

Translations

Two new willows from the Eastern Himalayas¹

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I have found two new, undescribed species amidst excellent and very abundant collections (a few hundred sheets) of Himalayan willows made by the expeditions of the British Museum in the 1930's to 1960's and forwarded to me for identification in preparation for the British Museum publication *An Enumeration of the Flowering Plants of Nepal*. These species are so strikingly different from the rest of the willows in the Himalayas and adjacent mountainous regions of China that there is no doubt they are to be described as new ones. I have had a chance to study vast material (more than 1000 samples) representing Himalayan willows in the collections of the Botanical Institute in Leningrad, Edinburgh and Calcutta Botanic Gardens, Forestry Institute in Dehradun, and also my own collections in Kashmir. Among these samples from all across the Himalayan regions, the new willows that are the subject of this article were represented by just two sheets each. Besides, both samples in either case had been collected not far from each other, so one may assume that both species must be narrow endemics: one from high-elevation northeastern Nepal, the other from Bhutan, also from high altitudes. Even though narrow endemism is uncommon among willows, it is by no means unique: some narrow endemics are known in Europe, too.

***Salix ludlowiana* A. Skvortsov sp. nova.** Frutex humilis vel mediocris (ad 7 pedes altus), ramis brevibus crassiusculis, habitu generali *S. eriostachyae* Anderss. similis. Ramuli juveniles laxe tomentosopubescentes, adulti glabri. Gemmae ovatae obtusae, etiam floriferae vix 5–6 mm longiores, perula coriacea. Stipulae minutissimae vel nullae. Petioli foliorum evolutorum 3–10 mm longi, superne paullo sulcati (vel fere plani?) et plus minusve tomentosi. Folia juvenilia subtus plus minusve sericea, superne tenuiter tomentosa, matura utrinque

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glaberrima. Lamina foliorum evolutorum oblanceolata 40–80 mm longa et 18–28 mm lata, latitudine maxima supra medium, margine crenulato-denticulata. Amenta serotina, ramulos foliiferos 25–60 mm longos terminantia, mascula ca. 50–60 × 8–11 mm, feminea (post anthesin) ca. 50–70 × 8 mm magna, laxiuscula, axi tomentosa. Bracteae in vivo verosimiliter purpurascentes, siccatae fuscae, ca. 1.2–2.0 mm longae et 1.0–1.4 latae, apice rotundatae v. subtruncato-erosae, extus breviter pilosae vel subglabrae, intus glabrae. Nectaria in floribus masculis dua, abaxiale vulgo minutum, adaxiale 0.8–1.2 mm longum ovatum; in floribus femineis nectarium 1, ad 1 mm longum ovato-truncatum vel interdum bilobum. Stamina 2, filamentis 3–4 mm longis basi parce pilosis; antherae vacuae siccae ca. 0.7 mm longae. Ovarium sessile, dense albo pilosum. Stylus 0.2–0.4 mm longus, integer, stigmata dua, 0.3–0.4 mm longa, bipartita.

Typus: Bhutan, Jula, Dhur Chu (27° 47'N, 90° 35'E), alt. 13000 ped., 20/VII 1949, F. Ludlow, G. Sheriff, J.H. Hicks N 19470 (staminate and pistillate), BM. Paratypus: Bhutan, Shingbe (Hela)(27° 55'N, 89° 33'E), alt. 12000 ped., 28/VI 1949, Ludlow, Sheriff, Hicks, N 20413 (pistillate), BM.

Affinitas. Foliatone necnon amentorum facie *Salicem annulferam* Marq. et Airy Shaw in mentem vocat, sed illa habitu subrepente radicante, ramulis juvenilibus basi floccosis, stipulis manifestis, stylibus longis bipartitis certissime distinguitur.

Ludlow's willow. A low or medium-size shrub (to 2 m tall) with short, rather stout branches, similar in habit to another, more widespread eastern Himalayan species, *S. eriostachya* Anderss. The paratype (sample № 20413), a pistillate specimen, was collected together with a staminate one of *S. eriostachya*; the collectors attributed both samples to the same species and placed them on one sheet. In the species described here, only young shoots are loosely tomentose, mature ones becoming glabrous. Buds ovoid, comparatively not large: even those containing a floriferous shoot no longer than 5–6 mm (judging upon some remaining bud scales). Stipules miniscule or obsolete. Petioles of fully developed leaves 3–10 mm long, somewhat grooved on the upper side (or nearly flat), more or less tomentose. Young leaves more or less sericeous on underside and diffusely finely tomentose on upper surface; mature leaves glabrous on both sides. Blades of developed leaves oblanceolate, 40–80 mm long, 18–28 mm broad, broadest closer to apex, crenulate-denticulate at margin. Aments serotinous, terminal, at tips of leafy shoots 25–60 mm long. Staminate aments ca. 50–60 × 8–11 mm, pistillate (by the end of flowering) ca. 50–70 × 8 mm, somewhat loose, axis more or less tomentose. Bracts must be purple when alive, dark brown when dry, 1.2–2.0 mm long and 1.0–

1.4 mm broad, rounded, truncate, or somewhat incised at apex, with very short trichomes on outer side, glabrous on inside. Staminate flower contains 2 nectaries: abaxial one small, adaxial 0.8–1.2 mm long, mostly ovoid. Pistillate flower has 1 adaxial nectary up to 1 mm long, ovoid, truncate or sometimes two-lobed. Stamens 2, filaments distinct, 3–4 mm long, loosely pubescent at base; dry empty anthers ca. 0.7 mm long. Ovary sessile, densely white lanate. Style 0.2–0.4 mm long, not cleft, stigmas 2, 0.3–0.4 mm long, two-parted.

