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ECKHARD VON RAAB-STRAUBE[1]

The genus *Saussurea (Compositae, Cardueae)* in China: taxonomic and nomenclatural notes

Abstract

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Investigation of type material of Chinese taxa of *Saussurea* revealed that the names *S. erubescens, S. globosa, S. hypsipeta* and *S. polycolea* var. *acutisquama* are frequently misapplied in the literature. As a consequence, *S. acutisquama* is described here as a species new to science, *S. obvallata* var. *gymnocephala* is lectotypified and raised to specific rank as *S. gymnocephala, S. sorocephala* var. *glabrata* is lectotypified and raised to specific rank as *S. inversa* and the concept of *S. erubescens* is amended. All four species are described and illustrated. *S. nigrescens* var. *acutisquama, S. hypsipeta* and *S. quercifolia* var. *major* are lectotypified. Earlier neotypifications of *S. hypsipeta* and *S. paxiana* are superseded by the rediscovery of original material.

Additional key words: *Asteraceae,* Hengduan Shan, Flora of China, Qinghai-Tibetan Plateau, *Saussurea* subgenus *Amphilaena*

Introduction

Saussurea, with approximately 289 species in China, is one of the largest genera of *Compositae* in the Chinese flora. The taxonomic knowledge on this widespread genus is still increasing and in recent years, a number of new species have been described from China (Chen 2010, 2011; Liu & Ho 2010; Raab-Straube 2009). Some taxonomic problems in *Saussurea* are the result of unavailability of type material to previous workers. In particular, Lipschitz (1979), in spite of his tremendous efforts to see all the type material of the genus, could only check a part of the material in Chinese herbaria and in a few cases overlooked material thought to be lost during the Second World War in Europe. On the other hand, authors of Chinese floras largely relied on Lipschitz' monograph and did not have the opportunity to check all the type material distributed in western herbaria. During preparation of the new treatment of the genus for the forthcoming Flora of China (Shih & Raab-Straube 2011), a very large amount of herbarium material, including types, was revised and an extensive literature research was carried out for all the taxa involved. This work has led to some taxonomic rearrangements and a number of necessary nomenclatural changes, some of which are published here.

Saussurea acutisquama Raab-Straube, **sp. nov.**
Holotype: [China, Qinghai], "Ekspedicija P. K. Kozlova v Centralnuju Aziju, 1899–1901. K No. ? cv.[etki] grjazno sinie; na gline v archevom' lezy. [= flowers grey-blue, on clay in open *Juniperus* forest] Kam' (Tibet'): Bassejn' Jan'-Czy-Czjan'a (r. Goluboj), po r.[eke] I-chyu"; 12 500 ft, 28.7.1900, *V. F. Ladygin s.n.* (LE!) – Fig. 1.

– *"Saussurea polycolea* var. *acutisquama"* sensu Lipschitz (1967: 664, 1979: 64), Liu (1996: 451), Shih & Jin (1999: 34), Fujikawa & al. (2007: 20) non *S. nigrescens* var. *acutisquama* Y. Ling in Contr. Inst. Bot. Natl. Acad. Peiping 6: 95. 1949.

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Fig. 1. *Saussurea acutisquama* – holotype *Ladygin s.n.* at LE.

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Saussureae nigrescentis Maxim. similis, sed phyllariis acutis vel acuminatis bene differt.

Ic. — Fig. 1 (illustrated here for the first time).

Perennial herb, 5–45 cm tall. *Caudex* thin, 1.5–2 mm in diam., vertical or ascending, simple or few-branched, covered with withered remains of leaf sheaths, with adventitious roots. *Flowering stems* c. 2 mm in diam. near base, solitary or several, simple or apically few-branched, erect, straw-coloured to brown, apically sometimes purple, basally glabrous, apically sparsely villous with retrorse hairs. *Leaves* almost concolorous, adaxially green, very sparsely villous, glabrescent, with straw-coloured, basally widened midvein, abaxially pale green, sparsely villous; apex acute and mucronate; margin denticulate and ciliate; base narrowly cuneate to attenuate. *Rosette, basal and lower stem leaves* petiolate; *leaf blade* narrowly obovate, narrowly oblong or narrowly elliptic, 2–13×0.5–1.5 cm, base tapering into a straw-coloured petiole. *Middle stem leaves* sessile, smaller; narrowly elliptic to linear, base semi-amplexicaul. *Upper stem leaves* small, linear. *Peduncles* straw-coloured or purplish, 4–6 mm, sparsely retrorse-villous. *Capitula* solitary or 2–3(–6), in a clustered or lax, corymbiform synflorescence. *Involucre* obconic, 1–1.5 cm in diam. *Involucral bracts* spirally arranged in 4 or 5 rows, imbricate, blackish purple, glabrous or subglabrous, apex acute to acuminate; *outer involucral bracts* narrowly ovate-triangular, blackish brown, 10–13×2–3 mm; *middle involucral bracts* narrowly triangular, basally straw-coloured, apically blackish brown or purplish, 13–17×2–2.5 mm; *inner involucral bracts* subulate, basally straw-coloured, apically purplish black, 17–20×1–2 mm. *Receptacle* flat or slightly convex, densely bristly; bristles dirty white, subulate, 5–7 mm. *Corolla* blackish or bluish purple, 1.4–1.5 cm, tube 6–7×0.5–0.6 mm, throat 3.5–4×1.5–2 mm, lobes 3.5–4×0.3–0.4 mm. *Stamina* 10–11 mm; filaments 3–4 mm; anthertube 8–9 mm including appendages, fertile part 6–6.5 mm, apical appendages 1.5–2 mm, basal appendages woolly, 2.5–3 mm. *Style* 15–18 mm; style branches diverging, c. 2 mm. *Achenes* brown or grey with black spots and five lines, glabrous, laterally compressed, ellipsoid, 3–3.5×1.2–1.5 mm, apex truncate. *Pappus* heteromorphic, biseriate; outer bristles more numerous than the inner ones, white, scabrid, caducous, 3–5 mm long; inner bristles c. 15, apically snow-white, basally straw-coloured to pale brown, plumose, persistent, 13–15 mm long. *Flowering* July to September; *fruiting* September to October.

Distribution. — *Saussurea acutisquama* has been frequently collected in the northern part of the Hengduan Mountain region in SE Qinghai, NW Sichuan and adjacent S Gansu. It was only rarely found in E Xizang and NW Yunnan, where monsoon influence is stronger. The species is mostly found at high altitudes between 3400 and 4900 m, and seems to be widespread in the NE part of the Qinghai-Tibetan Plateau.

