



This key is intended to be used on normal specimens, with mature and largely undamaged leaves, collected in lowland England in July-October. Leaf shapes, ratios and measurements should be based on examining a range from around the tree or bush, to make sure they are representative: on almost every twig, you will find the occasional leaf which is too long, short, wide or narrow to fit the key. Do not use leaves on suckers or pollard or coppice re-growth. This version of the key has been expanded to include a few non-native species, and to key out most forms of the commoner hybrids directly. Note that some species key out in more than one place, e.g. the two species which form large trees key on size, then key again for smaller individuals.

- 1** Large, broad-crowned tree, >10m tall, trunk more than 40cm diameter at breast height. **2**
1a Smaller in all respects (young specimens of big trees key here too). **3**
- 2** Mature leaves glossy green and hairless on both upper and lower sides. Margins of leaves with coarse, irregular teeth. Leaves usually large, 5-15 x 1.5-3cm. Twigs snap off easily at base.
Crack Willow *Salix fragilis*
- 2a** Mature leaves dull green with some silky white hairs on upper surface, and dense, long silky appressed hairs on underside. Leaves with very fine, regular teeth. Leaves usually smaller, 5-10 x 0.5-2cm. Twigs less easily detached.
White Willow *Salix alba*
If intermediate in leaf size, with a few persistent silky hairs, and intermediate size and regularity of toothing of leaf edges, consider *S. alba x fragilis* = *S. x rubens*



Salix fragilis (left) and *S. alba* (right)

- 3** Underside of leaves hairless or almost so from an early age. **4**
3a Leaves at least with some persistent hairs on underside, either densely downy (very short more or less upright hairs), or silky (longer hairs which appear stuck down to the leaf surface) - if in doubt, fold the leaf and look along the fold. **8**
- 4** Leaves mostly less than 3.5 times as long as broad. **5**
4a Leaves mostly more than 3.5 times as long as broad. **6**
[If leaves are variable 3-4 times as long as broad, try both 5 and 6]

5 [3 choices, all scarce or planted]

5a Twigs hairless, very glossy, as if varnished, yellow-brown to reddish. Leaves with small, sticky, resin-scented warty glands (often like a tiny bunch of grapes) at apex of stalk and along sides of leaf blade where it joins the stalk. Leaves smooth, glossy, dark shining green above, bright paler green beneath, tough and leathery, with regular fine pointed teeth along margins. Leaves pointed, elliptical, 5-12 x 2-5cm, remaining green when damaged or dried. Stipules tiny, falling off early in summer, buds small and yellowish. Broad-crowned tree, often 7m, sometimes to 17m.

Bay Willow *Salix pentandra*

5b Twigs hairless, dark reddish-brown, fairly glossy, when young coated with white or pale grey waxy bloom (often persists below the buds). Leaves without resinous warty glands, smooth, dark shining green above, pale blue-green below. Leaves pointed-elliptical, mostly 7-12cm x 2-3cm, remaining green when damaged or dried, with regular glandular teeth along the margins. Stipules often long and narrow, up to 12 x 5mm, usually closely attached to the sides of the large, flattened, pointed, dark crimson buds. A large shrub or small tree 6-12m high.

European Violet-willow *Salix daphnoides*

5c Twigs dull brown or greenish, at first densely downy, and not losing the last traces of down till over a year old. Leaves without glands. Leaves, with more prominent veins, dull dark green above, pale grey- or blue-green below. Leaves smaller and more rounded, 2-6.5 x 1-3.5cm, rather thin and papery, turning black when damaged or dried. Leaves broad oval with wavy or crenate-toothed margins. Stipules large, broad and persistent, not attaching to buds; buds small, greenish or pink-tipped. An open or sprawling bush to 3-4m.

Dark-leaved Willow *Salix myrsinifolia*



***Salix pentandra* (left), *S. daphnoides* (middle), *S. myrsinifolia* (right)**

6 Leaves with straight sides in lower three-quarters, and tapered rather abruptly in apical fifth, 2-8 x 0.5-3cm. Some leaves in opposite pairs along the twigs. Mature leaves dull or silk-finish dark green above, pale bluish green below (eucalyptus coloration), young leaves at tips of branches often orange- or copper-tinged. Leaves turning black when damaged or dried. Bark of twigs brilliant yellow inside.

