form the basis for a confident identification to family level at least. In some cases only one or two characters from the set will be enough; in others more may be needed. The pathway below orders the features to check, with the most apparent first, together with annotated images of these features. Feature sets and their galleries are given here and in a look-up table, covering all set combinations, on p.64.

### Conspicuous flower identification – the questions to ask

- ▶ are the petals **FREE** (separated); or **FUSED** (either significantly or just at the base) ?
- ▶ what is the **SYMMETRY** of the flower – **RADIAL**; or **BILATERAL** ?
- ▶ where is the **OVARY LOCATED\*** in relation to the other flower parts ?

#### PETALS FREE vs. FUSED

free (petals separated)	fused, but only at the base	significantly fused
<p><b>CINQUEFOIL</b></p> <p><b>Galleries</b> 11–13; 18–19 pp. 54–57, 61</p>	<p><b>LOOSESTRIFE</b></p> <p><b>Galleries</b> 14–17 pp. 58–60</p>	<p><b>BUTTERFLY-BUSH</b></p> <p><b>Galleries</b> 14–17 pp. 58–60</p>

- ▶ In plants with **free** petals, each petal is separate and will fall individually from the plant.
- ▶ In plants with **fused** petals, the petals are conjoined to a greater or lesser extent; and will fall from the plant as a whole unit.
- ▶ Some plants have petals **fused, but only at the base**, and, on occasion, these can be mistaken for free petals unless examined closely.

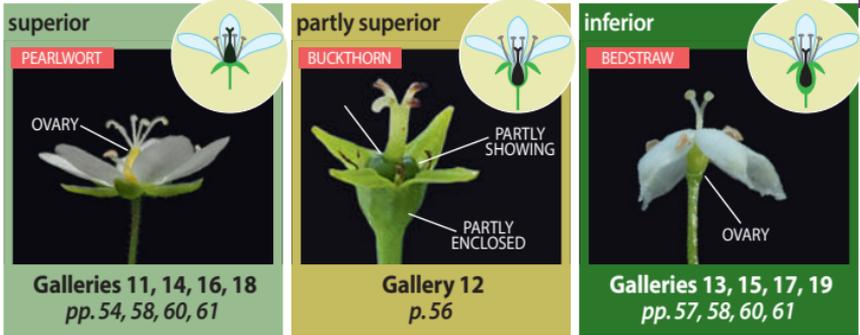
#### FLOWER SYMMETRY

radial	bilateral	Diagrams of the botanical characters shown on these pages, together with more detailed information can be found on pp. 14–20
<p><b>CRANE'S-BILL</b></p> <p>Flower symmetry is rarely mathematically accurate!</p> <p><b>Galleries</b> 11–15 pp. 54–58</p>	<p><b>EYEBRIGHT</b></p> <p><b>Galleries</b> 16–19 pp. 60–61</p>	

- ▶ In plants with **radial symmetry** any petals and sepals are arranged in a regular pattern around the centre, such that the flower can be **divided into similar halves along more than one plane** passing through the centre.
- ▶ In plants with **bilateral symmetry** any petals and sepals are arranged on opposite sides of a central axis, such that the flower can only be **divided into similar halves along that single plane**.

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### OVARY POSITION – see p. 24 for more information



\* not applicable to male dioecious flowers.

- ▶ In plants with a **superior ovary** it is located **above** the attachment point of any other part of the flower.
- ▶ In plants with a **partly superior ovary** it is located within a receptacle that typically has the petals attached to its rim.
- ▶ In plants with an **inferior ovary** it is located **below** the attachment point of any other part of the flower.

## Conspicuous flower identification – next steps

Once a suite of characters has been assessed a search of the relevant gallery should prove successful in finding the family that the plant in question belongs to. The galleries can be found using the page numbers shown here, or by using the look-up table, which groups families by each combination of features. Note that throughout the galleries the key character groups are colour-coded and accompanied by diagrams (as on these pages) as an additional navigation aid.

### ▶ Look-up table by features p. 64 ▶ The Galleries pp. 50–63

Most flowers have petals clearly different from sepals in colour and/or size and shape. In those that have similar petals and sepals, they may be termed tepals. But in a further complication, petals may be sepal-like (sepaloid) e.g. **Black Bryony** or sepals petal-like (petaloid) e.g. **Wood Anemone** (see also p. 16). To avoid such complications, we do not use the similarity/difference between sepals and petals as a differentiator.



# H

## Conspicuous flowerhead or inflorescence OR similar flowers

**Gallery 8** There are two groups of plants of which examples are shown in this gallery: 1) **highly distinctive flowers** – in some cases very different from the ‘normal’ flowers associated with that family and 2) **‘bell’-shaped flowers**. For both groups the defining flower features can be difficult to establish without a close examination.

**88** Daffodil + Onion family p. 241

**33** Willowherb family p. 125

**70** Honeysuckle family p. 218

**87** Iris family p. 241

**5** Buttercup family Gallery 11 p. 55 p. 71

**77** Bellflower family p. 229

**59** Figwort + Mullein family Gallery 16 p. 60 p. 179

**13** Rose family Gallery 12 p. 56 p. 89

**9** Stonecrop family Gallery 8 p. 58 p. 78

**49** Heather family p. 158

**89** Bluebell [Asparagus] family p. 243

Wild Onion

Enchanter's-nightshade

Fuchsia

Wild Daffodil

Montbretia

Evening-Primroses

Snowdrop

Columbine

Traveller's Joy

Water Aven

BLUEBELLS

GRAPE-HYACINTHS

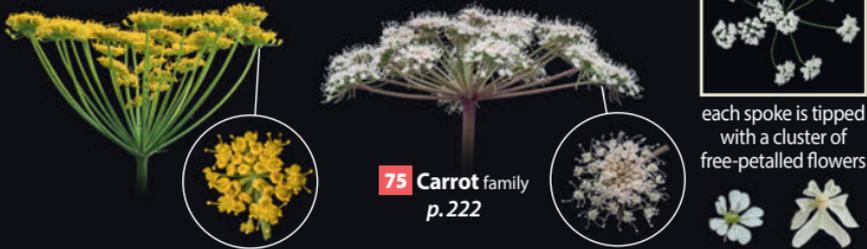
Navelwort

FIGWORTS

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**Gallery 9** Although in this book flower identification is based on the characters of an individual flower, the families, groups or species here and some of those opposite are primarily recognized by their conspicuous inflorescences.