Habitat. — The species lives in a variety of alpine habitats from stabilised scree to alpine shrublands with *Sibiraea, Artemisia* and *Potentilla* or open forests of *Picea crassifolia*. It is mostly found in herb-rich, moist alpine meadows or grasslands, in closed *Kobresia* turf and also in disturbed and heavily grazed situations, often in river valleys or terraces.

Taxonomic remarks. — The plants understood by Lipschitz (1967, 1979) and subsequent collectors and researchers following his concept (Liu 1996: 451; Shih & Jin 1999: 34) as *Saussurea polycolea* var. *acutisquama* (Y. Ling) Lipsch. represent a new taxon, which is quite different from the plants to which the basionym of this combination actually refers. The type of *S. nigrescens* var. *acutisquama* represents in fact *S. erubescens* (see below), so that a new name, description and type are needed for the present taxon. I deem it useful to maintain the very instructive epithet *"acutisquama"* (referring to the acute involucral bracts), bearing in mind that it is a new species and not a new combination. The epithet can be kept in accordance with Art. 11.2 (no priority of a name outside the rank in which it is published; McNeill & al. 2006). As the holotype, a specimen with three annotation labels by Lipschitz (Fig. 1) in LE is chosen, so that the new name evidently is in accordance with Lipschitz' concept of this taxon. *S. acutisquama* differs from *S. nigrescens* by the triangular-subulate, acute to acuminate involucral bracts, and from *S. polycolea* and *S. erubescens* by the herbaceous, green (not purple) uppermost leaves and bracts.

Additional specimens seen. — China: Xizang: Baqên (Baqing) Xian: Ya'anduo Qu, 4200 m, [c. 31°58'N, 94°01'E], 22.8.1976, *Qinghai-Xizang Expedition Team, Na Qu Division, Tao De-ding 11068* (KUN 729369, 729371, PE 1176685); ibid., 4100–4300 m, 27.8.1976, *Qinghai-Xizang Expedition Team, Na Qu Division, Tao De-ding 11088* (KUN 729370, 729372, PE 1163459). – Riwoqê (Leiwuqi) Xian: 4450 m, [c. 31°52'N, 96°23'E], 29.7.1991, *Yang Jing-sheng 91-721* (KUN 730576), *91-722* (KUN 730575). — Qinghai: Zadoi (Zaduo) Xian: Sulu Xiang, Yatong, 4100 m, [c. 32°56'N, 95°18'E], 11.8.1965, *Liu Shang-wu 391* (PE). – Yushu Xian: Road between Yushu and Gyairong, 3850–3950 m, 33°3'N, 96°51'E, 19.8.1996, *T. N. Ho & al. 2101* (BM 554759). – Chindu (Chengduo) Xian: NE of Xiewu (Xiwu), on S side of the pass between Zhubgyügoin (Zhujiesi) and Xiewu (Xiwu), on road between Madoi (Maduo) and Yushu, 4020 m, 33°12'N, 97°26'E, 14.8.1996, *T. N. Ho & al. 1767* (BM 573192, CAS 938639, MO 5331463); Xiewu (Xiwu) Xiang, Shang Saiba, E of Chumda (Zhimenda), 4000 m, 32°59'N, 97°21'E, 15.8.1996, *T. N. Ho & al. 1846* (BM 558994, CAS 939966). – Darlag (Dari) Xian: Nari, Jianshe Xiang, along the Dar Qu (Dari

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He) on S side of the Huang He, 4050 m, 33°41'38"N, 99°25'52"E, 10.8.1993, *T. N. Ho & al. 1056* (CAS 919051); Saiergeng, Gyüma (Jimai) Xiang, along the Dar Qu (Dari He) on S side of the Huang He, 4200–4600 m, 33°21'23"N, 99°33'43"E, 14.8.1993, *T. N. Ho & al. 1220* (BM 572829, CAS 919915); just N of Manzhang, along the Manzhang He, between Darlag (Dari) and Baima (Banma), 4000 m, 33°17'51"N, 100°25'55"E, 12.8.1993, *T. N. Ho & al. 1163* (CAS 916552). – Maqên (Maqin) Xian: Talalong, Heitu Shan, between Gyumgo (Jungong) and Maqên (Maqin) on S side of the Huang He, 3350–3450 m, 34°39'30"N, 100°37'37"E, 23.7.1993, *T. N. Ho & al. 231* (BM 572058, CAS 913620); along the Xihalong He, between Gyumgo (Jungong) and Maqên (Maqin), 3450–3550 m, 34°35'19"N, 100°33'28"E, 26.7.1993, *T. N. Ho & al. 327* (BM 577804, CAS 915120); Wahema, Dawu Xiang, along the Gequ He, between Maqên (Maqin) and Gadê (Gande), 4100 m, 34°15'58"N, 100°17'03"E, 3.8.1993, *T. N. Ho & al. 709* (BM 572802, CAS 912713). – Henan Xian: Near the county town, 3400 m, [c. 34°45'N, 101°38'E], 17.9.1970, *Liu Shang-wu 1858* (CAS 903869); Keduo Xiang, growing on the N slope, 3400 m, [c. 34°45'N, 101°38'E], 19.9.1970, *Liu Shang-wu 1927* (CAS 904645). — Sichuan: Sêrxü (Shiqu) Xian: C. 90 km NW Maniganggo, near road to Sêrxü, 4400 m, 32°29'40"N, 98°27'22"E, 28.9.2000, *E. v. Raab-Straube & al. 1256* (B, KUN, MO); c. 43 km NW of Sêrxü, near road to Yushu in Qinghai Province, 4400 m, 33°08'16"N, 97°40'45"E, 29.9.2000, *E. v. Raab-Straube & al. 1269* (B, KUN, MO). – Zoige (Ruo'ergai) Xian: Min Shan, pass near provincial border to Gansu, c. 175 km NW of Songpan on main road to Lanzhou, 3700 m, 34°01'16"N, 102°44'19"E, 4.10.2000, *E. v. Raab-Straube & al. 1301* (B, KUN, MO). – Songpan Xian: Piket Dschingdschetan [c. 33°N, 103°40'E], 25.7.1885, *G. N. Potanin s.n.* (LE). – Muli Xian: Yaju / Yazhui [?] Linchang [= forest farm], 3800 m, 21.8.1983, *Qinghai-Xizang Expedition Team 13225* (KUN 730954, PE 1275953, 1282018). — Yunnan: Lijiang Xian: NE Likiang: Tzai-koo Snow Mt [= Zhugu Xueshan], [c. 27°N, 100°20'E], 31.7.1939, *Ching Ren-chang 21249* (A, KUN 729735, 729738, PE 348173).