Purple Willow *Salix purpurea*

6a Leaves almost evenly convex at sides, and more gradually tapering in apical half. All leaves arranged alternately along twigs. Inside of bark pale or dark greenish, not bright. **7**

If leaves like Purple Willow or slightly broader, but leaves seen from above with deep net-like veins, and below, either totally hairless and pale blue-green, or with downy hairs along the veins, consider *Salix cinerea x purpurea* = *S. x pontederiana*, formerly *S. x sordida*



***Salix purpurea* (leaves and catkins)**

- 7** Grows into a large tree, up to 15m or more, with a thick trunk and rough, fissured bark. Stipules small and fall off early in summer. Leaves often very gradually tapering to a long, slender point. Catkins all in Spring, not later. Twigs snap off easily at base, and merely have a 'greenish' smell.

Crack Willow *Salix fragilis*

- 7a** Never more than 10m, and common form (var. *hoffmaniana*) rarely exceeds 4m. Bark not deeply fissured, flaking off (like London Plane) to reveal reddish-brown patches. Stipules large and often persisting through summer. Leaves mostly gently tapering to an acute point, but not prolonged. Tends to produce a few catkins throughout summer. Twigs hard to snap off. Twigs smell/taste of rose-water when crushed or chewed.

Almond Willow *Salix triandra*



***Salix triandra*, leaves and peeling bark - for *S. fragilis* see couplet 2**

8 Creeping and suckering low shrub, seldom over 1m tall, forming thickets. No branches more than 1cm thick. Leaves 1-3.5cm x 0.4-2.5cm, the margins rolled down, and without, or with a few obscure and uneven, teeth. Leafstalk less than 4mm long, stipules absent or small (less than 3mm long). Leaves blackening when dried. Very variable in leaf hairiness, from thinly silky to thickly silvery-white (var. *argentea*, the latter mainly on sand dunes). Scarce, found in fens, wet heaths and wetter parts of sand dunes. **Creeping Willow *Salix repens***

8a Shrub or small tree with upright trunks, usually several cm thick. Leaves often larger, with more regular rounded teeth or wavy edges. Leafstalk 5-30mm, stipules variable but often larger. Leaves remaining green when dried. Common in many habitats. **9**



***Salix repens*, normal form (left) and var. *argentea* (right)**

9 Most leaves at least 5 times as long as broad, with downy hairs or with long silky hairs. **10**

9a Leaves not more than 4 times as long as broad, with downy hairs. **13**

10 Grows into tall tree up to 30m, with large trunks and fissured bark. Leaves 5-10 x 0.5-1.5cm, seldom more than 10 times as long as broad. Leaf surface smooth and flat, veins hardly noticeable. Upper and lower surfaces with long silky white hairs, stuck down against leaf surface. Edges of leaves finely and evenly serrated. Illustration: couplet 2. **White Willow *Salix alba***

If as above, but with larger leaves, with rather sparse silky hairs, and more coarse-toothed leaf margins, consider ***S. alba x fragilis* (= *S. x rubens*)**

10a At most a tall shrub, up to 6m. Leaf surface wrinkled, the veins more deeply marked. Upper surface dull dark green, sometimes with a few hairs sticking up from surface. Underside of leaves with dense white downy or felted hairs (fold the leaf over, underside upwards, and the hairs stick out at right-angles from the fold). Edges of leaves slightly wavy or obscurely toothed, sometimes with the edges rolled down. **11**

11 Leaves very long and narrow, 10-15 x 0.5-1.5cm, generally (8-)10-20 times as long as wide, tapering gradually at tip and at base. Leaf surface wrinkled, the veins more deeply marked. Upper surface dull dark green, with a few hairs, underside densely felty-downy white with very short hairs. Edges of leaves slightly wavy, usually with the edges rolled down. Tall shrub, up to 6m, with long, straight, slender flexible twigs. **Osier *Salix viminalis***

Leaves broader, mostly 6-12cm x 1.3-3cm, generally 3-8 times as long as wide, more abruptly tapering to an acute tip. Veins prominent, often net-like. Underside sometimes thickly and softly downy or velvety. Variable shrubs, sometimes with long flexible branches, sometimes more branched and twiggy. **[Hybrids of Osier *Salix viminalis*] 12**



Salix viminalis (above)

12 Three choices: these are osier-willow hybrids. One parent is Osier, *Salix viminalis*, and the aim of this part of the key is to recognise the other parent(s), which are likely to be one or both of Grey Willow and Goat Willow. Hybrids involving Eared Willow also occur, but are rare in lowland England. As a group they are distinctive in having leaves too narrow and pointed for pure willows, and too broad for pure Osier. The upper surface of the leaves is the wrinkly dark green of a willow. They occur naturally, especially on disturbed sites such as scrubbed-over gravel workings. Some are grown for basket-making or as biomass crops.