**FLOWERS IN AN UMBEL** – multiple flower-stalks (spokes) that arise from a single point at the top of the stem and forming a flat- or round-topped inflorescence.



**75** Carrot family  
p. 222

**Carrot family umbels** Individual flowers have free petals that differ from the sepals. Flower symmetry in most species is radial, although in some (especially the outer flowers) are bilateral. The ovary is inferior.

**FLOWERS IN OTHER ARRANGEMENTS** – see p. 17 for more details.

**71** Valerian family

p. 218

fused petals



Ramsons

**88** Daffodil + Onion family  
p. 241



**84** Bog Asphodel  
family  
p. 235

**61** Dead-nettle  
family  
p. 181



**32** Purple-loosestrife  
family  
p. 124



Foxglove

**53** Speedwell  
family  
Gallery 16 p. 60  
p. 164



**33** Willowherb  
family  
Gallery 13 p. 57  
p. 125



Rosebay Willowherb

**37** Mignonette  
family  
p. 131



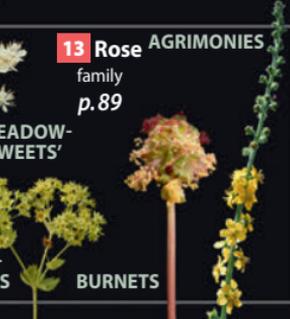
MULLEINS

**13** Rose AGRIMONIES  
family  
p. 89

'MEADOW-SWEETS'

LADY'S-MANTLES

BURNETS



**59** Figwort + Mullein family  
Gallery 16 p. 60  
p. 129



Trees and shrubs with conspicuous inflorescences of small flowers can be found in Gallery 2 (p. 34)

► Some members of the daisy family have conspicuous inflorescences – see Gallery 10 p. 53.  
► Individual flower queries, contact [info@press.princeton.edu](mailto:info@press.princeton.edu).

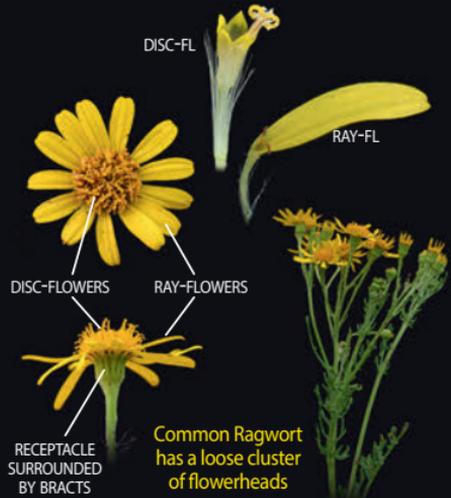
**Conspicuous heads of small flowers | heads single or clustered**

**Gallery 10** Plants in this group exhibit a high diversity of individual flower shape as well as a wide variety of how individual flowers (even if small) are grouped to form a conspicuous flowerhead (or inflorescence) – see p. 17 for more information.

**Daisy family individual flowers** | Observing individual flowers requires a close examination of the flowerhead (*capitulum*). Flower symmetry varies depending on the flower: there are two flower types - strap-like **ray-flowers** and tubular **disc-flowers**. Flowerheads can consist of disc-flowers only, ray-flowers only or both disc- and ray-flowers. The unstalked flowers are packed tightly on a specialized flat-topped or domed receptacle that is formed from the swollen top of the inflorescence stalk, surrounded by whorls of bracts (the *involucre*) that protects the developing flowers. Symmetry in the individual tiny flowers may be either radial or bilateral. Disc-flowers are usually radially symmetrical though they are occasionally slightly irregular. Ray-flowers are always bilaterally symmetrical. Understanding these detailed characters will help you to make sense of this very large family – see p. 24 for further details.

**67 Daisy + Thistle family p. 194**

All species shown here have fused petals and an inferior ovary



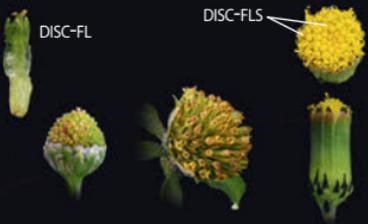
**Thistle group disc-flowers only**



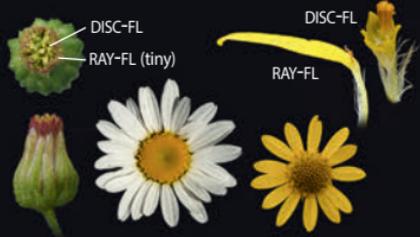
**Dandelion-type ray-flowers only**



**Groundsel group disc-flowers only (can rarely have ray-flowers)**



**Daisy-type disc- and ray- flowers (rays can be tiny)**



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**Clustered flowerhead group**

Inflorescence consisting of clusters of flowerheads; themselves each containing multiple individual flowers

Flowerhead with both disc- and ray-flowers

Flowerhead with disc-flowers only



'YARROWS'



GOLDENRODS

**67** Daisy + Thistle family  
p. 194



'WORMWOODS'



Tansy



Hemp-agrimony



CUDWEEDS



'HELIOTROPE'S'



Mountain-everlasting

**75** Teasel + Scabious family  
p. 220



Teasel



SCABIOUSES



Thrift

**40** Thrift + Sea-lavender family  
Gallery 14 p. 58  
p. 140



Sheep's-bit

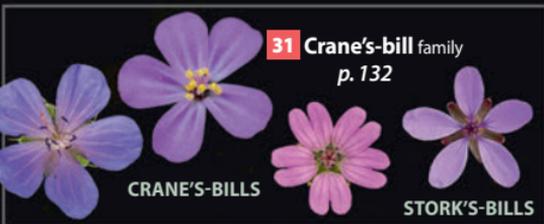
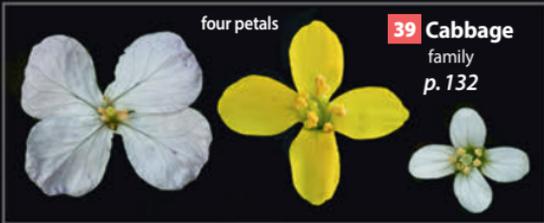
**77** Bellflower family  
Gallery 15 p. 58  
p. 229

SS two look-alike clustered flowerheads

**Conspicuous flowers**

**Gallery 11** Plants in this group exhibit a high diversity of individual flower/petal shapes as well as a wide variety of inflorescence types (see p. 17).

