



80 * SALICACEAE ¹

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Trees or shrubs, mostly dioecious. Leaves alternate, stipules present, petiolate; lamina simple, margins mostly serrate with teeth gland or hair tipped. Inflorescence a catkin, borne at the end of short side shoots; flowers occurring in the axil of a bract. Perianth reduced to a cup-shaped gland (*Populus*) or 1–2 small glands (*Salix*). Male flowers: stamens 2(-many); filaments slender, free; anthers 2-locular. Female flowers: carpels 2–4; ovary superior, unilocular; stigmas 2–4, usually bilobed; ovules 4-many, placentation parietal. Fruit a 2–4-valved capsule. Seeds numerous, with a tuft of fine silky hairs attached at the base; endosperm absent.

A family of 2 genera and over 300 species, found mainly in the northern temperate and arctic regions but some in tropical and southern temperate zones; not native in Australasia or the East Indies. 2 genera and about 13 species and several hybrids naturalized in Australia; 2 genera and 5 taxa naturalized in Tasmania. Many taxa are cultivated, especially in temperate regions of the world, for ornament and other uses.

Salicaceae are placed in the Malpighiales near Flacourtiaceae (tropical & warm temperate), Achariaceae (S Africa), Lacistemataceae (S America to Jamaica), Passifloraceae (tropical & warm temperate), Goupiaceae (NE S America), and Violaceae (worldwide). Recent molecular studies suggest that Salicaceae and Flacourtiaceae should be combined (55 genera, c. 1010 spp.) as the former was nested in the latter (APG II 2003; Stevens 2008; APG III 2009; & references cited therein). Brummitt (2007a, b, c) argued convincingly that Salicaceae should be retained in the strict sense and Flacourtiaceae be split into a number of families. The classification system proposed by Brummitt (2007a, b, c) is followed here and thus Salicaceae is treated in the more traditional and familiar fashion. Flacourtiaceae s. str., though native to Australia, is absent from Tasmania, so even if the broader circumscription of Salicaceae was adopted, following APG II (2003), APG III (2009), and APC, the account for Tasmania, in terms of genera and species, would be the same, except for the family description.

Key references: Meikle (1984); Baker (2009).

External resources: accepted names with synonymy & distribution in Australia (APC); accepted names, with synonymy, & distribution in Australia (APC); author & publication abbreviations (IPNI); mapping (ALA, AVH, NVA); nomenclature (APC, APNI, IPNI).

1. Leaves broadly elliptic to ovate, deltoid, rhombic or cordate; buds enclosed by several outer bud scales; perianth reduced to a cup shaped structure

1 Populus

1: Leaves lanceolate, oblong to ovate or obovate; buds enclosed by a single outer bud scale; perianth reduced to 1–2 nectaries

2 Salix

1 * Populus

Populus L., *Sp. Pl.* 2: 1034 (1753).

Deciduous trees or shrubs. Buds enclosed by several outer bud scales. Leaves broadly elliptic to ovate, deltoid, rhombic or cordate; petioles often laterally compressed. Inflorescence pendulous. Perianth reduced to a small cup-shaped gland.

¹ This work can be cited as: Baker ML (2011) 80 Salicaceae, **2011:1**. In MF Duretto (Ed.) *Flora of Tasmania Online*. 8 pp. (Tasmanian Herbarium, Tasmanian Museum & Art Gallery: Hobart). www.tmag.tas.gov.au/floratasmania

² Tasmanian Herbarium, Tasmanian Museum & Art Gallery, Private Bag 4, Hobart, Tasmania 7000.

Populus contains some 30–40 species that are confined to temperate regions of the Northern Hemisphere. A comprehensive key to poplars cultivated in Australia is found in Spencer (1997).

