



Nomenclatural notes of *Salix wangiana* and *S. zangica* var. *tibetica* (Salicaceae)

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Working within the framework of the Flora of the Pan-Himalayas project, we examined many reports regarding *Salix* and found that the valid publication date for *Salix wangiana* is later than that for *S. rhododendroides*. Consequently, *S. wangiana* is treated as a synonym of *S. rhododendroides* instead of the reverse. *Salix wangiana* var. *tibetica* is invalid, and therefore the intended combination *S. zangica* var. *tibetica* indeed represents a new variety, for which the authorship is “C. Wang & C.F. Fang ex N. Chao”. Furthermore, the names *S. rhododendroides* and *S. zangica* var. *tibetica* are lectotypified.

Salix Linnaeus (1753: 1015) includes ca. 350 – 520 species that are widely distributed in temperate and boreal regions of the Northern Hemisphere (Fang *et al.* 1999, Brummitt 2007, Argus *et al.* 2010). There are 275 species and 82 varieties in China, of which 189 species and 74 varieties are endemic (Fang *et al.* 1999).

Working within the framework of the Flora of the Pan-Himalayas project, we examined many studies regarding *Salix*. We found that the name *Salix wangiana* K.S. Hao ex C.F. Fang & A.K. Skvortsov (1998: 469) was erroneously treated by Fang *et al.* (1999) as the correct name for *S. rhododendroides* C. Wang & C.Y. Yu in Anonymous (1974: 598). Both names are usually regarded as synonyms and applied to a willow endemic to central China. However, *S. rhododendroides* was published at an earlier date than was *S. wangiana*, and hence the former has nomenclatural priority.

Furthermore, the name *Salix zangica* var. *tibetica* C. Wang & C.F. Fang ex N. Chao (1985: 7) was overlooked in *Flora of China*. It was originally published as a new combination, “*S. zangica* var. *tibetica* (C. Wang & C.F. Fang) N. Chao (1985: 7)”, based on the invalid name, “*S. wangiana* K.S. Hao var. *tibetica* C. Wang & C.F. Fang (1979: 103)”. However, Chao’s Latin descriptions and type indications accompanying this intended new combination indeed validated a new variety, *S. zangica* var. *tibetica* C. Wang & C.F. Fang ex N. Chao. Additional details, the correct status, and related information for all of these names are given below.

Nomenclature

Salix rhododendroides C. Wang & C.Y. Yu in Anonymous (1974: 598)

Type:—CHINA. Shaanxi: Taibai Mountain, 2840 m, 9 July 1957, *K.J. Fu 9509* (lectotype, designated here: WUK 171975!; isoelectotype WUK 90140!, digital image examined; [♀]).—For image of lectotype, see Fig. 1A.

= *S. wangiana* K.S. Hao ex C.F. Fang & A.K. Skvortsov (1998: 469), *syn. nov.*—*S. wangiana* K.S. Hao (1936: 81), *nom. inval.* **Type:**—CHINA. Shaanxi: Taibai Mountain, 2700 m, 4 August 1933, *T.P. Wang 1769* (holotype PE [barcode] 00766307!; isotypes IBSC [barcode] 0349187!, WUK 00438! [♀]).—For image of holotype, see Fig. 1B.

Salix wangiana K.S. Hao was not validly published, with an English description instead of the Latin description or diagnosis, which was obligatory between 1 January 1935 and 31 December 2011, according to Art. 39.1 of the ICN (Melbourne Code, McNeill *et al.* 2012). It was subsequently validated by Fang & Skvortsov (1998), who referenced Hao’s protologue and provided a Latin description.

Fang & Skvortsov (1998) stated that the holotype of *Salix wangiana* is located in Paris (P). However, the type information in Hao’s (1936) protologue is “*T.P. Wang 1769* (type in Herb. Peiping)”. “Herb. Peiping” is the predecessor of PE, and a duplicate of *T.P. Wang 1769* is found there (PE [barcode] 00766307) with a written label in Hao’s hand, which reads “*Salix wangiana* Hao *n. sp.*”. In addition, *T.P. Wang 1769* was not located at P (according to the digital herbarium database of P, <https://science.mnhn.fr/institution/mnhn/collection/p/item/search/form> [accessed 6 November 2015]). Therefore, we deduce

that Fang & Skvortsov's reference to "P" may be a printing error, which should be corrected to PE, and the sheet of *T.P. Wang 1769* at PE should be Fang & Skvortsov's holotype.