Species with tiny flowers which fit into this category and are more likely to be noticed by other features are Hop (Cannabaceae) p. 103; Nettle (Urticaceae) p. 105; Bog-myrtle (Myricaceae) p. 108; and Mercuries (Euphorbiaceae) p. 117 and are covered in Galleries 4 (p. 37), 20 and 21 (pp. 62–63).



A number of woody plant families have flowers in this category – Spindle, Holly, Elm, Lime (Malvaceae) and Barberry – see Galleries 2 and 3 (pp. 34–36)





PETALS free



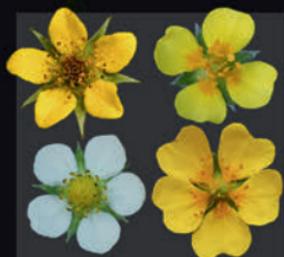
SYMMETRY radial



OVARY superior



**44** **Campion** [Pink]  
family  
p. 145



**SS** some **roses** (Rosaceae)  
[OVARY partly superior]  
Gallery 12 (p. 56)



**SS** **pimpernels and loosestrifes** (Primulaceae)  
[PETALS fused at the base]  
Gallery 14 (p. 58)

**84** **Bog Asphodel** family  
p. 235



**30** **St John's-wort** family  
p. 143



**9** **Stonecrop** family  
p. 71

**36** **Rock-rose**  
family  
p. 150



**5** **Buttercup**  
family  
p. 66

Conspicuous flowers

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Gallery 12

PETALS free



SYMMETRY radial



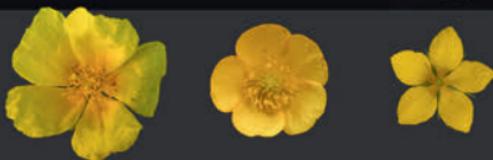
OVARY pt superior



**32 Purple-loosestrife**  
family  
p. 124

SAXIFRAGES

**8 Saxifrage** family  
p. 77



**SS rock-roses** (Cistaceae); **buttercups** (Ranunculaceae); and **pimpernels** (Primulaceae) [all with OVARY superior];  
Gallery 11 (p. 54) and 14 (p. 58)



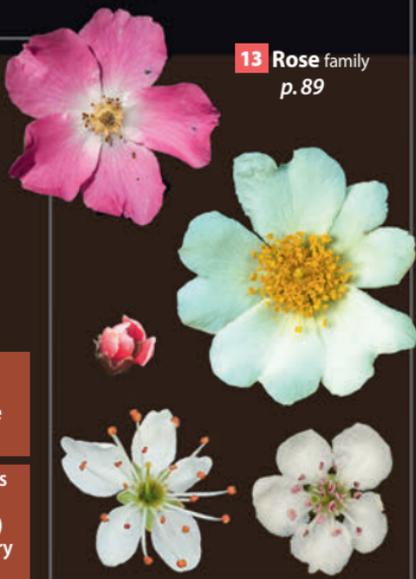
**34 Maple + Horse-chestnut**  
family  
p. 128



**15 Buckthorn**  
family  
p. 103



**13 Rose** family  
p. 89



A number of woody trees, shrubs and climbers have flowers in this category – **Maples** (Sapindaceae), **Buckthorns** (Rhamnaceae) and members of the **Rose family** (Rosaceae) – see Galleries 2 and 3 (pp. 34–36).

Some trees with catkins or catkin-like inflorescences (**Beech** (Fagaceae), **Walnut** (Juglandaceae), **Sea-buckthorn** (Elaeagnaceae) and **birches** (Betulaceae)) have free-petalled male flowers with radial symmetry – see Gallery 4 (p. 37).

Gallery 13

PETALS free



SYMMETRY radial



OVARY inferior

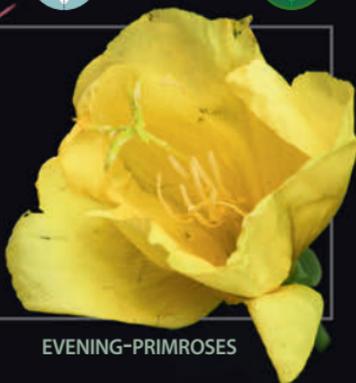


**33 Willowherb** family  
p. 125



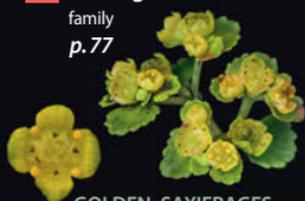
Enchanter's-nightshade

Fuchsia



EVENING-PRIMROSES

**8 Saxifrage**  
family  
p. 77



GOLDEN-SAXIFRAGES



**74 Pennywort**  
family  
p. 221

**38 Mistletoe**  
family  
p. 131



**73 Ivy** family  
p. 221



SNOWDROPS

**88 Daffodil + Onion** family  
p. 241



**7 Currant** family  
p. 76



symmetry bilateral in some flowers



**75 Carrot** family  
p. 222



**13 Rose** family  
p. 89

**47 Dogwood** family  
p. 155



**55 Yarrow and Sneezewort** (Asteraceae)  
Gallery 10 (p. 53)

Mistletoe and a number of woody trees, shrubs and climbers have flowers in this category – Currants (Grossulariaceae), Rowan and whitebeams (Rosaceae), and Dogwoods (Cornaceae) – see Galleries 2 and 3 (pp. 34–36)