Key references: Meikle (1984); Walsh (1996); Harden & Rodd (2000)

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|----|---|-----------------------------|
| 1. | Leaves with white or greyish indumentum on one or both surfaces, remaining hairy or becoming glabrous or glabrescent with age; leaf margin coarsely dentate | 2 |
| 1: | Leaves glabrous or nearly so; leaf margin finely serrate | 3 |
| 2. | Mature leaves with a persistent tomentum on abaxial surface; leaves on long shoots distinctly palmatilobed | 1 P. alba |
| 2: | Mature leaves glabrous or nearly so; leaves on long shoots seldom palmatilobed | P. ×canescens + |
| 3. | Branches erect or sharply ascending; tree with a very narrow crown | P. nigra 'Italica' + |
| 3: | Branches spreading to erect; tree with a broad crown | P. tremula + |

+ *Populus ×canescens* Sm. (Grey Poplar) is considered to be a hybrid between *P. alba* and *P. tremula*. It is not thought to be a natural hybrid, instead regarded as being of garden origin. It occurs widely throughout Europe. In Tasmania, it is occasionally cultivated and at one site, in the Midlands Region (St Peter's Pass), it has been recorded suckering along a creek line. It is a large tree; the leaves are grey tomentose abaxially, becoming glabrous with age. In Australia, it is naturalized in Victoria.

Populus nigra L. 'Italica' (Lombardy Poplar; treated in APC as *P. nigra* var. *italica* Du Roi) is thought to have originated in Italy as a selection from the widespread central and southern European species. In Tasmania, it is commonly grown as a windbreak species and is occasionally found suckering. It is the most easily recognised poplar with its very tall and narrow habit. In Australia, it is naturalized in Western Australia, South Australia, Queensland, New South Wales, Victoria and doubtfully naturalized in the Australian Capital Territory.

Populus tremula L. (Aspen) is widely distributed throughout Europe and Asia. It is occasionally cultivated in Tasmania. Near one site of cultivation, on the Midlands Highway (south of Campbell Town), it has been recorded suckering in a roadside drainage line. It is a broad crowned tree; the leaves are hairless and broadly ovate. In Australia, *P. tremula* is naturalized in South Australia, New South Wales and Victoria.

1 * *Populus alba* L., *Sp. Pl.* 2: 1034 (1753)

White Poplar

Illustrations: Meikle, *Willows and Poplars of Great Britain and Ireland* 167 (1984); Entwisle, *Fl. Victoria* 3: 390, fig. 80a (1996); Harden & Rodd, *Fl. New South Wales* 1, rev. edn: 449 (2000); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 372 (2006).

Tree to c. 20 m tall with a broad spreading crown; actively suckering. Stems white tomentose at first, becoming glabrous and dark brown; bark rough. Leaves on long shoots: lamina usually deeply palmatilobed, 3–12 cm long and wide, obscurely and irregularly dentate with acute lobes, adaxial surface becoming glabrous and dark green with age, abaxial surface persistently and strikingly white-tomentose; leaves on short lateral spurs are generally smaller, broad-ovate, irregularly and bluntly sinuate-lobed, thinly tomentose or becoming glabrous. Catkins appearing before the leaves. Male catkins (not seen in Tas.) slightly larger than female catkins. Female catkins 30–50 mm long, c. 6 mm wide, lengthening considerably in fruit. Ovary pale green-yellow, to 1.5 mm long (to 3 mm in fruit), shortly pedicellate, glabrous. Flowering Sep.; fruiting Oct.-Nov.

Tas. (BEL, FLI, TNS, TSE, TSR); also naturalized in WA, SA, Qld (sparingly), NSW, Vic.; native to central and south-eastern Europe and central Asia, also naturalized in New Zealand and South Africa. In Tasmania, it grows as a weed of roadside embankments, unkempt and/or abandoned gardens and home sites where it often covers large areas and dominates other vegetation through its prolific and aggressive suckering habit. *Populus alba* is distinguished from other poplars in Tasmania by having a persistent layer of white tomentum on the abaxial leaf surface.

2 * *Salix*

Salix L., *Sp. Pl.* 2: 1015 (1753).

Deciduous trees or shrubs. Buds enclosed by a single outer bud scale. Leaves mostly linear to elliptic or oblong, broadly elliptic to ovate; petioles not laterally compressed. Inflorescence mostly erect or spreading. Perianth reduced to 1–2 small, nectariferous glands.

Salix contains some 300–520 species mostly growing in arctic and temperate regions of the Northern Hemisphere.

Key references: Meikle (1984); Carr (1996); Jacobs & Murray (2000); Baker (2009).

