

Visual Key to the Willows of Norfolk

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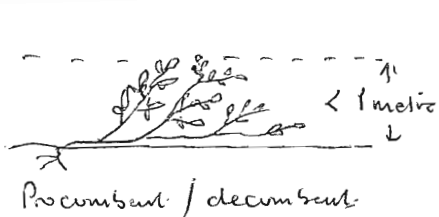
Aug. 2016

(1)

This key is based on the Stace key, but simplified and with the addition of illustrations & spotting characters. The subkeys in Stace are a very good way of thinking systematically when looking at willows in the field, as they are based on only 3 features: (i) Height; (ii) leaf serration, or absence of it, & whether fine or coarse; (iii) how narrow or broad the leaf (lb ratio over or under 3). Having reached a provisional identification then check the leaf shape against the Stace illustrations, & ideally with the detailed descriptions & illustrations in Meikle (1984) - Always take two samples if confirmation required

Shrubs < 80 (100) cm high (Mostly northern arctic/alpines)

Salix repens var. repens (on heathland & acid dunes)



Undersurface white, densely pubescent or sericeous (silky) *
Upper surface usually subserrate

* Leaves small elliptic to elliptic-oblongate.

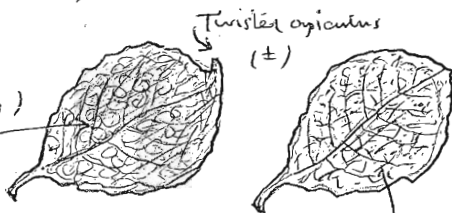
Salix aurita

Heathland & acid mires (mainly W. Norfolk)

A much branched shrub (twiggly branches)



Upper surface v. rugose dull dark green.



Undersurface ashy grey & pubescent below



Striae (prominent) often more so than in emera.

* Stipules persistent ear shaped large

prominent venation (ie like Caprea & emera)

* Leaves broader than S. cinerea some near orbicular, more prominent stipules (& striae usually)

Shrubs 1-1.5 (2) metres high

Salix repens var. fusca (fens)

Salix repens var. argentea (dunes)

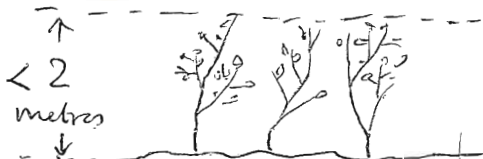


Large blunt broadly elliptic-oblong leaves

White ssp argentea (dunes)

Undersurface white, densely pubescent or sericeous (silky) *

Fusca leaves much like var. repens (above)



Both vars. erect to ascending

+ Salix aurita

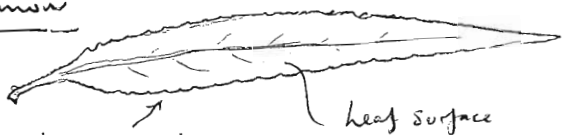
See above

Shrubs or trees > 2 metres high, leaves closely and finely serrate

Branchlets pendant ("Weeping willows")

Infrequent

Common



* Leaf edge finely & regularly serrate

leaf surface pubescent only on

S. x sepulchralis
(alba x babylonica)

Leaves very narrow *



Leaf edge irregularly serrate

leaf surface ± glabrous from start.

Leaves a little wider *

S. x pendulina
(babylonica x fragilis)

(Babylonica) now rare or extinct in BI

Branchlets not pendant

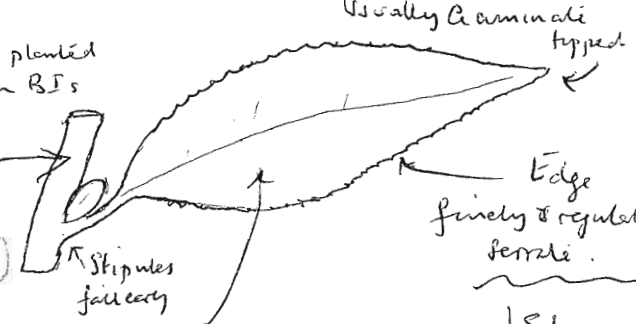
Salix pentandra

Probably planted in South BI's

* Twigs shiny brown or reddish ("varnish")