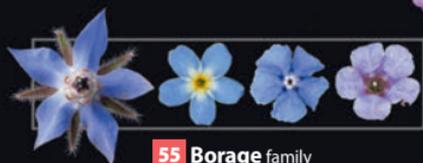
## Gallery 14



**48 Primrose** family  
petal-like sepals  
p. 155



**62 Gentian** family  
p. 189



**55 Boraginaceae** family  
p. 169



**40 Thymelaeaceae** family  
p. 140



**52 Periwinkle** family  
p. 163



**78 Asparagus** family  
p. 230



**GRAPE-HYACINTHS**

**BLUEBELLS**

**89 Bluebell**  
[Asparagus] family  
p. 243

## Gallery 15



**24 White Bryony**  
[Gourd] family  
p. 114

**85 Black Bryony**  
family  
p. 236



**50 Bedstraw**  
family  
p. 160

**77 Bellflower**  
family  
p. 229

PETALS fused



SYMMETRY radial



OVARY superior



**51 Bindweed** family  
p. 162



**57 Nightshade** family  
p. 175



Navelwort



**9 Stonecrop**  
family  
p. 78

**41 Knotweed** family  
p. 140

PERSICARIAS



KNOTGRASSES

**54 Holly**  
family  
p. 169



**49 Heather**  
family  
p. 158



PRIVETS



Lilac

**58 Ash** family  
p. 178



Wild  
Daffodil



**88 Daffodil + Onion**  
family  
p. 241

PETALS fused



SYMMETRY radial



OVARY inferior



**66 Moschatel**  
family  
p. 193



Snowberry



**69 Elder**  
family  
p. 217



**70 Honeysuckle**  
family  
p. 218



Bilberry



**49 Heather**  
family  
p. 158



**68 Viburnum**  
family  
p. 217



The disc-flowers of some members of the **Daisy family** (Asteraceae) fall into this category; see Gallery 10 (p. 52)



A number of woody trees, shrubs and climbers have fused petals and radial symmetry – see Galleries 2 and 3 (pp. 34–36)

**Conspicuous flowers**

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**Gallery 16**

PETALS fused



SYMMETRY bilateral



OVARY superior



**55 Borage** family  
p. 169

**65 Bladderwort** family  
p. 193

**53 Speedwell + Toadflax** family  
p. 164

**63 Monkeyflower**  
family  
p. 190

**59 Figwort + Mullein** family  
p. 179

**Foxglove** TOADFLAXES

Butterfly-bush

SPEEDWELLS

almost radial symm.

MULLEINS

FIGWORTS

**61 Dead-nettle** family  
p. 181

**64 Broomrape**  
family  
p. 190

**Gallery 17**

PETALS fused



SYMMETRY bilateral



OVARY inferior



**87 Iris** family  
p. 241

IRISES

**71 Valerian** family  
p. 219

VALERIANS

CORN SALADS

Montbretia

The ray-flowers of some members of the **Daisy family** (Asteraceae) fall into this category – see Gallery 10 (p. 52)

Gallery 18

PETALS free



SYMMETRY bilateral



OVARY superior



**3** Poppy +  
Fumitory family  
p. 68



**29** Violet family  
p. 118



**42** Balsam family  
p. 144



**37** Mignonette family  
p. 131



**12** Milkwort family  
p. 88



side petals  
fused in  
pairs

Horse-chestnut  
(p. 129)



RESTHARROWS  
woody-based  
perennials

GORSES  
shrubs



Rhododendron (p. 159)



**11** Pea  
family  
p. 80



Gorses, Horse-chestnut (Sapindaceae) and Rhododendron (Ericaceae) have flowers in this category – see Galleries 2 and 3 (pp. 34–36).

Gallery 19

PETALS free



SYMMETRY bilateral



OVARY inferior



**86** Orchid family p. 236



**33** Willowherb  
family  
p. 125



Rosebay Willowherb

**75** Carrot family p. 222



Carrots  
symmetry radial in  
some flowers



**SS** Yarrow  
and  
Sneezewort  
(Asteraceae)  
Gallery 10  
(p. 53)

H

**Flowers with tiny/inconspicuous petals and/or sepals**

**Gallery 20**

Plants in this group do have flowers with petals/sepals but can also appear to be lacking flowers – check both galleries on these pages. Scale bars indicate the actual max/min diameter of flowers.

**9** **Stonecrop** family p.71

**10** **Water-milfoil** family p.80

**46** **Blinks** family p.195

**74** **Pennywort** family p.221

**38** **Mistletoe** family p.131

**32** **Purple-loosestrife** family p.124

**44** **Campion** [Pink] family p.145

**PEARLWORTS**

**Water-purslane**

Individual flowers, particularly disc-flowers can be tiny (D < 1 mm) in some members of the **Daisy family** – see Gallery 10 (p.52)

H

**Flowers lacking or appearing to be lacking petals and/or sepals**

**Gallery 21**

Plants in this group may have tiny flowers with petals/sepals but which often appear to be absent – check both galleries on these pages.

**PLANTS WITH BROADER LEAVES**

**26** **Spurge** family p.116

**13** **Rose** family p.89

**16** **Hop** family p.103

**13** **Rose** family p.89

**13** **Rose** family p.89

**18** **Nettle** family p.105

**41** **Knotweed** family p.140

**79** **Lords-and-Ladies** family p.230

**56** **Plantain** family p.174

**45** **Goosefoot** family p.151

**SS** Pondweeds in fruit (p.233)

**SS** Adder's-tongue (p.300)

**PARSLEY-PIERTS**

**BURNETS**

**GOOSEFOOT**

**ORACHE**

in flower

in fruit

FLS



A number of aquatic plants have flowers in these categories – see Gallery 1 (p. 27)  
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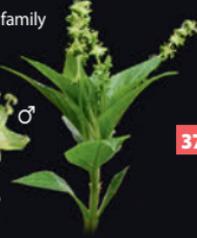
**13** Rose family p. 89

LADY'S-MANTLES



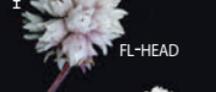
**26** Spurge family p. 116

MERCURIES



**51** Bindweed + Dodder family p. 162

Dodder



FL-HEAD

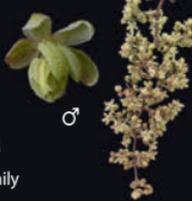
**37** Mignonette family p. 131

**41** Knotweed family p. 140



flowers often closed

**16** Hop family p. 103



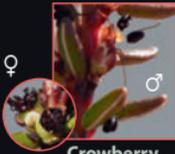
SWINE-CRESSES

**39** Cabbage family p. 132



A number of trees and shrubs have flowers in these categories – see Gallery 4 (p. 37)