Note for key: Identification may require flowering material collected in spring and leaf material collected in mid to late summer. In addition to the naturalized taxa, the following key includes taxa that are commonly cultivated but not known to be naturalized or only naturalized to a limited extent. Brief comments on these willows are made after the key; they are not treated any further.

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|----|--|---|----|
| 1. | Leaves linear, lanceolate or oblanceolate, > 3 times longer than wide; large trees or shrubs, with one to many stems at base of plant; catkins ≤ 13 mm wide | | 2 |
| 1: | Leaves ovate to obovate, < 3 times as long as wide; shrubs to small trees, usually with many main stems at base of plant; catkins usually ≥ 20 mm wide, or < 10 mm wide (<i>S. ×calodendron</i>) | | 10 |
| 2. | Trees with a columnar crown; catkins not or only rarely seen on mature plants | <i>S. humboldtiana</i> + | |
| 2: | Trees or shrubs without columnar crown; catkins always produced on mature plants | | 3 |
| 3. | Shrubs with opposite to sub-opposite arranged leaves and stems; catkins usually ≤ 20 mm long | <i>S. purpurea</i> + | |
| 3: | Trees with alternately arranged leaves and stems; catkins > 20 mm long | | 4 |
| 4. | Trees with contorted stems and leaves; catkins female | <i>S. matsudana</i>
'Tortuosa' + | |
| 4: | Trees without contorted stems and leaves; catkins bisexual, male or female | | 5 |
| 5. | Branches strongly pendulous | | 6 |
| 5: | Branches erect to spreading or slightly pendulous | | 7 |
| 6. | Stems golden-yellow; catkins bisexual, male or female | <i>S. ×sepulcralis</i> + | |
| 6: | Stems olive-brown to grey-brown; catkins female | <i>S. ×pendulina</i> + | |
| 7. | Branches slightly pendulous | | 8 |
| 7: | Branches erect to spreading | | 9 |
| 8. | Stems grey-green to reddish brown; mature leaves glabrous; catkins bisexual, male or female, 15–50 mm long | <i>S. matsudana</i> ×
<i>S. alba</i> + | |
| 8: | Stems golden-yellow; mature leaves with a persistent layer of fine, appressed hairs; catkins female, 60–75 mm long | <i>S. alba</i> + | |
| 9. | Stems brown to olive-brown; leaves completely glabrous; catkins male; wide spread species of rural and urban stream banks | 1 <i>S. ×fragilis</i> | |

- 9: Stems orange-yellow, reddish or brown to olive-brown; leaves occasionally with few persistent hairs; catkins male or female (occasional in both cultivation and resulting from in situ hybridisation between *S. ×fragilis* var. *fragilis* × *S. alba* var. *vitellina*) **S. ×rubens +**
10. Branches spreading, forming a crown that is usually rounded (i.e. ± as tall as wide); leaves usually obovate **3 S. cinerea**
- 10: Branches erect, forming a crown that is upright (i.e. taller than wide); leaves usually elliptic 11
11. Leaf margin strongly recurved, prominently undulate; stipules caducous; catkins male, ovoid **2 S. ×reichardtii**
- 11: Leaf margin narrowly recurved, slightly undulate; stipules persistent; catkins female, cylindrical **S. ×calodendron +**

+ A large number of taxa persist from cultivation and in many cases it cannot be determined whether specimens have been planted or arisen naturally.

Salix alba L. var. *vitellina* (L.) Stokes (Golden Upright Willow), an ornamental tree of European origin, is widely cultivated in Tasmania. At some sites spread via vegetative means may have occurred but plantings cannot be ruled out. This willow has large rounded crown that is often semi-pendulous, especially in the lower crown, but never as strongly pendulous as *S. ×sepulcralis* nothovar. *chrysocoma* or *S. ×pendulina* var. *pendulina*. Stems of the Golden Upright Willow are orange-yellow in colour and only female plants are known. In Australia, *S. alba* var. *vitellina* is naturalized in South Australia, New South Wales, Australian Capital Territory and Victoria. Hybrids between *S. alba* var. *vitellina* and *S. ×fragilis* var. *fragilis* are thought to have grown at various sites in Tasmania.