12a No raised lines under bark of twigs. Leaves usually thickly and softly downy on underside. Leaves often large 6-13 x 1.3-3cm. Veins prominently net-like. Leaves often rounded at base. Leafstalk 10-15mm. Stipules usually small, narrowly ear-shaped, and falling early. Twigs pale reddish or yellowish, at first with dense white down, but this quickly lost. Either male or female, fertile. Tall shrub, up to 6m, with long, straight, slender flexible twigs.

Broad-leaved Osier *Salix caprea x viminalis* = *S. x smithiana*, formerly *S. x sericans*

12b Raised lines under bark of twigs. Leaves thickly downy, usually with long and persistent down, on underside. Leaves 10 (-15) x 3 (-5) cm, with a rounded or broadly-tapering base. Leafstalk 10-15mm. Stipules usually large, 6-15 x 5-7mm, conspicuous and persistent. Twigs dull grey-brown, with dense grey down which persists into the second year. Always female, never forming healthy capsules or setting viable seed. Large shrub or small tree, up to 10m, usually with some of main branches fallen, or bent with cracked bark. Sometimes forming large stands, as each branch falls and roots and spreads.

Holme Willow *Salix x calodendron* (probably *S. caprea x cinerea x viminalis*)

12c Raised lines under bark of twigs. Leaves thinly downy on underside, often rather rough to touch. Leaves 6-11 x 0.8-2.5cm, often rather small, gradually tapering to an acute angle at base. Leafstalk 5-13mm. Stipules usually large, semicircular or ear-shaped, tapering to a narrow point, conspicuous and persistent, sometimes with additional small leafy appendages at their bases. Twigs usually reddish brown, densely downy for their first year, usually losing the fur in their first winter. Either male or female, fertile. Tall shrub, to 6m, with long, straight, slender flexible twigs.

Silky-leaved Osier *S. cinerea x viminalis* = *S. x holosericea* formerly *S. x smithiana*



Salix caprea x viminalis (top left)

S. caprea x cinerea x viminalis (above)

S. cinerea x viminalis (left)

13 Upper surface of leaves dull grey-green and wrinkled, with deepset veins. Apices of leaves usually twisted. Branches usually diverge at about a right angle. Bush usually less than 2.5m tall. Leaves usually rather small, up to 5cm long. Always with strong raised lines under bark of twigs, and twigs very slender.

Eared Willow *Salix aurita*

13a Upper surface of leaves fairly smooth and usually somewhat shining. Apices of leaves twisted or flat. Branches usually less diverging. Bush and leaves often larger. With or without raised lines under bark, twigs more stout.



Salix aurita (above)

14 Twigs without raised ridges on wood under stripped bark, rather thick and knobbly. Leaves broad and large, 5-12cm x 2.5-8cm, densely and softly white-downy beneath, with wavy margins.

Goat Willow *Salix caprea*

14a Twigs with raised ridges on wood under stripped bark, usually starting at leaf scars and running along twigs, which are more slender. Leaves less densely and not so softly hairy on underside, often with a scatter of rust-coloured hairs, especially along veins.

[Grey Willow *Salix cinerea* and hybrids]

15



***Salix caprea* (above)**

15 Leaves evenly elliptical, tapering to an acute point, often more than 3 times as long as broad, sometimes with margins slightly down rolled. For illustrations, see couplet 12.

[Hybrids of Grey Willow *Salix cinerea* and Osier *Salix viminalis*]

12

15a Leaves oval or obovate (broader toward the apex than the base), usually with a rather blunt tip, seldom more than 3 times as long as broad, margins not down-rolled.

Grey Willow *Salix cinerea*

16

16 Underside of leaves with a scatter of orange hairs, giving a rusty appearance to the naked eye, especially on the veins of older leaves. Upper surface of leaves usually a slightly shiny dark green. Twigs almost smooth and lacking hairs. Wood of twigs, when bark is stripped, usually only faintly and intermittently ridged. Leaves usually quite narrow, broadest in upper half, with smooth edges. Up to 10 or even 15m tall.

Rusty Willow *Salix cinerea* ssp. *oleifolia*

16a Underside of leaves densely grey-downy (less soft than Goat Willow), with no rusty hairs. Upper surface of leaves dull grey-green. Twigs usually with short downy hairs, the wood (after bark is stripped) strongly ridged throughout. Leaves often broadly oval and with rather wavy edges. 4-6m tall.

Grey Willow *Salix cinerea* ssp. *cinerea*



***Salix cinerea* subsp. *oleifolia* (left), *S. cinerea* subsp. *cinerea* (right)**