PLANTS WITH NARROWER LEAVES



Crowberry

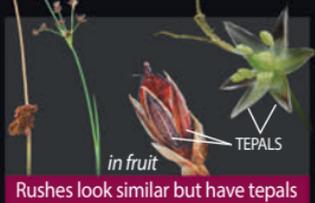
**88** Daffodil + Onion family p. 241

can have small flowers



Wild Onion

**91** Rush family p. 245



in fruit

TEPALS

Rushes look similar but have tepals

**49** Heather family p. 158

Heather

fleshy

**82** Arrowgrass family p. 233

REEDMACES



**56** Plantain family p. 174

Plantain

GLASSWORTS

**45** Goosefoot family p. 151

Goosefoot

**92** Sedge family p. 250

Sedge

FRUIT

GLUME

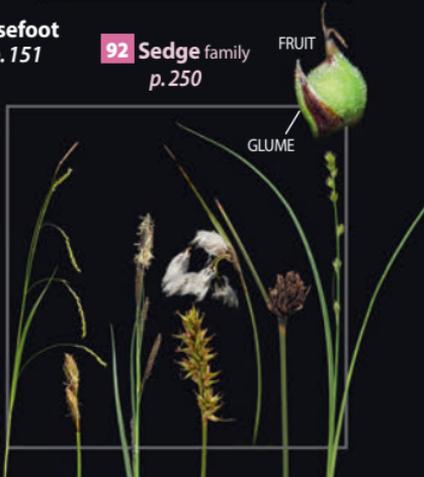
**90** Reedmace family p. 244

Reedmace

**93** Grass family p. 266

Grass

BUR-REEDS



## Characters of flowering plants in this book

This table shows the groups, subdivisions and numbers of families and species in each identification category in this book. If the features of a plant have been noted, the table will give a good idea of the number of identification options with the page numbers of the relevant galleries.

Group			Dicots		Monocots		
WOODY PLANTS			Families	Species	Families	Species	Page
Woody climbers			5	6	none in this book		33
Woody plants with tiny flowers or catkins			9	32	none in this book		37
Flowering trees and shrubs							
PETALS	SYMMETRY	OVARY					
free	radial	superior	5	6	none in this book		34, 36
		part. superior	3	20			34, 36
		inferior	5	17			34, 36
	bilateral or irregular	superior	1	4			36
		inferior	1	1			34
fused	radial	superior	2	4	34, 36		
		inferior	4	13	34, 36		
	bilateral or irregular	superior	1	1	34		
		inferior	1	1	36		
AQUATIC PLANTS			8	14	3	12	28
PLANTS LACKING CHLOROPHYLL			2	4	none in this book		27
HERBACEOUS FLOWERING PLANTS							
Lacking or seemingly lacking petals and sepals			9	38	6	113	62
Tiny, inconspicuous flowers			12	29	none in this book		62
Dense flowerheads of small flowers			2	80	none in this book		52
Conspicuous flowers							
PETALS	SYMMETRY	OVARY					
free	radial	superior	13	100	3	17	54
		part. superior	3	20	none in this book		56
		inferior	5	33	none in this book		57
	bilateral or irregular	superior	5	45	none in this book		61
		inferior	2	5	1	15	61
fused	radial	superior	10	51	1	4	58
		inferior	4	15	2	2	58
	bilateral or irregular	superior	7	66	none in this book		60
		inferior	1	5	1	3	60

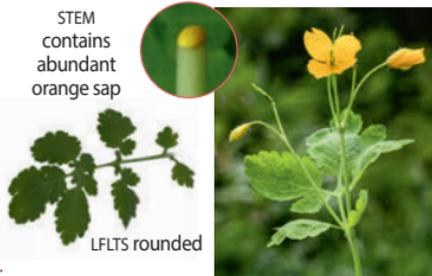
© Copyright, Princeton University Press. No part of this book may be distributed, posted, or reproduced in any form by digital or mechanical means without prior written permission of the publisher. These follow a consistent format, with text, labels and annotations boxes as follows:

**P** English name *Scientific name* **X** **WT**



**H** to 90 cm. **Form** branched; spreading. **Fls** D 15–25 mm in spreading, stalked, loose clusters of up to 6. **Fr** bottle-shaped. **Hab** hedgerows. **SS** Yellow-juiced Poppy *P. lecoqii* (N/I) [STEM SAP yellow].

NB not related to, or even similar to, Lesser Celandine (buttercup family – p. 72).



## FAMILY AND SPECIES NUMBERS

**n** The order in which families are presented is not taxonomic and each family is assigned a number to help in locating them.

**n spp.** | **n spp.** B&I The number of species with accounts in this book and the number of species included in the printed *BSBI Atlas*.

## ACCOUNT TEXTS

**English name** and *Scientific name* – English names are those in popular usage in the context of Britain and Ireland and follow those used by the Botanical Society of the British Isles (BSBI) with a few variations; scientific names and taxonomy are those used by BSBI.

**EASE OF IDENTIFICATION** and **PLANT LIFESTYLE** – a coloured lozenge preceding the name indicates **identification difficulty**:

● = easy; ● = care needed; ● = difficult. Within each lozenge is a code for **plant lifestyle**: **A** = annual; **B** = biennial; **P** = perennial.

**SIZE** – is given for plant height (**H**), and for flowers (**Fls**) where D = diameter and L = length. Measurement units are broadly as follows: 1–10 cm in mm; 10–200 cm in cm; >200 cm in m. For some species where flower measurements are important for identification scale bars are given showing the minimum (—) and maximum (—) dimensions.