Salix alba × *S. matsudana*: see *Salix matsudana* Koidz. × *S. alba*

Salix ×calodendron Wimm., a tri-hybrid between *S. caprea* L., *S. cinerea* L. and *S. viminalis* L., is an ornamental tree of European origin and occasionally grown in Tasmania. At one site (Queenstown) it has been recorded spreading via vegetative reproduction. Distinguishing it from the naturalized shrub willows can be difficult. In Australia, *S. ×calodendron* is naturalized in South Australia and New South Wales.

Salix humboldtiana Willd. 'Pyramidalis' (Pencil Willow) is a common garden plant that, in Tasmania, has never been recorded outside of cultivation. It is immediately distinguished from all other willows by its columnar crown. In Australia, it is naturalized in New South Wales.

Salix matsudana Koidz. × *S. alba* (New Zealand Hybrid Willow) is commonly grown as windbreak/fence-line plantings in rural parts of the state. It is not known to be naturalized. Its upright habit, usually with a single main stem, is a good spotting character. Bisexual plants, plants that are wholly male and plants that are wholly female have all been recorded in Tasmania. In Australia, it is naturalized in New South Wales and Victoria.

Salix matsudana 'Tortuosa' (Tortured Willow), an ornamental tree of Asian origin, is commonly cultivated in Tasmania. Occasionally it can be found growing in municipal rubbish dumps where it is presumed that the plants grew from stems contained in garden refuse. It is an unmistakable willow on account of its contorted stems and leaves. In Australia, it is naturalized in South Australia, New South Wales, Australian Capital Territory and Victoria. Hybrids between *S. matsudana* 'Tortuosa' and *S. ×fragilis* var. *fragilis* are thought to have grown at Huonville.

Salix ×pendulina Wender. var. *pendulina* (Weeping Willow) is a hybrid between *S. ×fragilis* var. *fragilis* and *S. babylonica* L. Whilst this willow is commonly cultivated in a range of habitats, including on the banks of water-courses and waterbodies, it has not been recorded as a naturalized species. All individuals appear to have been planted and are not actively spreading. In Tasmania, the name *S. babylonica* has been widely misapplied to this plant. It is very similar to *S. ×sepulcralis* nothovar. *chrysocoma* in its strongly pendulous habit but *S. ×pendulina* var. *pendulina* differs by having olive coloured stems as opposed to golden-yellow stems. In Australia, it is naturalized in South Australia, New South Wales and Victoria.

Salix purpurea L. (Purple Osier), a native of Europe, western Asia and northern Africa, has been planted occasion-

ally on some stream banks but it is not known if it has spread and become naturalized. It is the only willow that has leaves and catkins in opposite to sub-opposite pairs. In Australia, it is naturalized in New South Wales and Victoria.

Salix xrubens Schrank is a hybrid between *S. xfragilis* var. *fragilis* and *S. alba*. It is not commonly cultivated in Tasmania. It is known from one small population where it is thought to have spread via vegetative means. *Salix xrubens* may be confused with *S. xfragilis* var. *fragilis* and *S. alba* var. *vitellina*. These taxa differ according to the characters in the above key. In Australia, it is naturalized in South Australia, New South Wales, Australian Capital Territory and Victoria. *Salix xfragilis* var. *fragilis* and *S. alba* var. *vitellina* are thought to have hybridised at Westerway, producing young plants referable to *S. xrubens*.

Salix xsepulcralis Simonk. nothovar. *chrysocoma* (Dode) Meikle (Golden Weeping Willow) is a hybrid between *S. alba* var. *vitellina* and *S. babylonica* L. It is a commonly cultivated tree in Tasmania. A very small population that is thought to have formed through vegetative reproduction, but possibly facilitated through planting, has been recorded at one site in north-west Tasmania. The Golden Weeping Willow is an unmistakable tree that has strongly pendulous stems that are golden-yellow in colour. In Australia, it is naturalized in New South Wales and Victoria.

1 * *Salix xfragilis* L., *Sp. Pl.* 2: 1017 (1753) [as *S. fragilis*], var. *fragilis* *Crack Willow*

Salix alba × *S. fragilis* sensu W.M.Curtis, *The Student's Flora of Tasmania* 3: 648 (1967). *Salix alba* sensu A.N.Rodd, *Flora of Australia* 8: 204 (1982), non L. (1753) (Tas. material).