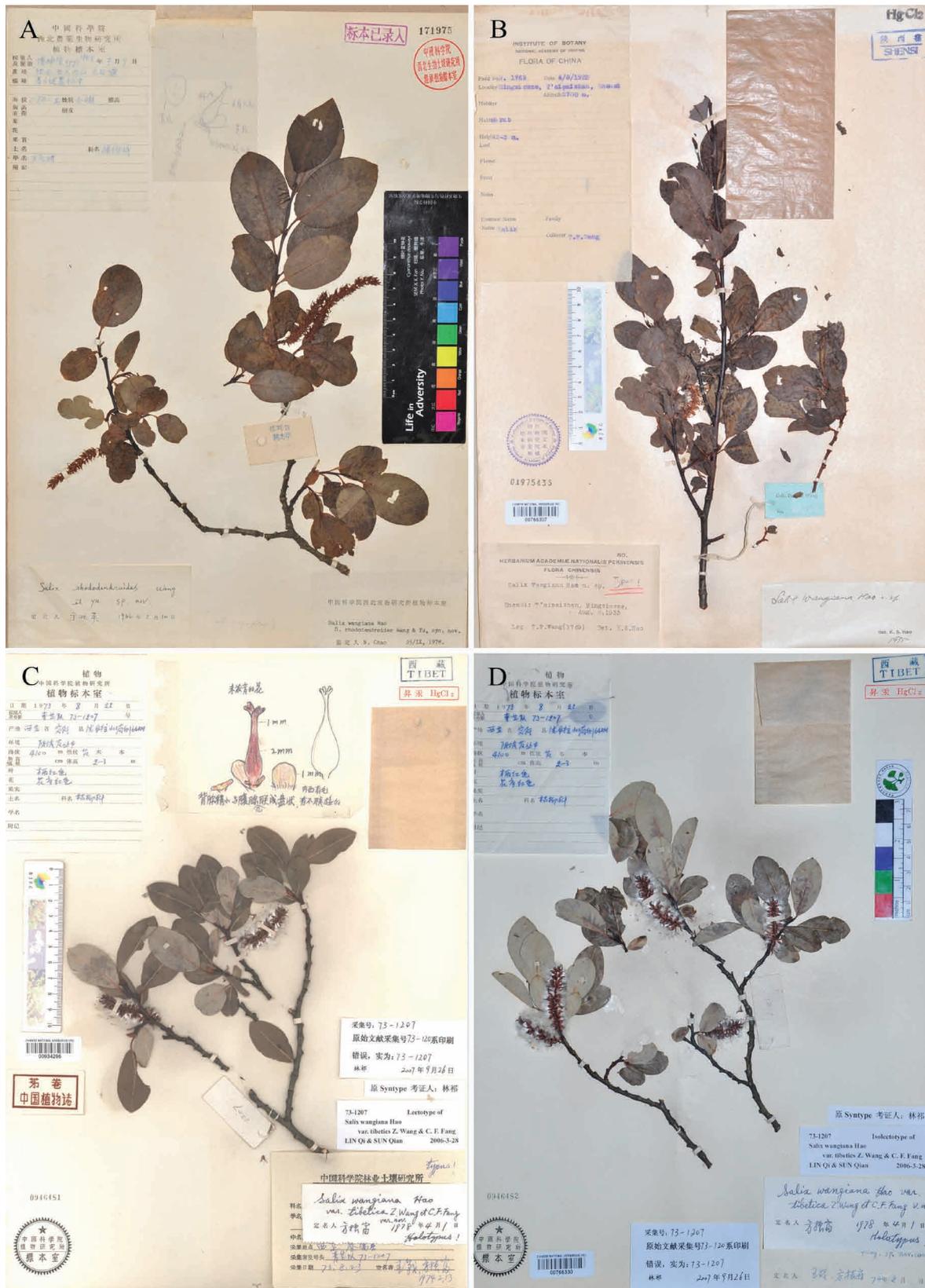


FIGURE 1. Type specimens of *Salix rhododendroides*, *S. wangiana* and *S. zangica* var. *tibetica*. A. Lectotype of *S. rhododendroides* (*K.J. Fu 9509*, WUK 171975); B. Holotype of *S. wangiana* (*T.P. Wang 1769*, PE [barcode] 00766307, available at <http://www.cvh.ac.cn/spm/PE/00766307>); C–D. Lectotype and isolectotype of *S. zangica* var. *tibetica* (*Qinghai-Xizang Expedition 73-1207*, lectotype PE [barcode] 00934296!, available at <http://www.cvh.ac.cn/spm/PE/00934296>!, isolectotype PE [barcode] 00766330!, available at <http://www.cvh.ac.cn/spm/PE/00766330>).