**IDENTIFICATION DETAILS (species account)** summarizes those features necessary for confident identification. Subheadings within this section cover the information relevant to each species as follows:

**Form** general details of the whole plant, including structure, growth habitat and vegetative spread. Relevant details, such as colour, shape and size is given for the following:

**Fl, Fls** [FLOWERS]

**Inf** [INFLORESCENCE]; **Spklt** [SPIKELET].

**Lf, Lvs** [LEAVES]; **Lflts** [LEAFLETS]

**Fr** [FRUIT]; **Utr** [UTRICLE]

**Hab** [HABITAT] briefly describes in which habitat(s) the plant can be found.

**SS** [SIMILAR SPECIES] – lists species that may present identification confusion together with a concise list of differences. Species not illustrated are designated (N/I).

Other relevant subheadings are used for particular groups (e.g. **Stem**, **Spathe**). These are explained where required. Within these paragraphs any other terms used (e.g. FL-STALK, ANTHERS) are either written in full or follow the abbreviations as used in the species accounts.

## IMAGE ANNOTATIONS

These highlight key identification features using the same abbreviations as found in the species account; caveats and information relating to other species are in **purple text**.

## ICONS

are used for information as follows:

**X** **poisonous plant** (see p. 9); **AQ** aquatic plant;

**C** herbaceous climber; **WC** woody climber;

**WS** woody shrub; **WT** woody tree;

♂ male; ♀ female

## COMPARISON SPREADS and TABLES

Comparison image spreads and tables giving key identification features for similar species are provided where useful. Look at these in conjunction with the individual species accounts, as these often add important information that cannot be covered entirely on the species pages.

## DISTRIBUTION MAPS and PHENOLOGY

The maps and phenology are based on data from the *BSBI Plant Atlas 2020*.

Phenology charts show at which time of year a plant can typically be found:

■ in leaf; ■ in flower; ■ in fruit.

## PHOTOGRAPHS

Key features of a plant are shown as cutouts or magnified insets. These are accompanied by images of the plant in the wild in most cases.

# Flower characteristics of families in this book

	PET					SYM					OV							
	Se	Fu	R	Bi	S	I	Se	Fu	R	Bi	S	I	Se	Fu	R	Bi	S	I
1 Water-lily Nymphaeaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2 Hornwort Ceratophyllaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3 Poppy + Fumitory Papaveraceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4 Barberry Berberidaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
5 Buttercup Ranunculaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
6 Box Buxaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
7 Currant Grossulariaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
8 Saxifrage Saxifragaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9 Stonecrop Crassulaceae	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
10 Water-milfoil Haloragaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11 Pea Fabaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
12 Milkwort Polygalaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13 Rose Rosaceae	●	●	●	●	●	○	●	●	●	●	●	○	●	●	●	●	●	○
14 Sea-buckthorn Elaeagnaceae	sepal	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
15 Buckthorn Rhamnaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
16 Hop Cannabaceae	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
17 Elm Ulmaceae	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
18 Nettle Urticaceae	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
19 Beech + Oak Fagaceae	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
20 Bog-myrtle Myricaceae	absent	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
21 Walnut Juglandaceae	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
22 Birch Betulaceae	tiny / 0	●	●	●	●	●	●	●	●	●	●	●	absent	N/A	●	●	N/A	●
23 Willow + Poplar Salicaceae	tiny	N/A	●	●	●	N/A	●	●	●	●	●	●	●	●	●	●	●	●
24 White Bryony [Gourd] Cucurbitaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
25 Wood-sorrel Oxalidaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
26 Spindle Celastraceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
27 Flax Linaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
28 Spurge Euphorbiaceae	absent	N/A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
29 Violet Violaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
30 St John's-wort Hypericaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
31 Crane's-bill + Stork's-bill Geraniaceae	●	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●
32 Purple-loosestrife Lythraceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
33 Willowherb Onagraceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
34 Maple + Horse-chestnut Sapindaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
35 Mallow + Lime Malvaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
36 Rock-rose Cistaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
37 Mignonette Resedaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
38 Mistletoe Santalaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
39 Cabbage Brassicaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
40 Thrift + Sea-lavender Plumbaginaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
41 Dock + Knotweed Polygonaceae	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
42 Balsam Balsaminaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
43 Sundew Droseraceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
44 Campion [Pink] Caryophyllaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
45 Goosefoot + Orache Amaranthaceae	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
46 Blinks Montiaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
47 Dogwood Cornaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
48 Primrose Primulaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
49 Heather Ericaceae	○	●	●	●	●	○	●	●	●	●	●	●	●	●	●	●	●	●
50 Bedstraw Rubiaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
51 Bindweed + Dodder Convolvulaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
52 Periwinkle Apocynaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
53 Speedwell + Toadflax Veronicaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
54 Holly Aquifoliaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
55 Borage + Forget-me-not Boraginaceae	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●
56 Plantain Plantaginaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
57 Nightshade Solanaceae	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●
58 Ash Oleaceae <i>[petals absent in some]</i>	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
59 Figwort + Mullein Scrophulariaceae	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●
60 Mare's-tail Hippuridaceae	tiny	N/A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
61 Dead-nettle + Mint Lamiaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
62 Gentian + Centaury Gentianaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
63 Monkeyflower Phrymaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
64 Broomrape + Eyebright Orobanchaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
65 Bladderwort + Butterwort Lentibulariaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
66 Moschatel Adoxaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
67 Daisy, Thistle + Cudweed Asteraceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
68 Viburnum Viburnaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
69 Elder Sambucaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
70 Honeysuckle Caprifoliaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
71 Valerian Valerianaceae	●	●	●	●	●	●	●	●	●	●	○	●	●	●	●	●	●	●
72 Teasel + Scabious Dipsacaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
73 Ivy Araliaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
74 Pennywort Hydrocotylaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
75 Carrot Apiaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
76 Water-starwort Callitricaceae	absent	N/A	●	●	●	N/A	●	●	●	●	●	●	absent	N/A	●	●	N/A	●
77 Bellflower Campanulaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
78 Bogbean Menyanthaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
79 Lords-and-Ladies + Duckweed Araceae	absent	N/A	●	●	●	N/A	●	●	●	●	●	●	absent	N/A	●	●	N/A	●
80 Water-plantain Alismataceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
81 Frogbit Hydrocharitaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
82 Arrowgrass Juncaginaceae	—	—	●	●	●	●	●	●	●	●	●	●	—	—	●	●	●	●
83 Pondweed Potamogetonaceae	—	—	●	●	●	●	●	●	●	●	●	●	—	—	●	●	●	●
84 Bog Asphodel Nartheciaceae	sepal	●	●	●	●	●	●	●	●	●	●	●	sepal	●	●	●	●	●
85 Black Bryony Dioscoreaceae	—	—	●	●	●	●	●	●	●	●	●	●	—	—	●	●	●	●
86 Orchid Orchidaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
87 Iris Iridaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
88 Daffodil + Onion Amaryllidaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
89 Bluebell [Asparagus] Asparagaceae	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
90 Reedmace [Bulrush] Typhaceae	scales	N/A	●	●	●	●	●	●	●	●	●	●	scales	N/A	●	●		

**1 Nymphaeaceae | Water-lily family** 2 spp. | 3 spp. B&L

**Form** rooted aquatic. **Fls** many-petalled; at or above water surface. **Lvs** large, rounded, floating surface-leaves.