Saussurea erubescens Lipsch. in Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 20: 342–343. 1960 ≡ *Saussurea uniflora* var. *pumila* Maxim. in Bull. Acad. Imp. Sci. Saint-Pétersbourg 27: 489. 1881. – Holotype: "China occidentalis. Regio Tangut (Prov. Kansu). Jugum boreale finitimum in pratis montium", 7.(19.)8.1880, *N. M. Przewalski* (LE!, isotypes: LE [2×]!)

= *Saussurea nigrescens* var. *acutisquama* Y. Ling in Contr. Inst. Bot. Natl. Acad. Peiping 6: 95. 1949, **syn. nov.** ≡ *Saussurea polycolea* var. *acutisquama* (Y. Ling) Lipsch. in Bot. Zhurn. 52: 663. 1967. – Lectotype (designated here): [China], "Kansu, Hsiahohsien [= Gansu, Xiahe Xian (Labrang)], on weedy summit, 3800 m", 15.8.1936, *T. P. Wang 5732* (PE!).

= *Saussurea globosa* var. *monocephala* Lipsch. in Bot. Zhurn. 52: 663. 1967, **syn. nov.** – Holotype: [China] "Southwestern Kansu, Upper Tebbu country: below Shimen, 11 000 ft, in willow & spruce forest, moist meadows, flowerheads purple", Jul.–Aug. 1925, *J. F. Rock 13067* (NY 163195!; isotypes: E 47879!, GH!, K!, LE [fragm., photos!], W!)

– *"Saussurea globosa"* sensu Hand.-Mazz. (1938: 340 p. p.), Liu (1996: 449) non F. H. Chen

[– *Saussurea veitchiana* var. *glabra* F. H. Chen, in schedis, not effectively published].

Ic. — Fig. 2 (illustrated here for the first time).

Perennial herb, 10–30 cm tall, with single or rarely two stems in the centre of the leaf rosette, arising from a woody caudex. *Caudex* short, slender, simple or rarely 2-branched, to 3 cm long and 0.5–1 cm in diam., covered with dark brown, sometimes fibrous remains of withered leaf sheaths. *Flowering stems* 1–3 mm in diam. near base, erect or ascending, straight or somewhat flexuose, simple, shallowly sulcate, straw-coloured to light brown, ± tinged with purple or purple throughout, basally glabrescent or sparsely covered with reflexed, long, flagellate hairs and with short, glandular hairs, apically sparsely to densely reflexed-pilose, below capitula densely villous. *Rosette and basal leaves* petiolate, subconcolorous, adaxially light green, scabrid, densely glandular-hairy and pilose to glabrescent, abaxially slightly paler, glandular-hairy, narrowly elliptic or narrowly ovate, 1.5–10×0.7–2(–3.5) cm, apex acute to acuminate, margin irregularly sinuate-denticulate, base cuneate, tapering into a 0.5–3.5 cm long, narrowly winged, straw-coloured to purple, basally widened petiole. *Lower stem leaves* 1–2, as basal leaves, but with shorter petiole or sessile, 4–7×0.7–1.4 cm. *Middle and upper stem leaves* 2–4, as basal leaves, but sessile, gradually smaller and increasingly purple, 2.5–4×0.4–0.9 cm; base cuneate, clasping to sheathing the stem, purple; margin minutely denticulate-sinuate in upper half only to almost entire. *Bracts* sessile, concolorous, intensely purple, adaxially densely glandular-hairy, abaxially glandular-hairy and pilose on veins, elliptic or narrowly elliptic and boat-shaped, 1.5–3.5×0.3–1 cm, apex acuminate, margin (sub)entire, base cuneate. *Peduncles* 0.5–4 cm, purple, densely villous with spreading or reflexed long-flagellate hairs, shallowly sulcate, thickened below capitula. *Capitula* (1–)2–3(–6), in a corymbiform synflorescence, with 30–40 florets. *Involucre* obconic or campanulate, 1.5–2.5(–3) cm in diam. *Involucral bracts* spirally arranged in 4 or 5 rows, imbricate, margin ciliate, apex acute; *outer involucral bracts* blackish purple, sparsely to densely pilose, triangular-ovate, 8–10.5×2.5–5.5 mm, margin ciliate, apex acute; *middle and inner involucral bracts* basally yellowish brown, apically and near margin blackish purple, pilose, narrowly triangular to linear, 10.5–12×0.8–2.5 mm. *Receptacle* convex, densely bristly; bristles shiny straw-

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Fig. 2. *Saussurea erubescens* – specimen *Raab-Straube & al. 1257* at B (B 100254761).

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coloured, subulate, 3–5.5 mm long. *Corolla* purple, glabrous, 11–17 mm, tube 5.5–7×0.3–0.5 mm, throat cylindric, 2.5–3.5×1–1.5 mm, lobes 3–5×0.4–0.6 mm. *Stamina* 7.5–10.5 mm; filaments 2.5–3.5 mm; anthertube dark purple, 6–10 mm including appendages, fertile part 3.5–6 mm, apical appendages 1.6–2 mm, basal appendages woolly, 2–2.8 mm. *Style* 13–17 mm, style branches diverging, 2.2–3.3 mm. *Achenes* straw-coloured to blackish purple, obovoid or cylindric, 3–4×1–1.5 mm, smooth, indistinctly ribbed, apex truncate with a dentate crown. *Pappus* heteromorphic, biseriate, dirty white; outer bristles 1–4.5 mm, scabrid, falling off individually; inner bristles 8.5–10 mm, plumose, connate at base to a ring, falling off as a whole. *Flowering* July to August; *fruiting* August to October.

Distribution. — *Saussurea erubescens* is distributed in the northeastern part of the Qinghai-Tibetan Plateau and adjacent mountain systems. It is a common species in the high mountain grasslands of Xizang, Qinghai, NW Sichuan and Gansu at altitudes between 2400 and 4900 m.

Habitat. — *Saussurea erubescens* inhabits consolidated scree slopes, *Kobresia* grasslands with closed turf and shrublands with *Salix, Rhododendron* and *Potentilla*. It is also frequent in alpine pastures and herb-rich alpine meadows.