Illustrations: Meikle, *Willows and Poplars of Great Britain and Ireland* 29 (1984); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 394 (2006), as *S. fragilis*; Baker, *Muelleria* 27(2): 132, fig. 1a, 137, fig. 2a, 138, fig. 3 (2009).

Tree to 25 m tall with a broad rounded crown. Stems brown to olive-brown, becoming glabrous; bark rough. Leaves: lamina 6–16(–20) cm long, 1–3 cm wide, linear-lanceolate to oblanceolate, sericeous, soon becoming glabrous, margin glandular-serrulate, apex acuminate. Catkins appearing with the leaves on leafy side-shoots. Male catkins 4–6(–8) cm long, 1–1.3 cm wide, spreading to erect. Male flowers: glands 2, to 1 mm long, oblong; stamens 2(–4). Female catkins not seen in Tasmania. Flowering Sep.–Nov.

Tas. (BEL, FLI, TNM, TNS, TSE, TSR); also naturalized in SA, NSW, Vic.; native to S Europe, also naturalized in New Zealand, China, the Americas. In Tasmania, the species is particularly common component of stream banks in rural and urban areas. Originally introduced for ornament and for stabilising banks of watercourses it is now the most widespread and abundant naturalized willow. It is a highly invasive species that causes many negative impacts to the hydrology and biodiversity of the watercourses it infests. *Salix xfragilis* var. *fragilis* is distinguished by its large, upright habit. It has brown to olive-brown stems as opposed to orange-yellow to reddish stems seen in *S. alba* var. *vitellina* and *S. xrubens*. The leaves of *S. xfragilis* var. *fragilis* become completely glabrous whereas the other two taxa usually retain at least some fine appressed hairs. The occurrence of tortuose and semi-tortuose seedlings at a site in Huonville suggests that this species can hybridise with *S. matsudana* 'Tortuosa'. *Salix xfragilis* var. *furcata* Gaudin, with forked catkins is naturalised in Victoria.

2 * *Salix xreichardtii* A.Kern., *Verh. Zool.-Bot. Ges. Wien* 10: 249 (1860) *Pussy Willow*

Salix atrocinerea sensu W.M.Curtis, *The Student's Flora of Tasmania* 3: 649 (1967) non Brot. (1804) (with *S. cinerea* subsp. *atrocinera* (Brot.) Silva & Sobr. in synonymy). *Salix cinerea* sensu A.N.Rodd, *Flora of Australia* 8: 206 (1982) (Tas. material).

Illustrations: Meikle, *Willows and Poplars of Great Britain and Ireland* 103 (1984); Entwisle, *Fl. Victoria* 3: 390, fig. 80g (1996); Jacobs & Murray, *Fl. New South Wales* 1, rev. edn: 617 (2000); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 376 (2006); Baker, *Muelleria* 27: 132, fig. 1h, 137, fig. 2g (2009).

Multi-stemmed shrub or small tree up to 12(–16) m tall, with a crown that is usually taller than wide. Stems becoming glabrous, reddish brown, olive or grey; bark usually smooth, developing longitudinal fissures with age.

Leaves: lamina 5–12 cm long, 2.5–5.5 cm wide, mostly elliptic, sometimes obovate or oblong, densely pubescent, becoming glabrous to sparsely hairy, margin revolute, strongly and irregularly undulate-serrate, with teeth usually gland-tipped, apex acute, often twisted obliquely. Catkins appearing before the leaves. Male catkins 2–3(–5) cm long, 1–2 mm wide, erect. Male flowers: gland 1, c. 0.5 mm long, rectangular; stamens 2. Female catkins not seen in Tasmania. Flowering Aug.–Oct.