Salix rhododendroides was described by Wang & Yu in 1974, who cited *K.J. Fu 9509* as the type but did not state where the type specimens were conserved. Two duplicates of *K.J. Fu 9509* were found in WUK (WUK 171975 & 90140); WUK 171975 with a written label in Yu's hand on 10 February 1966 was annotated as “*Salix rhododendroides* Wang et Yu sp. nov.”, which is designated here as the lectotype under Art. 9.11 of the ICN.

Chou *et al.* (1984) accepted “*Salix wangiana* K.S. Hao”, and reduced *S. rhododendroides* to a synonym, neglecting that *S. wangiana* had not been validly published at that time. In addition, this treatment was followed by that of Fang *et al.* (1999), who cited *S. rhododendroides* as a synonym of *S. wangiana* K.S. Hao ex C.F. Fang & A.K. Skvortsov in *Flora of China*. However, the name *S. rhododendroides* is the earlier name compared to *S. wangiana*. After examining the type specimens of *S. rhododendroides* and *S. wangiana*, we could not find relevant differences between these, and we followed Chou *et al.* (1984) in considering both names as conspecific. Therefore, the correct name of this species is *S. rhododendroides*, and *S. wangiana* is its synonym.

Salix zangica* var. *tibetica C. Wang & C.F. Fang ex N. Chao (1985: 7).—*S. wangiana* K.S. Hao var. *tibetica* C. Wang & C.F. Fang (1979: 103), *nom. inval.*

Type.—CHINA. Xizang: Zayü County, Demula Mountain, 4100 m, 23 August 1973, *Qinghai-Xizang Expedition 73-1207* (lectotype, designated here: PE [barcode] 00934296!; isolectotypes, KUN [barcode] 0527123!, PE [barcode] 00766330!; [♀]).—For images of the lectotype and isolectotype, see Fig. 1C & D.

Salix wangiana K.S. Hao var. *tibetica* C. Wang & C.F. Fang is invalid because *S. wangiana* itself was not validly published until 1998 (see Art. 35.1, Melbourne Code, McNeill *et al.* 2012). Chao (1985) transferred “*S. wangiana* var. *tibetica*” to *S. zangica* N. Chao (1980: 26), providing a Latin description and type material and also referring to Wang & Fang (1979). Therefore, he unintentionally validated the new variety, *S. zangica* var. *tibetica*, the authorship of which should be cited as “C. Wang & C.F. Fang ex N. Chao”. Lin *et al.* (2007) omitted that *S. wangiana* var. *tibetica* is invalid, and selected a “lectotype” for it. However, Lin *et al.*'s “*S. wangiana* var. *tibetica*” could not be a new combination based on *S. zangica* var. *tibetica*, because they did not cite *S. zangica* var. *tibetica*.

Chao (1985) cited “*Qinghai-Xizang Expedition 73-1207* (fr., typus *S. wangianae* var. *tibeticae*!)” as the type of *S. zangica* var. *tibetica*. However, in the intended combination of Wang & Fang (1979), “*Qinghai-Xizang Expedition 73-120* (Typus, BH)” was provided. The collection number “73-120” is a printing error, which should be corrected to “73-1207” (Lin *et al.* 2007). BH was the code of *Herbarium, Institutum Botanicum Academiae Sinicae* at the time of Wang & Fang (1979), referring to the herbarium of the Institute of Botany, Chinese Academy of Sciences (PE). Three duplicates of *Qinghai-Xizang Expedition 73-1207* were found, two in PE and one in KUN, all of which are in agreement with the protologue of *S. zangica* var. *tibetica*. The specimen PE [barcode] 00934296 is the intended lectotype of Lin *et al.* (2007), with a flower drawing, which is designated here as the lectotype.

The journal *Bulletin of Forest Plant Research*, in which Chao's (1985) article was published, has not been widely circulated, even in China. Obviously, Fang *et al.* (1999) overlooked Chao's new name, and treated *S. wangiana* var. *tibetica* as a synonym of *S. wangiana*. However, in our opinion, *S. wangiana* var. *tibetica* (= *S. zangica* var. *tibetica*) clearly differs from *S. wangiana* (= *S. rhododendroides*) by its adaxial and abaxial nectaries, short ovary stipe, and leaves with entire or irregularly obtuse-serrate margins. Furthermore, it is endemic to Xizang and should not be treated as a synonym of *S. rhododendroides*.

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