Taxonomic remarks. — The name *Saussurea globosa* F. H. Chen has been applied for a wide morphological spectrum of plants, ranging from quite large herbs with many capitula and a strong aromatic scent of the leaves (mainly found in western Sichuan) to small plants with one to few capitula and no aromatic scent (mainly found in drier climatic conditions in Qinghai and Gansu). This broad species concept was introduced by Handel-Mazzetti (1938) and was followed by Liu (1996) and, at least in part, also by Lipschitz (1967, 1979). However, it was noted by Fujikawa & al. (2007: 20), that "there are two forms" of *S. globosa*.

Saussurea erubescens was based on material collected by Przewalski and described as *S. uniflora* var. *pumila* Maxim., in the text of the description of S. *phaeantha*. Maximowicz (1881: 489) cited no specimen, but clearly based his description on original material collected by Prezwalski in 1880. Plants collected by the same in 1884 are not part of the original material as their collection date is later than the original description. These plants correspond to the smaller forms of *"S. globosa"*.

Saussurea globosa var. *monocephala* Lipsch. of 1967 is conspecific with *S. erubescens* Lipsch. of 1960, as Lipschitz himself noted on a herbarium label ("Ut videtur *S. globosa* var. *monocephala* mihi est vera *S. erubescens* Lipsch."). He also annotated isotypes of his *S. globosa* var. *monocephala* (*Rock 13067;* GH! W!) with the determination *S. erubescens*. However, he did not adopt this correction in his monograph of 1979, in which this taxon is still considered a variety of *S. globosa* (Lipschitz 1979).

Saussurea nigrescens var. *acutisquama* has been misunderstood since its original description by Ling (1949: 95). The syntypes at PE are clearly conspecific with *S. erubescens* as well. Lipschitz (1967: 663), who published the new combination *S. polycolea* var. *acutisquama* (Y. Ling) Lipsch., never examined the type, but only material at LE, which seemed to match Ling's rather imprecise description. The original description by Ling notes the similarity with *S. nigrescens* and with *S. globosa,* quoting Handel-Mazzetti (1938: 342) "weniger behüllte, schlanke Exemplare [of *S. globosa*] werden der *S. nigrescens* ähnlich" [slender specimens with fewer involucral bracts of *S. globosa* are approaching *S. nigrescens*], who treated these plants under *S. globosa* in a broad sense. Liu (1996: 449) also followed this broad circumscription of *S. globosa*. His *"S. globosa"* is in fact *S. erubescens,* whereas his *"S. erubescens"* is in fact *S. gymnocephala*. *S. globosa* s.str., occurring in W Sichuan and N Yunnan, is absent from Qinghai.

Additional specimens seen. — China: Xizang: Nagqu (Naqu) Xian: Kongma [= Kormang] Qu, Dahe, 4600 m, [c. 31°42'N, 92°27'E], [Aug] 1976, *Qinghai-Xizang Expedition Team 10877* (PE 1163229). – Biru Xian: Kangzang, Ragxi Qu, [c. 31°32'N, 93°18'E], 9.9.1951, *Jia Shen-xiu 399* (PE 618470), *407* (PE 618460). – Dêngqên (Dingqing) Xian: Upper Salween basin, Nagqu-Dengqen, pass W of Sendo, 4850–4900 m, 31°41'N, 94°55'E, 14.9.1994, *G. Miehe & al. 94-300-27* (herb. Miehe). – Qamdo (Changdu) Xian: Upper Mekong, Ningjing Shan, Qamdo-Jomda, E of Qamdo, 4780 m, 31°14'N, 97°27'E, 22.9.1994, *G. Miehe & al. 94-369-26* (herb. Miehe). – Jomda (Jiangda) Xian: Zonglayi La, 4000 m, [31°21°N, 97°41'E], 30.9.1976, *Wu & al. 6036* (KUN 729499, 729500). — Qinghai: Darlag (Dari) Xian: Mobadong Shan, Dêrnang (Deang) Xiang between Darlag (Dari) and Baima (Banma), 4400–4700 m, 33°22'37"N, 100°17'24"E, 15.8.1993, *T. N. Ho & al. 1296* (BM 573316, CAS 790036). – Datong Xian: Qilian Shan, Daban Shan NW of Xining, 3300 m, 36°55'N, 101°19'E, 25.7.1993, *G. & S. Miehe 9298/00* (herb. Miehe). – Dulan Xian: [Burhan Budai Shan, c. 35°40'N, 97°20'E], 1884, *N. M. Przewalski 350* (E 47853, K [2×], LE [2×], P [2×], W). – Golmud (Ge'ermu) Xian: Tuotuo river, 4600 m, [c. 34°12'N, 92°25'E], 15.9.1990, *Fei Yong & al. 811* (KUN 730827, 730828); Kunlun Shan, northern declivity, E of Kunlun Shankou, SW of Golmud, N-exp., 4300–4700 m, 35°43'N, 94°17'E, 1.8.1993, *G. & S. Miehe, 9388/02* (herb. Miehe); ibid., 4610 m, 35°41'N, 94°14'E, 1.8.1993, *G. & S. Miehe 9378/13* (herb. Miehe). – Huangzhong Xian: La Che Tze [= La Ji Zi] Shan Mountains, south of Xining, 3350–3900 m, 12 600 ft, [c. 36°45'N, 101°35' E], 3.8.1923, *Ching Ren-chang 688* (E 47845, US 1245703). – Huzhu Xian: Jiading Gongshi, Zhalongjing,