**IDENTIFY BY:** ▶ flower colour and general form  
▶ leaf, stem and fruit details

**P White Water-lily** *Nymphaea alba* **AQ**



**Fls** D 10–20 cm; on water surface; **PET** 20+, **white**. **Lvs** all floating; almost round; D to 30 cm; veins **radiating from leaf/stalk join**, forming a net at the leaf-margin. **Fr** rounded. **Hab** still or very slow-moving fresh waters.

LF veins radiate from leaf/stalk join



**P Yellow Water-lily** *Nuphar lutea* **AQ**



**Fls** D to 3–4 cm; raised above water surface; **SEP** 5, **yellow**; **PET** many, smaller than sepals. **Lvs** L to 30 cm; **veins in herringbone pattern**; **SURFACE** broadly oval, L>W; **SUBMERGED** more flaccid. **Fr** bottle-shaped. **Hab** still or flowing fresh waters. **SS** **Least Water-lily** *N. pumila* (N/I) [FL + LVS smaller; mainly upland]; **Fringed Water-lily** *Nymphoides peltata* (N/I) [PET fringed, LVS round].

LF herringbone vein-pattern



**DICOTS** (see p.4)

**2 Ceratophyllaceae | Hornwort family** 2 spp. | 2 spp. B&L

**Form** wholly submerged; not rooted, aquatic; **STEMS** L to 1 m. **Lvs** forked; in whorls. **Fls** tiny; greenish; underwater; solitary leaf-axils; ♂ and ♀ at different nodes.

**IDENTIFY BY:** ▶ leaf forking ▶ leaf rigidity out of water

**SS** **Water-milfoils** (p.80); and **Water-violet** *Hottonia palustris* (N/I) [both have narrowly segmented, whorled leaves pinnately arranged and flowers above the water surface].

**P Rigid Hornwort** *Ceratophyllum demersum* **AQ**



**Lvs** dark green, **forked 1 or 2x only**; rather stiff – do not wholly collapse into a mush when out of water. **Hab** fresh to mildly brackish, still or very slow-moving waters.

**P Soft Hornwort** *Ceratophyllum submersum* **AQ**



**Lvs** brighter green than Rigid Hornwort, **forked 3x**; more flimsy – collapsing into a mush when out of water. **Hab** predominantly coastal, more characteristic of brackish waters than Rigid Hornwort.



LVS forked 1–2x

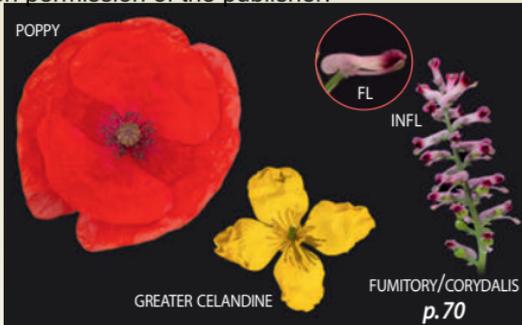


LVS forked 3x

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Divided into two main, very different-looking groups (subfamilies) that have often been treated as separate families.

- **Poppy subfamily** [13 spp. B&I]  
**Fls** PETALS 4; SYMMETRY radial.
- **Fumitory subfamily** [15 spp. B&I]  
**Fls** PETALS 4; SYMMETRY bilateral.



● **Poppies and Greater Celandine** | **Form** upright to bushy. **Fls** conspicuous; brightly coloured; obviously 4-petaled; **SEPALs** fall prior to flowering. **Fr** prominent capsule.

**IDENTIFY BY:** ► flower colour and general form ► leaf, stem and fruit details

**Key to Poppies and Greater Celandine**

Flower colour and form	Other features	Fruit <i>see opposite</i>	Species
<b>Yellow</b>	small; D 15–25 mm	SAP milky orange	long; pitted <b>Greater Celandine</b>
	D 50–75 mm		narrowly oval <b>Welsh Poppy</b>
<b>Pale purple [white to red]</b>	D 100–180 mm; much larger than other poppy flowers	STEM sparse bristles at most	rounded; hairless; much larger than that of Common <b>Opium Poppy</b>
<b>Red</b>	bright scarlet, with or without a dark base to the petals; usually larger than other red-flowered poppies	STEM with spreading hairs	rounded; flat-topped; hairless <b>Common Poppy</b>
	smaller and paler than Common Poppy; a few with a dark base to the petals	STEM with appressed hairs	long and narrow; hairless <b>Long-headed Poppy</b>

**P Greater Celandine** *Chelidonium majus*



**H** to 90 cm. **Form** branched; spreading. **Fls** D 15–25 mm in spreading, stalked, loose clusters of up to 6. **Hab** hedgebanks, brownfield; often near buildings.