Tas. (all regions except KIN & MIS); also naturalized in SA, NSW, Vic.; native to Europe. In Tasmania, *S. ×reichardtii* is commonly grown as an ornamental species in parks and large gardens, and in rural areas as a windbreak species. It is occasionally found naturalized in drainage lines in paddocks and roadsides and along watercourses. Dispersal is by re-sprouting fallen trees and branches, although it may in some cases be facilitated by planting. *Salix ×reichardtii* can be difficult to distinguish from the other naturalized shrub willows that occur in Tasmania. Its narrow and upright habit, in contrast to the rounded habit of *S. cinerea*, is usually a reliable field character. The leaves of *S. ×reichardtii* are commonly elliptic as opposed to obovate in *S. cinerea*. Also, *S. ×reichardtii* only occurs as male plants; wholly female populations would point to *S. ×calodendron* and mixed-sex populations would indicate the sexually-reproducing *S. cinerea*.

3 * *Salix cinerea* L., *Sp. Pl.* 2: 1021 (1753)

Grey Sallow

Multi-stemmed shrub or small tree up to 5(–15) m tall with a rounded crown. Stems becoming glabrous, reddish to orange-brown; bark usually smooth. Leaves: lamina 20–75 mm long, 10–35 mm wide, usually obovate, occasionally elliptic, with an indumentum of translucent uncoloured hairs and/or rust coloured hairs, adaxial surface densely pubescent when young, becoming glabrous, abaxial surface, densely pubescent when young, becoming glabrescent, usually retaining a sparse covering of scattered hairs, margin finely revolute, slightly to markedly irregularly undulate-serrate, with teeth usually gland-tipped, apex sub-acute, often twisted obliquely. Catkins appearing before the leaves. Male catkins 16–36 mm long, 18–24 mm wide, erect. Male flower: gland 1, c. 0.5 mm long, rectangular; stamens 2. Female catkins 20–50(–65) mm long, up to 16 mm wide, erect. Female flower: ovary pale green with a covering of silvery hairs, to 9 mm long, pedicellate. Seed to 2 mm long. Flowering Sep.–Nov.; fruiting Sep.–Nov.

Tas. (KIN, TNS, TSE, TSR, TWE); also naturalized in WA, SA, Qld (doubtfully), NSW, Vic.; native to Europe and temperate Asia, also naturalized in New Zealand. The species is restricted to moist roadside cuttings, drainage lines, banks of watercourses and dams, and other permanently or seasonally wet areas. In some areas it has become the dominant species infesting large stretches of stream banks. It is the target of a statewide eradication program. There are two subspecies native to Europe and temperate Asia. Both subspecies are naturalized in Tasmania – though in different areas.

- | | | |
|----|---|-----------------------------------|
| 1. | Leaves with only clear hairs, lacking rust coloured hairs | 3a subsp. cinerea |
| 1: | Leaves with clear and rust coloured hairs | 3b subsp. oleifolia |

3a *Salix cinerea* L. subsp. **cinerea**

Grey Sallow

Illustrations: Meikle, *Willows and Poplars of Great Britain and Ireland* 107 (1984); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 374 (2006); Baker, *Muelleria* 27: 132, fig. 1i, 137, fig. 2h (2009).

Description as per key.

Tas. (TSE, TSR, TWE); also naturalized in SA, NSW, Vic.; native to Europe and temperate Asia, also naturalized in New Zealand. In Tasmania, the variety is only known from two broad locations: in and around Queenstown on the states west coast and from the Longley-Kingston area, south of Hobart. Two plants have also been recorded growing in Hobart.

3b Salix cinerea subsp. **oleifolia** Macreight, *Man. Brit. Bot.* 212 (1837)*Rusty Sallow**Salix oleifolia* Sm., *Fl. Brit.* 3: 1065 (1804), *nom. illeg., non* Vill. (1789).*Illustrations:* Meikle, *Willows and Poplars of Great Britain and Ireland* 109 (1984); Baker, *Muelleria* 27: 132, fig. 1j (2009).

Description as per key.

Tas. (KIN, TNS); also naturalized in Vic.; native to SW Europe & British Isles. In Tasmania, it is confined to the north-west of the state, with a single, large, naturalized population occurring between Penguin and Ulverstone. Other occurrences of unknown extent occur on the banks of the River Leven near Gunns Plains, and near the township of Edith Creek. The correct authority for this taxon is as stated above and not '(Sm.) Macreight' as commonly encountered (see APNI).