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[c. 36°57'N, 102°30'E], 11.8.1971, *Guo Ben-zhao 9399* (KUN 730022). – Madoi (Maduo) Xian: Huashixia Xiang, along the Changma He, c. 9 km S of Huashixia, 4300–4400 m, 35°1'22"N, 98°51'38"E, 19.8.1993, *T. N. Ho & al. 1492* (BM 580210, CAS 792864, E 47890, MO 4648950); Huoluoguogai, Qingshui Xiang, between Darlag (Dari) and Huashixia, 4600–4730 m, 34°49'22"N, 99°2'34"E, 17.8.1993, *T. N. Ho & al.1347* (CAS 919695). – Maqên (Maqin) Xian: Dawu Xiang, SE of Maqên (Maqin), 3920 m, 34°24'11"N, 100°23'34"E, 29.7.1993, *T. N. Ho & al. 522* (BM 535045, CAS 790383, E 47891, MO 4648463); E of A'nyemaqen, 3800 m, 34°45'N, 99°41'E, 30.7.1998, *G. Miehe & al. 98-32423, 98-32427* (herb. Miehe); A'nyemaqen S and SW declivity, 4620 m, 34°35'N, 99°27'E, 2.8.1998, *G. Miehe & al. 98-33929* (herb. Miehe). – Menyuan Xian: [=] Mungyuang, Kokonor, environ de Paishuiho [= Baishui He], 2410 m, [c. 37°22'N, 101°38'E], 21.9.1936, *Liou Ki-mon 7112* (PE). – Minhe Xian: [=] Mingke, Kokonor, 4500 m, [c. 36°15'N, 102°30°E], 27.8.1930, *Hao King-shen 1037* (PE). – Nangqên (Nangqian) Xian: E side of pass at head of Xiaolong Gou, W of Nangqên on road to Domba, 4540–4670 m, 32°53'N, 96°41'E, 3.9.1996, *T. N. Ho & al. 2844* (BM 573181, CAS 942764, MO 4952642). – Tongren Xian: [=] Tungjenhsien, Kokonor, 4000 m, [c. 35°34'N, 102°01'E], 15.9.1936, *Wang Tso-ping 6226* (PE). – Ulan (Wulan) Xian: Qilian Shan, Dawu Gou, 3800 m, [c. 36°55'N, 98°29'E], 10.8.1956, *Cheng Zi-jun 2013* (PE 1204823). – Xinghai Xian: Ngola Shan pass, c. 135 km NE of Madoi on main road to Xining, 4400 m, 35°27'48"N, 99°29'21"E, 28.9.2000, *E. v. Raab-Straube & al. 1285* (B, KUN, MO). – Yushu Xian: Baitang Shan, at the pass between Machang and Shanglaxiu (Doramarkog), 4540–4670 m, 32°53'N, 96°41'E, 20.8.1996, *T. N. Ho & al. 2153* (CAS 940697, MO 5329639). – Locality not found: Khrebet Juzhno-Kuku-norskij, juzhnoj sklona, uv. Usubin-Gol [?], 10500 ft, 16.8.1901, *V. F. Ladygin 438* (LE); in montibus Richthofen (Nan-Shan), Hung-Shu i-Pa-Shang-Ho, 3700 m, 6.8.1931, *B. Friis-Johansen 2805* (S), ibid., 14.8.1931, *B. Friis-Johansen 2833* (S); Qinghai-Xizang road, 60 daoban [= roadstation no. 60], 4650 m, 6.9.1988, *Zheng Du & Guo Ke 12594* (PE [4×]). – Without precise locality: Koukounor, Thibet du Nord, *A. Neel s.n.* (P); Kokonor, 3800 m, 12.9.1930, *Hao King-shen 1246a, 1264* (PE); Amne Matchin, Kokonor, 4500 m, 2.9.1930, *Hao King-shen 1107* (PE). — Gansu: Subei Xian: Kuen-Lun, sev. skl. khr. [...] Ulan-bulak [...], 12–13000 ft, [c. 38°52'N, 95°45'E], 5.7.1894, *V. I. Roborovski 288* (LE); Kaiting He, 4000 m, 8.8.1956, *Guo Ben-zhao 3429* (KUN 730228). – Tianzhu Xian: China occidentalis, regio Tangut (prov. Kansu), jugum boreale finitimum [c. 37°10'N, 102°40'E], 19.8.1880, *N. M. Przewalski s.n.* (LE[3×]); U schau ling [= Wushaoling], [37°12'N, 102°52'E], 9.8.1932, *I. Trippner 261* (M 29127). – Yuzhong Xian: Maxian Shan, 2800 m, 2.9.1956, *Huang He Expedition Team 3550* (KUN 730009, PE); ibid., 2600 m, [35°45'N, 103°59'E], 2.9.1956, *Huang He Expedition Team 3581* (KUN 730007, PE) – Xiahe Xian: [=] Hsiaho Hsien, 3800 m, [c. 35°14'N, 102°28'E], 15.8.1936, *Wang Tso-ping 5732* (PE); Sangke, 3500 m, [c. 35°09'N, 102°24'E], 17.8.1937, *Fu Kun-tsun 1465* (PE); inter Tsamousche, Schibsa et Labrang, 2800–3800 m, 8.–11.8.1935, *G. Fenzel 2545* (W) – Luqu Xian: Shuangcha, Shengou, 3500 m, [c. 34°30'N, 102°30'E], 8.8.1991, *Tao He Expedition Team 308* (KUN 730762); ibid., 3560 m, *Tao He Expedition Team 332* (KUN 730759). – Jonê (Zhuoni) Xian: Upper Tebbu [= Têwo] country, below Shimen, 11000 ft, [c. 34°20'N, 103°12'E], 7–8.1925, *J. F. Rock 13067* (E 47879, GH, K, LE [fragm.], NY 163195, W). – Têwo (Diebu) Xian: Lazikou Xiang, 2900 m, [c. 34°05'N 103°14'E], 6.8.1993, *Xu Lang-ran & Zhang Ji-min 2200* (MO 4482358) – Zhugqu (Zhouqu) Xian: Gora Chagola [c. 33°30'N, 104°20'E], 11.7.1885, *G. N. Potanin s.n.* (LE). – Locality not found: Ta-ka-chang, Zaluk, 23.7.1930, *D. Hummel 4327* (S); Drakana, 27.7.1930, *D. Hummel 4602* (S); Bandchuka, 1.8.1930, *D. Hummel 4686* (S); Min Shan, Yanshui Carde [?], 3700 m, 18.8.1937, *Wang Tso-ping 7545* (PE). – Without precise locality: 25.8.1890, *J. Martin 10* (LE [3×]); Minshan, 4000 m, 22.8.1937, *Wang Tso-ping 7602* (PE). — Sichuan: Sêrxü (Shiqu) Xian: C. 90 km NW Maniganggo, near road to Sêrxü, 4400 m, 32°29'40"N, 098°27'22"E, 1.10.2000, *E. v. Raab-Straube & al. 1257* (B, KUN, MO). – Dêgê (Dege) Xian: Pass 21 km NW Maniganggo on road to Sêrxü, 4520 m, 32°03'07"N, 99°00'37"E, 28.9.2000, *E. v. Raab-Straube & al. 1250* (B, KUN, MO); between Dêgê and Chola Shan, 4000 m, [c. 31°57'N, 98°52'E], 27.9.1965, *Lang Kai-yong & Zhang Yong-tian 2831* (PE 890991). – Songpan Xian: Tsipu La, 4000 m, [32°43'N, 102°41'E], 5.8.1922, *H. Smith 4176* (BM 535147, MO 1625545, S, UPS (V-108377) 200045, W). – Pingwu Xian: Dujuan Shan, *Picea*-forest, 3150 m, [c. 32°26'N, 104°31'E], 21.9.1986, *Wu Zheng-yi 55* (KUN 730733, 730734).