**NOTE:** not related to, or even similar to, Lesser Celandine (buttercup family – p.72).

STEM contains abundant



**P Welsh Poppy** *Papaver cambricum*



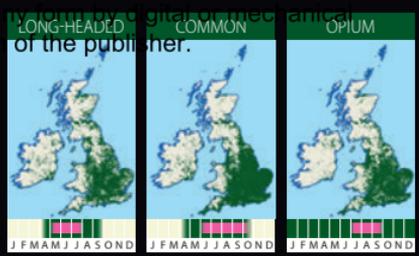
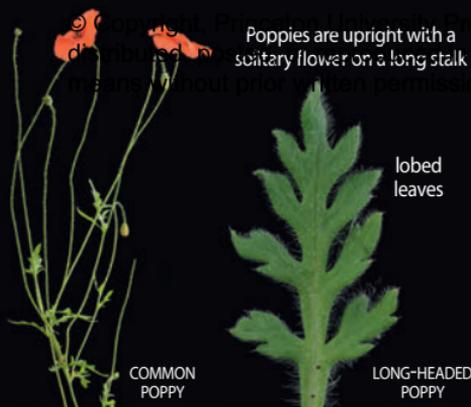
**H** to 60 cm. **Form** erect, loosely tufted. **Fls** D 50–75 mm; solitary, on long stalks. **Hab** shady places: woods, rocky hillsides, streamsides, walls and roadsides. **SS Yellow Horned-poppy** *Glaucium flavum* (N/I) [FRUIT very long (L 15–30 cm); coastal only].



FLS can be orange



WELSH POPPY



**Lvs** Common and Long-headed Poppies: greyish-green; lobed (lobes slightly broader in Common Poppy). Opium Poppy: less lobed; grey.

**SS** All red poppies have similarities and some care can be needed to differentiate.

**A Long-headed Poppy**

*Papaver dubium*  
**H** to 60 cm. **Form** erect; **SAP** white. **Fls** D 30–70 mm; **ANTHERS** violet. **Hab** waste ground, cultivated fields, especially on sandy soils. **SS** Yellow-juiced Poppy *P. lecoqii* (n/i) [SAP yellow].



STEM with appressed hairs



FL paler than those of Common Poppy

**A Common Poppy**

*Papaver rhoeas*  
**H** to 70 cm. **Form** erect; usually branched. **Fls** D 50–100 mm; **ANTHERS** bluish. **Hab** brownfield, cultivated fields. **SS** two rare red poppies *Roemeria* spp. (n/i) [CAPSULE bristly/prickly].



STEM with spreading hairs



FL bright scarlet to crimson; can have black base to petals (right)



**A Opium Poppy**

*Papaver somniferum*  
**H** to 100 cm. **Form** robust, erect. **Fls** D 100–180 mm. **Hab** brownfield. **SS** Oriental Poppy *P. setiferum* (n/i) [conspicuously hairy].



STEM hairless to sparsely bristly/hairy



FL typically pale purple, but ranges white to red (right)



**Poppy fruit outlines compared**

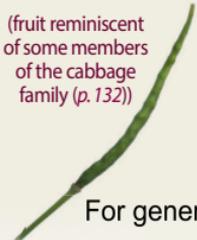
**GREATER CELANDINE**  
 long, pitted cylindrical pod; L 30–50 mm

**WELSH POPPY**  
 narrowly oval with persistent short style

**LONG-HEADED POPPY**  
 oblong (L 2–3x W) or tapering from top to bottom

**COMMON POPPY**  
 oval (L > W) with flattish top

**OPIUM POPPY**  
 rounded (L ± W), much larger than that of Common Poppy



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● **Fumitories and Corydalis**. Form weakly erect herbaceous plants of disturbed ground, or scrambling on hedgebanks and walls. **Fls** distinctive; long, thin; 2-lipped. **Lvs** pinnate; green to bluish-green.

**IDENTIFY BY:** ► inflorescence details ► lower petal shape ► flower size/colour ► sepal shape/size ► leaf details ► fruit shape

FLOWERS **wholly yellow/yellowish** | **Corydalis**

**P Yellow Corydalis**

*Pseudofumaria lutea*



LF 2-pinnate; no tendrils



**H** to 30 cm. **Form** erect to hanging. **Fls** L 12–18 mm; **yellow**; 5–10 flowers in a spike. **Hab** walls.



**A Climbing Corydalis**

*Ceratocarpus claviculata*



LF 2-pinnate; with tendrils



**H** to 75 cm. **Form** scrambling. **Fls** L 4–6 mm; **cream**; ± 6 flowers in a spike. **Hab** shady places, often on rocks, heathland.



FLOWERS **pink/pinkish with darker tip** | **Fumitories**

The two widespread species are scrambling with flat, 1–2-pinnate leaves.

**SS** All fumitories, including seven rarer species, are very similar and identification needs care.

**A Common Fumitory**

*Fumaria officinalis*

**H** to 30 cm. **Fls** L 7–9 mm; pink with dark tips; **key ID details below**. **Fr** egg-shaped; W > L; TIP truncate or slightly notched. **Hab** arable, brownfield, especially on sandy soils.

COMMON



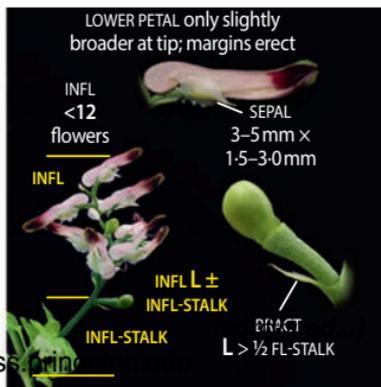
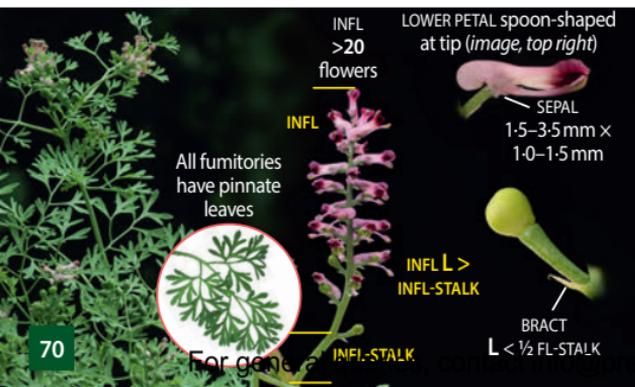
C. RAMPING



**A Common Ramping-fumitory**

*Fumaria muralis*

**H** to 70 cm. **Fls** L 8–12 mm; pink or white with dark tips; **key ID details below**. **Fr** smooth; globular to egg-shaped; L > W. **Hab** arable, brownfield, hedgebanks, walls.





# Index to species accounts

Species with brief descriptions but not illustrated are shown in light text

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