* Leaves broadly elliptic

lanceolate to ovate, shiny dark green, coriaceous, glabrous | Stamens 4-5 |



Usually acuminate tipped

Edge finely & regularly serrate

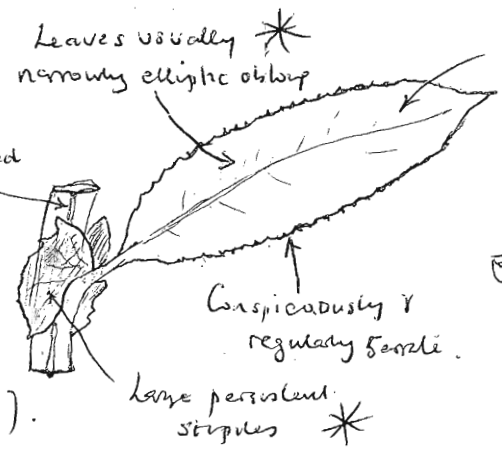
Smaller leaves cuspidate tip

Stipules fall early

Salix triandra

Many varieties with different leaf shapes

In our area leaves usually quite parallel sided, narrowly elliptic-obovate (var hofmanniana)

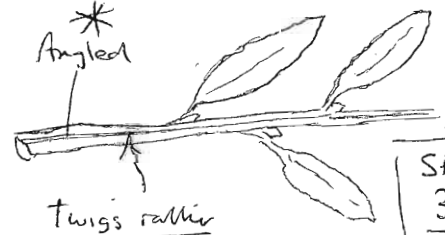


Angled

Leaves usually narrowly elliptic-obovate *

Conspicuously & regularly serrate. Large persistent stipules *

Dark dull green above, paler green - glaucous below



Twigs rather shiny olive brown, & quite conspicuously angled & ridged *

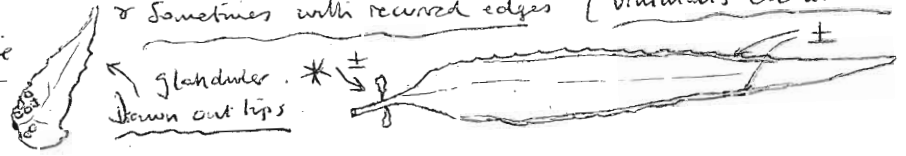
Stamens 3-4

In other areas var with more broadly lanceolate, acuminate leaves (see Marice) *
Stems ascending, narrow (< 10 cms) with peeling bark (-> orange patches) *

Salix x mollissima
(triandra x viminalis)

* Can be mistaken for Salix fragilis but not a true tree
* Stipules persistent

Resembles triandra in narrow, sloping, stems with peeling bark, & with persistent stipules & branches ± angled buds, but leaves much longer & narrower, more shiny above & sometimes with recurved edges (viminalis character) *



glandular downy out tips

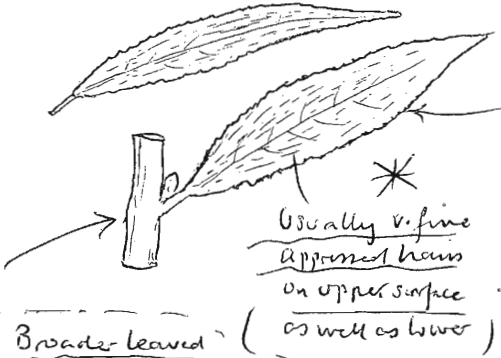
often angles at base

Shrubs or trees > 2 metres high, leaves closely & finely serrate | - cont

Salix alba

Var vibellina:
* bright yellow / orange twigs

Var caerulea
(leaves usually longer)



Usually v. fine appressed hairs on upper surface (as well as lower)
Broader leaved
glabrous above

* Edge serration very fine.
Leaves quite short compared with S. fragilis (5-10 cm), greyish & dull, not shiny rich green.
Except in cultivars vibellina (golden willow) & caerulea (cricket ball willow) should have hairs on upper surface, even after midsummer (excludes x rubens)
* cv caerulea a v. upgirt tree-rolls in plantations.