Saussurea gymnocephala (Y. Ling) Raab-Straube, **stat. nov.** ≡ *Saussurea obvallata* var. *gymnocephala* Y. Ling in Contr. Inst. Bot. Natl. Acad. Peiping 6: 92. 1949. – Lectotype (designated here): [China, Qinghai], "Tsigeganpa, Kokonor 3440 m", 24.8.1930, *K. S. Hao 991* (PE!; isolectotypes: PE [2×]!).

– *"Saussurea erubescens"* sensu Liu (1996: 447), Fujikawa & al. (2007: 20) non Lipsch.

Ic. — Fig. 3; Fujikawa & al. 2007: fig. 11 (as *S. erubescens*).

Perennial herb, 9–55 cm tall. *Caudex* stout, simple or branched in two, densely covered with fibrous remains of old leaf sheaths. *Flowering stems* solitary, straw-coloured, densely leafy, erect, simple, 2–4 mm in diam. at base. *Rosette, basal and lower stem leaves* adaxially green, scabrid, densely strigulose, abaxially glaucous-green, abaxially sparsely strigulose to glabrescent, both surfaces

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Fig. 3. *Saussurea gymnocephala* – lectotype *K. S. Hao 991* at PE.

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densely golden gland-dotted, narrowly elliptic or elliptic, 4–18(–27) × 0.9–2.5(–3.8) cm, apex acute to acuminate, margin subentire, minutely denticulate, base cuneate, tapering into a short, straw-coloured or purple, basally widened petiole. *Middle stem leaves* sessile, gradually smaller, narrowly elliptic, 4–10 × 0.8–1.5 cm. *Upper stem leaves and bracts* half-enclosing the synflorescence, purple, adaxially glabrous, abaxially sparsely pilose, narrowly elliptic and boat-shaped, 2–6 × 0.5–1.5 cm, margin entire. *Peduncles* straw-coloured or purple, shallowly sulcate, villous, 0.5–3 cm. *Capitula* solitary or 2–4, arranged in a clustered corymbiform synflorescence. *Involucre* broadly campanulate or obconic, 1.5–2.5 cm in diam. *Involucral bracts* in 4–5 rows, imbricate, straw-coloured or purplish with dark margin, sparsely pilose, apex acute and long-attenuate; *outer involucral bracts* triangular-ovate, 8–10 × 3–4 mm; *middle involucral bracts* narrowly ovate-elliptic, 10–14 × 1.5–2.5 mm; *inner involucral bracts* linear, 13–15 × 1–1.5 mm. *Receptacle* convex, densely bristly; bristles shiny white, subulate, 5–7 mm. *Corolla* purple, (13–)15–17 mm, tube (5–)8–9 mm, throat 3.5–4 mm, lobes 3–4 mm. *Stamina* 10–12 mm; filaments 3–4 mm; anthertube 8–10 mm including appendages, fertile part 5–6 mm, apical appendages 1.5–2 mm, basal appendages laciniate-woolly, 2–2.5 mm. *Style* 17–18 mm; style branches diverging, c. 2 mm. *Achenes* brown, cylindric, 3–3.5 mm, smooth. *Pappus* dirty yellowish white, outer bristles 2–4 mm, inner bristles 11–12 mm. *Flowering* July to September; *fruiting* September to October.

Distribution. — *Saussurea gymnocephala* is distributed in northern and eastern parts of the Qinghai-Tibetan Plateau and has been collected at altitudes between 3400 and 4300 m in large parts of Qinghai, W Sichuan and E Xizang.

Habitat. — *Saussurea gymnocephala* grows preferably in wet meadows near rivers in almost closed turf, but it has also been found in drier situations. Its ecological preference is quite different from that of other *Saussurea* species from the area, which are usually found in much drier habitats.

Taxonomic remarks. — Synonymisation of *Saussurea obvallata* var. *gymnocephala* with *S. erubescens* was done by Lipschitz (1967: 663, 1979: 63) without consultation of the type at PE, and was indicated as doubtful by use of a question mark. However, subsequent workers accepted *S. obvallata* var. *gymnocephala* as a synonym of *S. erubescens* and accordingly misidentified material of this distinct species. The type of *S. obvallata* var. *gymnocephala* differs from *S. erubescens* by its scabrid, densely glandular, rather large and entire stem leaves, purple or purplish tinged bracts which enclose the basal part of the synflorescence, by its straw-coloured to purplish involucral bracts with a narrow dark margin and by the very densely leafy upper part of the stem. *S. gymnocephala* is a member of *S.* subg. *Amphilaena,* but rather different from and certainly not closely related to *S. obvallata,* which is characterised by large, cream or yellowish, semi-transparent and membranous bracts.

There are three sheets of the original collection at PE. The specimen with two mounted plants, one of them with the original field label "991" still attached to it, is chosen here as the lectotype (Fig. 3). It has a type-written label with the indications "*Saussurea obvallata* Wall. / var. *gymnocephala* Ling var. nov. / (*S. tangutica* Maxim var. *g.* Ling) / Kokonor: Tsigeganga, alt. 3400 m., 24.8.1930, K. S. Hao 991. / Det. Ling Yong" on it, while the other two sheets at PE have not been annotated by Ling Yong.

