



## *Salix* × *meyeriana* (= *Salix pentandra* × *S. euxina*)—a forgotten willow in Eastern North America

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*Salix pentandra* L. is a boreal species native to Europe and western Siberia. In North America it is considered to have been introduced to about half of the US states (Argus 2007, 2010). In Massachusetts it is reported from nine of the fourteen counties (Sorrie & Somers 1999). Even though this plant may have been introduced to the US and Canada, its naturalization in North America appears to be quite improbable. Unlike willows from the related section *Salix*, in *S. pentandra* twigs are not easily broken off and their ability to root is very low, 0–15% (Belyaeva *et al.* 2006). It is possible to propagate *S. pentandra* from softwood cuttings (Belyaeva *et al.* 2006) and it can be cultivated in botanical gardens, however, vegetative reproduction of this species by natural means seems less likely. In North America this willow is known only by female (pistillate) plants (Argus 2010), so for this species, although setting fruit, sexual reproduction should be excluded. It is difficult to imagine that, under these circumstances, it could escape from cultivation. Therefore, most of the records for this willow in North America should be considered as collections from cultivated plants or misidentifications (Zinovjev 2008–2010).

*Salix pentandra* is known to hybridize with willows of the related section *Salix*. The differences between them were shown, e.g., by Bean (1980), Berg and Christensen (2000). In Europe, this section includes native *S. alba* L., another species introduced from Asia Minor and its hybrids (Skvortsov 1968, 1973). For a long time, the name *S. fragilis* has been applied either to some of these hybrids or to a species from Asia Minor. According to recent decision of the Nomenclature Committee for Vascular Plants, these hybrids should be named *S. × fragilis* L., while plants native to Turkey and the Caucasus region have been described as *S. euxina* I.V. Belyaeva (Brummit 2009: 280, Belyaeva 2009, Argus 2010).

Examination of herbarium samples from the herbaria A, GH, NEBC, MASS, US, College of the Holy Cross (Worcester, Massachusetts), led to the conclusion that the main cause for misinterpretation of this willow in North America was the presence of cultivated hybrids of *S. pentandra* with *S. euxina*, known as *S. × meyeriana* Rostk. ex Willd. (Willdenow 1811). Such a hybrid would have been favored for cultivation as it is easily propagated vegetatively. It is particularly noteworthy that some old herbarium samples of Nearctic *S. pentandra* were initially treated as hybrids (labeled *S. pentandra* × *S. fragilis*), e.g., Washington, D.C., Corcoran St., between 18th & 19th St., June 21, 1905, G.B. Sudworth (US 1584807 and US 1584808). However, such hybrids are not mentioned in recent American literature, with the exception of a horticultural manual (Rehder 1954). These hybrids have only been seen by the author in the European section of Harvard University Herbaria. Perhaps some of them are real hybrids, and one of these samples is of special interest, proving that this hybrid was cultivated in the US: it bears the label "*S. fragilis* × *pentandra* ... Received from Kew. Grown at Fountaindale, Illinois: 1880. leg. M.S. Bebb" (GH).

*Salix pentandra* belongs to section *Salicaster* Dumort. All species of this section differ from those in section *Salix* (as defined by Skvortsov 1968) by having multistaminate male flowers. All of its species have strongly lustrous leaves, producing odorous resin, as some poplars do, when young. As has been shown by Skvortsov (1960) this section is further separated into two distinct groups: the Holarctic *pentandra*-group (with five species) and the Nearctic *lucida*-group (with two or three species).