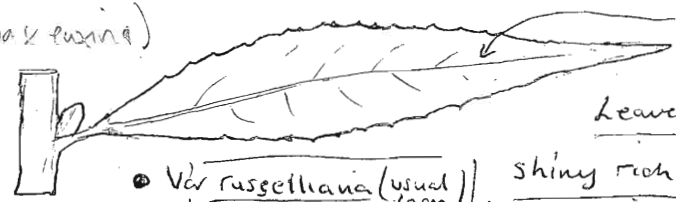
Salix fragilis

(= alba x eurina)



Four forms

Var furcata



Var russetiana (usual form) & var fragilis (? native)

Upper surface glabrous *
Leaves longer than in alba, shiny rich green above, greyer below, with irregular & coarsely serrate edges in most forms.

♂ only
The "proper" crack willow

Var eurina (S. frag var deceptens)
S. eurina never been found in UK

glabrous from start; leaves broader, pale yellowish brown shiny twigs

Salix x rubens

(Salix fragilis x alba)

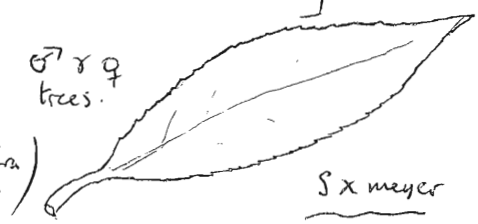
Recognised usually by twig colour of some cultivars * - dark red in var sanguinea, and shiny orange yellow in var baicaliana.

Forms without conspicuously coloured twigs may be spotted because of intermedicity in leaf size, shininess of upper surface, and leaf serration. Trees with "intermediate" leaves should be checked for upper leaf surface hairs ~ usually indicate pure alba * (though absent in alba var vibellina & caerulea)

Salix x meyeriana

(fragilis x pentandra)

♂ & ♀ trees



S. x meyer



S. pentandra

* Most likely to be overlooked as a broad leaved or narrow leaved form of S. fragilis, but has broader leaves and the glossy brown twigs, shiny dark green leaf upper surface, & fine regular serration of S. pentandra.

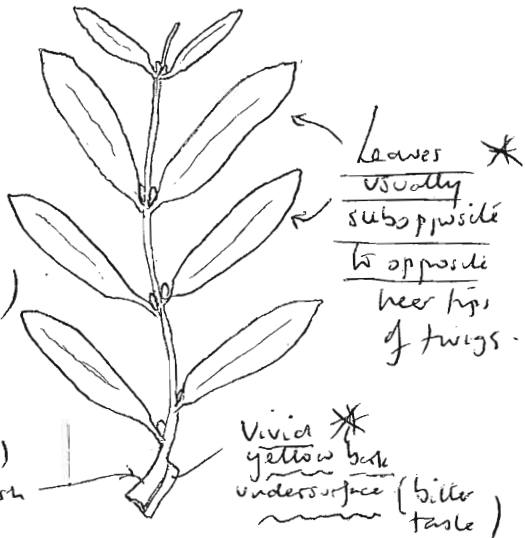
Var ehrhartiana (S. alba x pentandra) Similar but narrower leaved, and some hairs early on (♂ only)

Trees or shrubs > 2 metres high, leaves entire edged, obscurely crenate serrate, or coarsely & irregularly serrate, broad (< 3 x as long as wide) :-

Salix purpurea

Like *S. bryandra*
 very varied cultivars
 from basket making -
 more in our area (see Meikle)

- * large long leaved vars especially difficult (suggesting hybrids with *viminialis*) (e.g. var. *lambertiana*)
- Twigs v slender yellowish grey, very red-purple



Usually forming very compact, tall, many branched shrub, with numerous fine branchlets.

Leaves pale (± glaucous) green above shiny, glaucous, paler glaucous below

* Narrowly oblong to oblanceolate, entire edged or slightly serrate near tip.