Additional specimens seen. — China: Xizang: Nang (Lang) Xian: Duocun, 4000 m, [c. 29°02'N, 93°08'E], 22.8.1972, *Xizang Drug Plants Expedition Team 4502* (HNWP 33569, 74318, PE 963379). – Tingri (Dingri, Xêgar) Xian: East part of Pingyuan, 4300 m, [c. 28°39'N, 87°08'E], *Xizang Expedition Team 1707* (PE 724501). — Qinghai: Chindu (Chengduo) Xian: Zadoi (Zaduo), Jinqinlang, 4100 m, [c. 33°22'N, 97°06'E], 17.8.1983, *Liu Cao-yi 83-295* (HNWP 105537); Xiewu (Xiwu) to Shihuiyao, 3900 m, [c. 33°20'N, 97°20'E], 12.9.1983, *Liu Cao-yi 83-466* (HNWP 106608); Xiewu (Xiwu) to Serxü (Shiqu) [Sichuan], 4100 m, [c. 33°10'N, 97°25'E], 31.8.1983, *Liu Cao-yi 83-349* (HNWP 106551). – Madoi (Maduo) Xian: Xia Dawo, riverbank, 3980 m, [c. 35°N, 99°15'E], 5.8.1974, *Maqên Expedition Team 486* (HNWP 42021). – Maqên (Maqin) Xian: Dawu Xiang, along the Gequ He, N of Maqên (Maqin) on road to Jiangrang hydroelectric plant, 3600 m, 34°38'8"N, 100°14'37"E, 31.7.1993, *T. N. Ho & al. 608* (BM 573528, CAS 914528, E 47901, MO 4648487). – Nangqên (Nangqian) Xian: Bêca (Baiza) Xiang, along the Ba Qu towards the Xizang border from Bêca Forest Station, SE of Bêcaka, 3790 m, 31°53'N, 96°31'E, 8.9.1996, *T. N. Ho & al. 2988* (BM 551480, CAS 940716, MO 5329489). – Qumarlêb (Qumalai) Xian: Qiuzhi [Qigzhe], Baibu, 4200 m, [c. 34°30'N, 95°51'E], 14.8.1966, *Liu Shang-wu & Huang Rong-fu 779* (HNWP 17434). – Xinghai Xian: Wenquan Xiang, along the Qulong He, just NE of Wenquan on the road to Daheba, 4010 m, 35°25'15"N, 99°28'1"E, 18.8.1993, *T. N. Ho & al. 1410* (BM 535050, CAS 919661, E 47902, MO 4648745). – Yushu Xian: Jiangxi Gou, 3700 m, 19.8.1980, *Wei Zheng-feng 22036* (HNWP 97568, 97569); Longbao Xiang, Ka'ai Guo, 4200 m, [c. 33°02'N, 96°59'E], 17.8.1964, *Liu Shang-wu 644* (HNWP 3136, PE); near Shang Baitang, in the Baitang He basin, SSE of Yushu, 3750 m, 32°51'N, 97°03'E, 20.8.1996, *T. N. Ho & al. 2113* (BM, CAS 941504, MO 5205772). – Zadoi (Zaduo) Xian: Sulu Xiang, Yatong, 4100 m [c. 32°56'N, 95°18'E], 11.8.1965, *Liu Shang-wu 384* (HNWP 13692, PE). – Zêkog (Zeku) Xian: Dobdain (Duofu), 3400 m, [c. 35°13'N, 101°48'E], 23.8.1970, *Liu Shang-wu & Luo Da-shan 1590* (HNWP

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26424). – LOCALITY NOT FOUND: bassejn Yan-Zi-Jiang (r. Goluboj), ozero Rkhombo-mco [?], 13100 ft, 1.8.1900, *V. F. Ladygin s.n.* (LE); Tsigeganpa (Tsigegenga), Kokonor, 3440 m, 24.8.1930, *Hao King-shen 991* (PE [4×]). — SICHUAN: XIANGCHENG XIAN: Sique, Jiefang Xiang, 4600 m, [c. 28°55'N, 99°47'E], 29.7.1972, sine *coll. 1154* (CDBI 16697).

Saussurea inversa Raab-Straube, **nom. & stat. nov.**
≡ *Saussurea sorocephala* var. *glabrata* Hook. f., Fl. Brit. India 3: 377. 1881 ≡ *Saussurea gnaphalodes* var. *glabrata* (Hook. f.) Hand.-Mazz. in Acta Horti Gotoburg. 12: 344. 1938 ≡ *Saussurea hypsipeta* var. *glabrata* (Hook. f.) Lipsch. in Novosti Sist. Vyssh. Rast. 1964: 317. 1964 – Lectotype (designated here): Western Tibet, alt. 15–1800 ft., *Strachey 15* (K 000372731!) – Fig. 4
– *"Saussurea hypsipeta"* sensu Lipschitz (1964: 317, 1966: 226, 1979: 50), Liu (1985: 876, 1996: 458), Shih & Jin (1999: 11), Shen (1999: 270) non Diels

Ic. — Fig. 4 (illustrated here for the first time).

Perennial herb, polycarpic, sometimes caespitose, 3–15 cm tall. *Caudex* simple or branched at ground level. *Flowering stems* solitary, simple, erect, 2–5 mm in diam. *Rosette and lower stem leaves* long-petiolate; petiole green; *leaf blade* green, sometimes tinged purple, glabrous or sparsely white-arachnoid, narrowly obovate-spatulate, elliptic or oblong, 1–3(–6) × 0.3–1 cm; base attenuate; margin obtusely dentate to entire; apex obtuse. *Upper stem leaves* sessile, white and blackish woolly, narrowly triangular-ovate, usually reflexed; margin crenate to entire; apex obtuse to acuminate. *Synflorescence* hemispherical, 2–4 cm in diam. *Capitula* 5–15, sessile. *Involucre* cylindric, 5–6 mm in diam. *Involucral bracts* in c. 3 rows, subequal, membranous; *outer involucral bract*s narrowly elliptic-linear, 8–9×1.5–2 mm, densely black- and white-woolly, apex subacute; *middle and inner involucral bract*s obovate-elliptic, 8–9×2–3 mm, hyaline, apically black-ciliate, apex purplish, acute, fimbriate. *Receptacular bristles* 0.5–1.5 mm. *Corolla* rose-purple, 7–9 mm, tube 3–5 mm, limb 3.5–5 mm, lobes 1.2–2 mm. *Achenes* brown, cylindric to obconic, 4–5 mm, smooth, glabrous. *Pappus* mouse-grey to blackish, in 2 rows; outer bristles reflexed and appressed on achene, 1–3 mm; inner bristles 7–8 mm. *Flowering* July to September; *fruiting* August to October.

Etymology. — The specific epithet refers to the outer pappus bristles, which are consistently reflexed and appressed to the achene. This is a character state very seldom found in the genus *Saussurea*. A similar character state is known from the closely related *S. gnaphalodes* (Royle ex DC.) Sch. Bip., where some but not all outer pappus bristles can be reflexed; this is also the case in *S. katochaete* Maxim., which is also distributed widely on the Qinghai-Tibetan Plateau.

Distribution. — *Saussurea inversa* is found throughout the Qinghai-Xizang plateau, as well as in the Kunlun (S Xinjiang) and in the Karakorum (Kashmir).

Habitat. — *Saussurea inversa* inhabits the alpine and subnival zone, mainly on scree slopes, on semi-consolidated scree, rocky slopes and alpine meadows with a thin layer of turf, at altitudes from 3700 to 5400 m.

