

REASONS WHY WILLOW NAMES ARE CHANGED

Fact Sheet No 1
July 2018

Yulia A. Kuzovkina¹ and Irina V. Belyaeva²

¹Department of Plant Science and Landscape Architecture, Unit-4067, University of Connecticut, Storrs, CT 06269-4067, USA

²Royal Botanic Gardens, Kew, Richmond, TW9 3AE, UK

This series of Fact Sheets describes name changes for well-known and economically important willows (*Salix* L.) and explains the underlying justifications for each change. Our objective is to promote the universal usage of correct scientific names within the community of willow growers, breeders and researchers.



Salix repens L. Photo by Y.A. Kuzovkina.

There are three types of willow name changes discussed in this series:

- *Taxonomic, which reflect a reclassification of plants based on new data and recent discoveries.*
- *Nomenclatural, which promote a consistent application of nomenclatural rules.*
- *Corrections and clarifications related to the application of names for cultivated species that were previously misapplied.*

Taxonomic changes: Taxonomists through their research identify and describe taxa at all levels (in Salicaceae s.str. – mostly at the specific and infra-specific levels) revealing phylogenetic patterns. Modern techniques, especially morphological and molecular, are used to resolve disputed relationships among taxa, which result in a change of rankings of previously described taxa. When new information accumulates regarding the assignment of plants to specific taxa, reclassifications of organisms may take place leading to new orderings. For example, a morphological study into the group of plants that has been historically named as *Salix fragilis* revealed two different taxa in this group, which were proposed to be named as *S. euxina* I.V.Belyaeva and its hybrid with *S. alba* L. – *S. × fragilis* L. (Belyaeva, 2009). A later molecular study confirmed this taxonomic decision (Puyvelde, 2013).

Nomenclatural changes: Nomenclatural changes usually follow taxonomic changes and are defined by the principles and rules described in the *ICN (International Code of Nomenclature Algae, Fungi and Plants)* by McNeill et al., 2012), which state that if several species were found to belong to the same taxon, the first legitimately published name is the one that must be used and designated as the correct name because of the principal of priority. The correct name is the one to be used in taxonomic treatments while all other names become synonyms.

In some cases a popular, well established name must be replaced by the earliest one when new details appear about the original material – herbarium specimens and illustrations – that was in the possession of the author of the name while the new taxon was described. For example, a species of willow until recently named *S. dasyclados* Wimm. is now named *S. gmelinii* Pall. following the discovery of older specimens used by Pallas (Belyaeva and Sennikov, 2008). Other similar taxonomic changes based on recent discoveries include *S. udensis* Trautv.& C.A.Mey. versus *S. sachalinensis* F.Schmidt.

Application of scientific names: The application of scientific names is determined by the use of nomenclatural types, as stated in Art. 7.1 of the *ICN* (McNeill *et al.*, 2012). However, scientific names are frequently misapplied for a large number of cultivated plants. Many names published before January 1st, 1958 have not been typified and are not attached to any herbarium specimen or illustration, thus creating confusion for plant professionals as to which type (specimen or illustration) should be used for verification of the identification. Also, old herbarium collections and type specimens are not always available for use via loan or via the digital library JSTOR, resulting in misunderstanding and misapplication of names during identification.

When some willows were introduced into cultivation under wrong names the name change occurred later. An example of this change is the case with *S. chaenomeloides* Kimura versus *S. gracilistyla* Miq. and *S. × leucopithecia* Kimura.

References for the correct names for *Populus* and *Salix* include: The Plant List (<http://www.theplantlist.org/>) and the Catalog of Life (<http://www.catalogueoflife.org/annual-checklist/2017/>). However, these reference sites are not active and do not reflect the most recent changes.

Kew Gardens has been working on a few projects aimed at resolving issues concerning nomenclature – the International Plant Names Index (IPNI) – and taxonomy – the World Checklist of Selected Plant Families (WCSP with accepted names and synonyms listed). A new resource titled Plants of the World Online (POWO) is under development at Kew, which includes data of IPNI and WCSP and additional information.

*A compilation of the World Checklist of Salicaceae sensu stricto for the World Checklist of Selected Plant Families is under way to provide an updated world classification of *Salix* and *Populus**

(<http://www.kew.org/scienceresearchdata/directory/projects/WClassPhylogsalicaSS.htm>).

*Simultaneously, the most recent update of the Checklist for Cultivars of *Salix* L. (willow) is in progress.*

During these investigations, many sources including historical herbarium collections and global references are accessed resulting in retrieval of new data, which provides the basis for name changes.

Adoption of name changes by various users: Plant names are used by various plant professionals, including breeders, plant catalog authors, horticulturists, ecologists, nurserymen, gardeners and other germplasm users. Most people do not immediately adopt name changes or corrections and continue to use old names or choose names interchangeably. This results in the appearance in references of more than one scientific name for the same taxon in references, which creates confusion.

Adoptions of new names is often met with resistance because in many cases the reason for a change is not clearly understood. Taxonomic changes are published by plant taxonomists and tend to be quite technically written and difficult to interpret.

However inconvenient, it is important to quickly adopt new plant names because they are founded on important scientific justifications.

Plant name changes present special challenges for commercial nurseries. When some willows were introduced into cultivation, propagated and widely distributed under wrong names, the incorrect name may have become widespread. When familiar names need to be replaced with new names, consumers may not recognize products, which could negatively affect the marketability of the certain products. To alleviate this problem and to gradually introduce a new name, it is recommended that both names be listed in catalogs during a transition period to allow for a gradual name change without adversely affecting sales.

For example, catalog listings should be written as “*S. gmelinii* (previously sold as *S. dasyclados*)”. According to the *ICN* (McNeill et al., 2012), misapplied names as a result of misidentification should be mentioned in square brackets at the end of the list of synonyms. For example, “*S. × leucopithecia* Kimura [*S. chaenomeloides* auct., non Kimura]”.

References:

Belyaeva, I. (2009). Nomenclature of *Salix fragilis* L. and a new species, *S. euxina* (Salicaceae). *Taxon* 58, 1344–1348.

Belyaeva, I.V., and A.N. Sennikov (2008). Typification of Pallas’ names in *Salix*. *Kew Bulletin* 63, 277–287.

Kuzovkina, Y.A. (2015). Checklist for Cultivars of *Salix* L. (willow). International Poplar Commission. (<http://www.fao.org/forestry/44058-0370ab0c9786d954da03a15a8dd4721ed.pdf> accessed 16 April 2018).

McNeill, J., F.R. Barrie, W.R. Buck, V. Demoulin, W. Greuter, D.L. Hawksworth, P.S. Herendeen, S. Knapp, K. Marhold, J. Prado, W.F. Prud’homme van Reine, G.F. Smith, J.H. Wiersema and N.J. Turland (Eds.) (2012). International Code of Nomenclature for algae, fungi, and plants (Melbourne Code): Adopted by the Eighteenth International Botanical Congress Melbourne, Australia, July 2011. *Regnum Vegetabile* 154, Konigstein: Koeltz Scientific Books.

Puyvelde, K.V. (2013). Population genetic structure and unravelling hybridisation of riparian softwood *Salix* species in parts of Europe. A case study on *Salix alba* and the *S. alba* – *S. euxina* complex. PhD dissertation. Vrije Universiteit Brussel.