* Leaves go black in a few days after picking (✓ on tree)

S. purpurea & *viminialis* = *x rubra* = planted = basketry

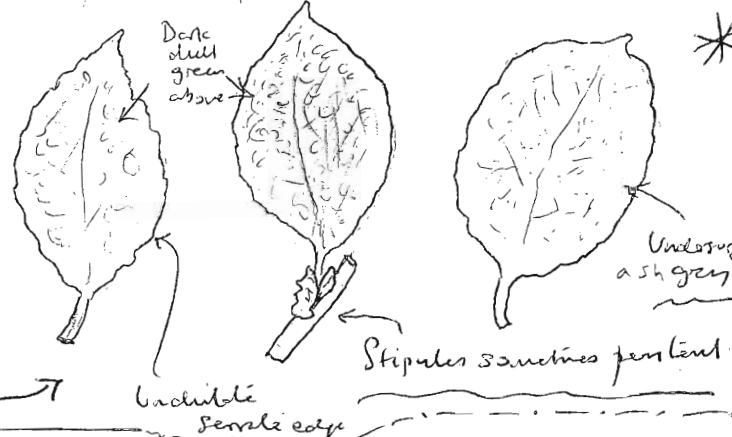
Caprea / cinerea / aurita, and their hybrids with each other, & with *viminialis*.

This group all have a "grey sallow" look, with ^{± dull} rugose, dark green upper surface, an undulate ± serrate leaf edge, & prominent venation beneath combined with ashy grey hairs. Hybrids of *Cap/cin/aur* differ mainly in leaf shape & striae prominence; those involving *viminialis* have less prominent rugosity above & ^{less} prominent venation below, together with a more elongate, parallel sided shape & gradually attenuated, subacute leaf tip. The striae on the wood are particularly important in separating the *Caprae/cinerea/viminialis* hybrids

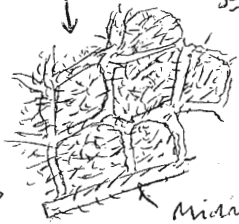
Salix caprea

no striae
 * Leaves not as variable in shape as in *cinerea*.

Leaves broadly oblong elliptic to broadly obovate



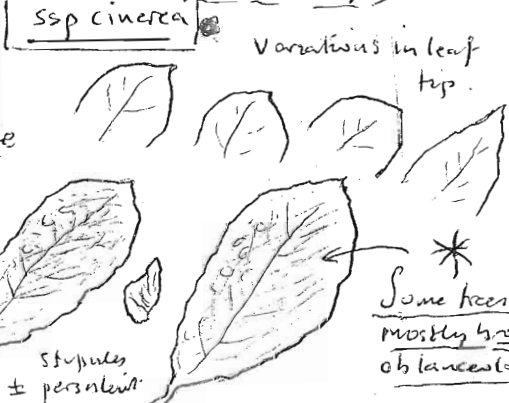
* Undersurface very densely grey pubescent



Salix cinerea

striae present
 * Leaves very variable in shape on same plant.

* Classic fairly narrowly ob-lanceolate shape



Some trees have mostly broadly oblanceolate lvs

Ssp oleifolia

Main form cultivated in Anglia
 * Narrower leaves
 * More sparse grey pubescence on undersurface
 * Often a tree
 * Sometimes narrowly oblong
 * Dark, more shiny upper surface
 * Mostly rusty/hooded



Trees or shrubs > 2 metres high, leaves entire edged, obscurely crenate-serrate or wave & irregularly serrate, broad (< 3x as long as wide). (cont)

S. x reichardtii
(caprea x cinerea)

This is a hybrid with, in our region, the parents S. cin ssp cin and S. caprea and is mostly missed & taken as cap. or a broad leaved cinerea (said to be common but seldom recorded). Usually

* shows unusual variety of leaf shapes on the same tree, some like caprea, some more like cinerea, & intermediate. May show a few weak striae on the wood (weaker than cin.)

S. x multinervis
(aurita x cin)



* up to 2.5 m.



S. aurita
* Twiggy bush.



* up to 5 m

* S. x multinervis
* Multi-stemmed decumbent bush (like cinerea)
* Cinerea up to 10 metres

Most like a low growing Salix cinerea but with more broadly obovate, wrinkled leaves & persistent larger stipules (often also with more prominent striae.)

Heath's or (E. Norfolk) edges of wet woodland

Trees or shrubs > 2 metres high, leaves entire edged, obscurely crenate-serrate or wave & irregularly serrate, narrow (> 3x as long as wide)

Salix purpurea
(see earlier)

~ Some forms have long narrow leaves.