Taxonomic remarks. — The type material of *Saussurea hypsipeta* Diels, which is still extant at WRSL and partly at WU, was not taken into account by Lipschitz, who assumed that all original material had been lost at B, which, however, was not the case. The main collection of W. Limpricht from China has always been housed at the Herbarium of the Botanic Garden in Wrocław (WRSL), Poland (then Breslau, Germany), where a considerable amount of specimens survived the Second World War. Lipschitz' choice of a neotype (Lipschitz 1966: 226, 1979: 51) is therefore superseded (Code, Art. 9.17; McNeill & al. 2006). Unfortunately, the type material of *S. hypsipeta* differs taxonomically from the neotype and is heterogeneous in itself. Therefore, a new name is needed for the plants named *"S. hypsipeta"* by Lipschitz and now widely known under this name in China. They are in fact identical with *S. sorocephala* var. *glabrata,* described from Kashmir. Because the epithet of that variety is not available at species level, I propose here a new name and status for this taxon.

Additional specimens seen. — CHINA: XINJIANG: HOTAN XIAN: Taxkax, 4200 m, 7.8.1988, *S. G. Wu & al. 2547* (MO 4366710). — XIZANG: Nyainqentangula Shan, N of Damxung, 5180–5280 m, 30°39'N, 91°5'E, 17.8.1993, *G. & S. Miehe 9495/06* (herb. Miehe). — QINGHAI: Madoi/Xindu Xian: Bayan Har pass, on road between Madoi and Yushu, 4700 m, 34°7'N, 97°39'E, 12.8.1996, *T. N. Ho & al. 1695* (CAS 939051, MO 5329708). – MAQIN (MAQÊN) XIAN: Caigongka, Xueshan Xiang. W of Maqin (Maqên), 4300–4600 m, 34°38'N, 99°44'E, 28.7.1993, *T. N. Ho & al. 448* (CAS 912411); Nizhuoma pass, Nizhuoma Xiang, between Maqin (Maqên) and Changmahe (Qamalung), 4780–4900 m, 34°34'51"N, 99°27'3"E, 4.8.1993, *T. N. Ho & al. 766* (CAS 912905, MO 04651767). – YUSHU XIAN: Go La, at the pass S of Yushu on the road to Xiao Surmang, 4650 m, 32°34'N, 97°13'E, 21.8.1996, *T. N. Ho & al. 2214* (CAS 941748, MO 5205519).

Saussurea quercifolia W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh 8: 115. 1913. – Holotype: [China], "N. W. Yunnan, Atuntsi [Dêqên Xian], 14–15000 ft.", Sep. 1911, *F. Kingdon-Ward* (E 00259821!)
= *Saussurea quercifolia* var. *major* J. Anthony in Notes Roy. Bot. Gard. Edinburgh 18: 210. 1934. – Lectotype (designated here): [China] "Yunnan, Mekong-Salwin divide, lat. 28°10'N, alt. 14000 ft.", Sep. 1914, *G. Forrest 13300* (E 00259823!)

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Fig. 4. *Saussurea inversa* – lectotype *Strachey 15* at K (K000372731), the two plants on the top left. – By kind permission of the Board of Trustees of the Royal Botanic Gardens, Kew.

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= *Saussurea hypsipeta* Diels in Repert. Spec. Nov. Regni Veg., Beih. 12: 512. 1922. – Lectotype (designated here): [China, Sichuan] "Ost-Tibet: Batang–Litang [Batang Xian]: Pung tscha mu–Taschu: Dshagala pass, 5260 m", 22.8.1914, *W. Limpricht 2237* (WRSL, specimen on left bottom of sheet next to original label; isolectotype WU!)

= *Saussurea chionophora* Hand.-Mazz. in Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 60: 117. 1924, **syn. nov.** – Lectotype (designated by Handel-Mazzetti 1936: 1162): [China, Sichuan, Muli Xian]: "Im Gehängeschutt der Hg. St. bei Muli, unter dem Sattel Santante am Berge Saganai, Kalk, 4300–4375 m", 30.7.1915, *Handel-Mazzetti 7317* (WU!)

Taxonomic remarks. — Direct comparison of type material of *Saussurea chionophora* and *S. quercifolia* shows that this is in fact a single species. No characters could be found to separate the two. *S. quercifolia* seems to be very variable in leaf size and division pattern; the large specimens described as var. *major* are included here.

The original material of *Saussurea quercifolia* var. *major* consists of three specimens, all collected by George Forrest in Yunnan and preserved at Edinburgh (E). This material is taxonomically heterogeneous. While *Forrest 13300* and *13535* do indeed represent a large form of *S. quercifolia*, which cannot be clearly separated from the typical variety by other characters than larger overall size and larger leaves, *Forrest 20072* belongs to a different taxon, which has been described as *S. paxiana* Diels. The lectotypification made here fixes the usage of *S. quercifolia* var. *major* as a synonym of *S. quercifolia. S. paxiana* has not been recorded yet from Yunnan; *Forrest 20072* is the first and only record of this species from that province.

The original material of *Saussurea hypsipeta* is heterogeneous as well. There are three sheets of *S. hypsipeta* preserved in the WRSL herbarium. Whereas *Limpricht 2151* and *Limpricht 2214* match the widespread and variable *S. gnaphalodes* (Royle ex DC.) Sch. Bip., *Limpricht 2237* includes two larger plants with reflexed leaves and a smaller caespitose plant with erect leaves. A duplicate specimen of the larger plants had been sent to Handel-Mazzetti in Vienna, who identified it correctly as synonymous with *S. quercifolia* W. W. Sm. Handel-Mazzetti (1938: 344) also recognised that this plant was different from *S. gnaphalodes* var. *glabrata* Hook. f., later erroneously synonymised by Lipschitz with *S. hypsipeta*. To maintain the use of the name *S. hypsipeta* as a synonym of *S. quercifolia,* the plant at the bottom of the left hand side of *Limpricht 2237* (WRSL) is chosen here as the lectotype.

Saussurea paxiana Diels in Repert. Spec. Nov. Regni Veg., Beih. 12: 512. 1922. – Holotype: [China, Sichuan, Garzê Xian] "Ost-Tibet, Hor Tschango, Schtiala', Geröll des Schao kirr bu, 4700–4800 m", 23.7.1914, *W. Limpricht 2048* (WRSL!)

Taxonomic remarks. — The neotype designation by Lipschitz (1966: 227, 1979: 51) is superseded here by the original material. The holotype is a rather poor specimen, but it clearly coincides taxonomically with the neotype, so that application of the name does not change.

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