Type: Bhutan at 27° 47'N, 89° 33'E, altitude 13000 ft (ca. 3900 m), 20 Jul 1949, Coll. Ludlow, Sheriff, Hicks, № 19470. Preserved in the British Museum Herbarium in London. Paratype: Bhutan, 27° 55', 89° 33', at 12000 ft (ca. 3600 m), 29 Jun 1949, № 20413, same collectors, same depository.

Even though in habit the new species resembles *S. eriostachya*, upon taking a closer look one can conclude that morphologically it is nearest to *S. annulifera* Marq. & Airy Shaw, which occurs in regions of Tibet northeast of Bhutan, at about the same altitudes (Takpo and Kongbo areas on both sides of the Brahmaputra R.). The latter species, first collected in 1924 and described in 1929, up until now has been known as just the type specimens. In the material that I received from the British Museum, there were six more samples of *S. annulifera* (Ludlow, Sheriff, and Taylor, collections of 1938). I have studied the type specimens, too (K, E), which left me no doubts about the morphology of *S. annulifera* and differences between this willow and *S. ludlowiana*. *S. annulifera* has a creeping and ascending stem (similarly to our Arctic species *S. reptans* or *S. arctica* ssp. *crassijulis*), while *S. ludlowiana* is a shrub that can grow to 2 m. Conspicuous stipules and cleft styles make *S. annulifera* close to *S. eriostachya*, while *S. ludlowiana* is exstipulate, its styles very short and not cleft.

***Salix staintoniana* A. Skvortsov sp. nova.** Frutex humilis vel mediocris (60–150 cm altus), pauci- et crassiramosus. Rami ramulique vegetativi etiam juveniles glaberrimi. Gemmae obtusae ovatae perula coriacea. Stipulae parvulae, sed manifeste glanduloso-denticulatae. Petioli foliorum perfecte evolutorum 5–12 mm longi, sulcati, superne (in sulco), ut etiam facies supera costae, pilis longitudinaliter adpressis substrigillosis micantibus tecti. Lamina foliorum (etiam infimorum juveniliumque), praeter costam et interdum nervos laterales superne, glaberrima, siccatione nigricans, subtus glaucescens, ovalis vel (ob-)ovata, ad 70 × 40 magna, nervis tenuibus, margine crenulatodenticulata. Amenta (masculina solum adhuc reperta) serotina, ramulos foliiferos 20–30 mm longos terminantia, 35–60 mm longa et 8–10 mm in diametro, axi pilis longitudinalibus sparsis. Bractee in vivo purpurascens (fide cl. Staintonii notula), 1.5–2.5 mm longae et ca. 1.5 mm latae, apice late truncatae, glaberrimae vel margine

pilis brevibus solitaris, Nectaria 2, abaxiale parvum, adaxiale vulgo bi-trilobum, ad 1.2 mm longum. Filamenta 2, basi connata, 3.0–3.5 mm longa, glabra. Antherae vacuae siccatae 0.6–0.8 mm longae.

Typus: E Nepal, vallis Arun: Barun Khola, alt. 12000 ped. 12/VI 1956 J.D.A. Stainton № 622 (BM). Paratypus: vallis Arun: Kasowa Khola, alt. 11000 ped. 9/VI 1956 J.D.A. Stainton № 579 (BM).

Affinitas. *Salici opsimanthae* Schneid. (= *faxonianae* Schneid.), speciei yunnanensi-szechuanensi, videtur affinis, sed statura altiore, follis majoribus, pubescentia petiolorum costarumque peculiari adpresse-strigulosa, amentis eorumque pedunculis longioribus, filamentis basi connatis eximie differt. A speciebus arcte endemicis regionum adjacentium, *S. annulifera* Marquand et Airy Shaw necnon *S. ludlowiana* A. Skvortsov magis remota esse videntur.

Stainton's willow. A low or medium-size shrub (60–150 cm) with short stout branches. Vegetative shoots glabrous even at young age. Buds ovoid, bud scale coriaceous. Stipules not large, distinct, glandular-dentate. Petioles of normally developed leaves grooved, with longitudinally appressed bristle-like silvery trichomes in petiole groove as well as on midrib and sometimes also along lateral veins (on upper leaf surface). Leaf blades, even when young, devoid of any trichomes other than these setaceous hairs, blackening on drying, glaucous beneath, elliptic, ovoid, or obovoid, up to 70 × 40 mm, finely nerved, delicately crenulate at margin. Aments (only staminate ones known so far) serotinous, terminating leafy shoots 20–30 mm, cylindrical, 35–60 mm long and 8–10 mm in diameter; ament axis with sparse longitudinal trichomes. Bracts purple when alive, 1.5–2.5 mm long and ca. 1.5 mm broad, wide truncate at apex, glabrous or with short sparse setae at margin. Nectaries 2: abaxial one small, adaxial nectary mostly 2–3-lobed, up to 1.2 mm long. Stamens 2, their filaments connate at base, 3.0–3.5 mm long, glabrous. Dry anthers 0.6–0.8 mm long.

Type: Eastern Nepal, Arun River valley, Barun Khola, at 12000 ft (ca. 3600 m), 12 June 1956 J.D.A. Stainton № 622 (Herbarium of the British Museum in London). Paratype: the same Arun R. valley, Kasowa Khola, at 11000 ft (ca. 3400 m) 9 June 1956, same collector, № 579, same depository.

Apparently, the closest relation of the described species is a willow from Yunnan/Szechuan, *S. opsimantha* Schneid. (*S. faxoniana* Schneid.). However, Stainton's willow is taller, with larger leaves, and featuring very special longitudinally appressed trichomes on upper petiole surface and along major leaf veins—a character not pronounced in *S. opsimantha*,

or in any closely related Chinese willows. The glabrous stamen filaments connate at base are also quite remarkable.