Salix elaeagnos

Leaf characters very like viminalis, but bush looks very different & virtually always obviously ornamental. More compact twiggish bush, lacking long branchlets of viminalis. Dark green above, white below, with downturned edge, all like viminalis, but undersurface white tomentose not sericeous (ie not silky lustrous)

Salix viminalis

'Serrate stipules' of leaf as if viminalis



Usually ± parallel sided (strap shaped or linear) but sometimes slight bulge to leaf

Reflexed (downturned) edge

Prominent main vein

Prominent main side veins

* Undersurface indumentum of shiny, densely matted, silvery white hairs (sericeous)

Very easy to identify & main problem is its frequent hybridisation, especially with caprea & cinerea, & with taurina, giving a drawn out parallel sided element to the leaf shape in these hybrids. (x smithiana, x holosericea, x elaeagnos, x mollissima)

S. x mollissima

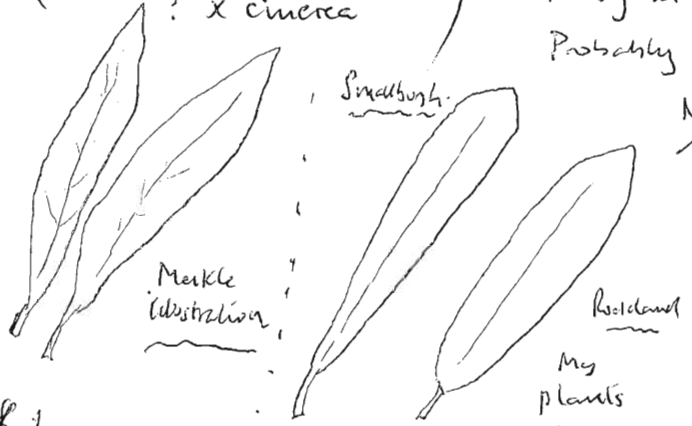
~ May have an obscurely serrate edge (see earlier)

Trees or shrubs > 2 metres high, leaves entire edged, obviously crenate-serrate or coarsely & irregularly serrate, narrow (> 3 x as long as wide) Cont:-

Salix x forsyana

(S purpurea x viminalis ? x cinerea)

An enigmatic hybrid rather like purpurea & likely to be overlooked for it, found by Revd. Joseph Forsy at Fincham (W. Norfolk) & sent to J.E. Smith. Probably a relic of cultivation for basket-making.



MB: Macle illustration does not show the leaf shape in his description; but this description fits my finds quite well - narrowly oblong lanceolate to oblanceolate. Noticeably shiny dark green upper surface, obscure serration, rather glaucous undersurface, going black on drying (purpurea element); Habit like purpurea (dense, many branched, with numerous prostrate fine shrubs)

* Leaves not opposite or subopposite (unlike pure purpurea)

Caprea / cinerea / viminalis hybrids

These 3 hybrids share a look which if one is looking for it, is easy to spot. The habit of the bush or tree is similar, & the leaves share the dull, dark-green colour of caprea & cinerea, and the ashy grey & hairy, prominent veined undersurface. However, the leaves are always more elongate & parallel sided, with a gradually attenuated acute to subacute (not blunt) tip, very constant in shape in any one plant. Separation of the 3 is often a matter of opinion.

Salix x holznerica

(cinerea x vim)
* Dull green color
* Bases of leaves narrowly cuneate



Tip shape excludes pure cin/cap
* The leaves of x holznerica are the smallest, narrowest, & most narrowly cuneate based of the 3 hybrids
long pubescent below (sparsely)

6-11 cms long.