REFERENCES

- ALA (Atlas of Living Australia) www.ala.org.au
- APC (Australian Plant Census) www.chah.gov.au/apc/about-APC.html
- APG II (2003) An update of the angiosperm Phylogeny Group classification for the orders and families of flowering plants. *Botanical Journal of the Linnean Society* **141** 399–436.
- APG III (2009) An update of the angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG III. *Botanical Journal of the Linnean Society* **161** 105–121.
- APNI (Australian Plant Name Index) www.anbg.gov.au/cgi-bin/apni
- AVH (Australia's Virtual Herbarium) (Council of Heads of Australasian Herbaria) www.avh.rbg.vic.gov.au/avh/
- Baker ML (2009) The willows (*Salix* - Salicaceae) in Tasmania. *Muelleria* **27** 127–148.
- Brummitt RK (2007a) Achariaceae. In VH Heywood, RK Brummitt, A Culham, O Seberg (Eds), *Flowering Plant Families of the World*. pp. 24–25. (Royal Botanic Gardens, Kew: London)
- Brummitt RK (2007b) Flacourtiaceae. In VH Heywood, RK Brummitt, A Culham, O Seberg (Eds), *Flowering Plant Families of the World*. pp. 149–150. (Royal Botanic Gardens, Kew: London)
- Brummitt RK (2007c) Salicaceae. In VH Heywood, RK Brummitt, A Culham, O Seberg (Eds), *Flowering Plant Families of the World*. pp. 289–290. (Royal Botanic Gardens, Kew: London)
- Carr GW (1996) *Salix* (Salicaceae). *Flora of Victoria* **3** 387–398.
- Harden GJ, Rodd AN (2000) *Populus* (Salicaceae). *Flora of New South Wales* **1**, rev. edn, 449.
- IPNI (International Plant Name Index) www.ipni.org/index.html or www.us.ipni.org/index.html
- Jacobs SWL, Murray L (2000) *Salix* (Salicaceae). *Flora of New South Wales* **1**, rev. edn: 611–617. (New South Wales University Press: Sydney)
- Meikle RD (1984) *Willows and poplars of Great Britain and Ireland, B.S.B.I. handbook No. 4*. (Botanical Society of the British Isles: London)
- NVA (Natural Values Atlas) (Department of Primary Industries and Water: Hobart) <http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-6TV6TV?open>
- Spencer R (1996) *Populus*. In *Horticultural Flora of South-Eastern Australia: Flowering Plants, Dicotyledons, Part 1*. pp. 439–448. (New South Wales University Press: Sydney)
- Stevens PF (2010) Angiosperm Phylogeny Website. Version 9, June 2008 <http://www.mobot.org/MOBOT/research/APweb/>.
- Walsh NG (1996) *Populus* (Salicaceae). *Flora of Victoria* **3** 385–386.

NOTE: Web addresses can and do change: a list of current web addresses will be maintained on the *Flora of Tasmania Online* website [www.tmag.tas.gov.au/floratasmania].

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S

Salicaceae 1

Salix 3*Salix alba* 5*Salix alba* x *S. fragilis* 5*Salix alba* x *S. matsudana* 4*Salix alba* var. *vitellina* 4, 5*Salix atrocinerea* 5*Salix babylonica* 4*Salix xcalodendron* 4, 6*Salix caprea* 4*Salix cinerea* 4, 5, 6*Salix cinerea* subsp. *atrocinera* 5*Salix cinerea* subsp. *cinerea* 6*Salix cinerea* subsp. *oleifolia* 7*Salix fragilis* 5*Salix xfragilis* 5*Salix xfragilis* var. *fragilis* 4, 5*Salix xfragilis* var. *furcata* 5*Salix humboldtiana* 'Pyramidalis' 4*Salix matsudana* 'Tortuosa' 4*Salix matsudana* x *S. alba* 4*Salix oleifolia* 7*Salix xpendulina* var. *pendulina* 4*Salix xreichardtii* 5, 6*Salix xrubens* 5*Salix xsepulcralis* nothovar. *chrysocoma* 4, 5*Salix purpurea* 4*Salix viminalis* 4

Sallow 6, 7

T

Tortured Willow 4

U

Upright Willow 4

V

Violaceae 1

W

Weeping Willow 4, 5

White Poplar 2

Willow 4, 5