Salix x smithiana

(caprea x viminalis)



Leaves a little larger and rather more broadly cuneate based
No strie

Leaves 6-12 cms long

Salix x calodendron

(vim x cap x cin)



Leaves usually large, some up to 15 cms long, broader & with broadly rounded bases

Leaves 6-15 cms

MB S. x calodendron can have 16 ratios > 3

MB x Smith x x cal grown as fuel

Striae prominent

Many of the willows in our region, unlike in the north, are introduced for basketwork or ornaments - even the common or frequent taxa like *S. viminalis*, *S. alba*, *S. triandra* and most forms of *S. fragilis* are not native but archeophytes. Many are unisexual in this country, or sterile hybrids, though once planted they may persist indefinitely by vegetative means. Though usually planted, most can be recorded as wild plants by the usual criteria, unless obviously a new planting in a garden. When in amenity plantations usually with other tree species, they should be recorded with a "p", & the same goes for rows of same aged trees along roadsides & grazing marsh tracks. In many cases it is important to record the exact site of any potentially interesting finds - eg. edges of fishing lakes, by the sides of Broadland car parks, or on the verges of tracks through farmland, so that Bob or Richard can decide on how to record them.

General hints When looking at willows stand back and assess the overall leaf shape over the whole tree, especially high up ~ often low branches that first attract attention have overlarge, elliptically shaped leaves. When taking material take 2 branchlet ends about 2 ft long from as high up as possible and from the biggest & highest main branch you can reach - one sample can be sent to the referee & the other pressed for reference on receiving the determination, and possibly to put into the NWK herbarium. Be suspicious of any very young saplings, branchlets from basal branches, or new growth, especially if the twigs bear very large leaves, with very large stipules, & are green in colour.

Recording season: Usually willow identification is best left until midsummer onwards (July - October) as we seldom use catkin characters and leaf characters in keys & descriptions apply mainly to mature leaves (especially as regards leaf hairiness). *Salix cinerea* ssp. *oleifolia* cannot usually be definitively confirmed until (July) August onwards, as the diagnostic rusty hairs may not have developed either on

Specific tips: When assessing a willow there are relatively few characters to look for:

Height & habit : *Salix fragilis* & *S. alba* can of course be identified usually from a distance according to colour (rich, shining green or silvery grey) and branching (lower branches at around 90° in *fragilis*, often broken off, more like 45° in *alba*). If confronted with a tall bush, check whether the growth is from multiple, narrow, ascending trunks (eg *triandra*), or new growth from a split off lower branch lying on the ground (eg *fragilis*). When peering into the bush check also for peeling bark, leaving a dull orange trunk beneath (*triandra*). *S. x multimeris* (*triandra* x *vim*) also has the same peeling bark & orange trunk, but the trunks, though never upright & usually quite near horizontal, like *triandra*, are much wider (up to c 25 cm, only c 10 cm in *triandra*). Height & habit are also useful in separating *S. aurita* from *S. x multimeris*, the *aurita* / *cuneata* hybrid. *Aurita* should not exceed 2.5 metres & is "twiggy" in habit, *x multimeris* has narrow but proper trunks & main branches, & can be up to 5 metres.

Leaf breadth : Is the leaf "broad" (length/breadth ratio < 3) or narrow (lb ratio > 3) Broad leaves suggest *pentandra*, *caprea*, *cinerea*, *aurita*, their hybrids, & *x cabulendron* (eg *x cin x vim*)

Leaf serration : Is the leaf edge finely serrate (*S. pentandra*, *S. alba*, *S. "fragilis"*, & *S. alba* x hybrids) or entire / obscurely & very irregularly serrate (*populnea*, *cap*, *cin* and *vim* hybrids)

Leaf hairiness : Mostly look to see if the leaf surfaces are hairy or not - this is especially important when assessing *S. fragilis* & *S. alba* & separating them from their hybrid *x robus*. By midsummer *S. "fragilis"* should have no hairs top or bottom, *S. alba* will have hairs below & usually above as well, and *x robus* none above. To assess leaf hairiness bend the leaf over & view against the light does not work, because the hairs are usually very appressed. Hairs in *S. alba* on the top of the leaf are extremely fine but can be seen easily in good light @ X10 (or even with the naked eye).

Leaf blackening *S. populnea* leaves go black after pruning (not dark brown) & often can be seen to be blackening on the tree if twigs are broken. *Populnea* hybrids such as *x fuliginea* do the same. Look for striae on thick twigs (c 1 cm diam).

Keys & descriptions to use

The Stace 2010 Key works very well & the above field characters are taken from it. After provisional identification check leaf shape against the Stace illustrations, & if possible do against Mickle (1984).