



Two new synonyms in Himalayan *Saussurea* (Asteraceae)

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Saussurea Candolle (1810: 156) is one of the largest genera in the tribe Cardueae (Asteraceae) which includes over 400 species (Lipschitz 1979; Shi & Raab-Straube 2011).

Lipschitz (1982) described the name *Saussurea stafleuana* based on materials from Dhaulagiri Himal, Nepal. Lipschitz (1982) noted *S. stafleuana* is similar to *S. columnaris* Handel-Mazzetti (1937: 652) but characterized it by having much smaller cushions, smaller capitula and hidden in sericeous snowy hairs, narrower leaves, apex not cartilaginous-mucronate, white pappus bristles, densely white sericeous villous phyllaries. However the above characters are shared by *S. graminifolia* Wallich ex Candolle (1838: 536), which was described based on materials from Kumaon, India. The type material of *S. stafleuana* is stemless or shortly stemmed, and forming cushions, while the stem of *S. graminifolia* is usually recorded as being 7–20 cm long and solitary. During the field expedition to Nylam, Xizang, China, we found that the length and number of stems are very variable in *S. graminifolia*, sometimes solitary, sometimes several and forming small cushions. *Saussurea stafleuana* and *S. graminifolia* both are characterized by their narrowly linear leaves and phyllaries densely white sericeous villous. After having checked the type material of *S. stafleuana*, we found that this name should be reduced into the synonymy of *S. graminifolia*.

Chen *et al.* (1981: 95) described *S. lyratifolia* Y. L. Chen & S. Yun Liang based on specimens from Bomi County, southeastern Xizang, China. They noted that *S. lyratifolia* is similar to *S. auriculata* (Candolle 1838: 541) Schultz Bipontinus (1846: 331) (which is now in the genus *Himalaiella* Raab-Straube 2003: 390) but differs in its leaf blade lyrate-pinnatisect, lateral segments ovate, capitula 5 and shortly pedunculate, phyllaries in ca. 4 series, achenes smooth, and pappus in 2 series. Shih & Jin (1999) placed *S. lyratifolia* in *S.* subgen. *Frolovia* (Candolle 1838: 538) Lipschitz (1961: 370), whereas Shi & Raab-Straube (2011) moved *S. lyratifolia* to *S.* subgen. *Saussurea* and noted its similarity to *S. laneana* Smith (1911: 74). We agree with the opinion of Shi & Raab-Straube. *Saussurea laneana* was described from Sikkim and was only known from its type material since its publication (Hajra 1995; Kumar & Singh 2001), though it was doubtfully recorded from Bhutan based on a sterile plant (Grierson & Springate 2001). Smith (1911) noted *S. laneana* is most similar to *S. costus* (Falconer 1841: 475) Lipschitz (1964: 131) [which is now in the genus *Aucklandia* Falconer (1841: 475)] in the general appearance but is usually 0.6–0.9 m tall and has capitula much smaller (1–1.5 cm in diameter) and leaves abaxially densely whitish woolly. However, *S. laneana* is distinctly different from *S. costus* in its lanceolate phyllaries and two series of pappus. In fact, the above morphological characters of *S. laneana* are shared by *S. lyratifolia*. After examining the type material of both *S. lyratifolia* and *S. laneana*, we found no difference in these two taxa. During expeditions to southeastern Xizang, we collected more specimens of *S. lyratifolia* and confirmed that these two taxa are in fact the same species. Consequently *S. lyratifolia* should be treated as a new synonym of *S. laneana*.

1. *Saussurea graminifolia* Wallich ex Candolle (1838: 536). Type:—INDIA. Uttarakhand: Kumaon, *R. Blinkworth* in *Wallich 2911/21* (holotype G; isotypes E!, GH!, K!, LE!, M!, NY!, P!).

Saussurea stafleuana Lipschitz (1982: 181), **syn. nov.** Type:—NEPAL. Mutsang District: Dhaulagiri Himal, Below Marpha Peak between Yak pass and Dhampus Pass, 4267–4724 m, 5 Sept.–15 Oct. 1980, *Wendy Jones s. n.* (holotype: LE!).

Additional specimens examined:—BHUTAN. Kaug la, 4720 m, 28 September 1949, *Ludlow & Sherriff 17332* (BM); Marlung, Tsawpa, 4720 m, 14 July 1949, *Ludlow & Sherriff 19430* (BM). CHINA. Xizang: Nylam, 4500–4700 m, 9 September 2012, *FLPH Tibet Expedition 12-356* (PE). INDIA. Uttarakhand: Kumaon, 4270 m, *R. Strachey & J. E. Winterbottom 3*(K), Panjab: Kunawar, *J. R. Drummond 22083* (K); Panjab: Labrang, 19 September 1886, *J. R.*

Drummond 22081 (K); Punjab: Sunguam, 18 September 1886, *J. R. Drummond 22082* (K); Tehri Garhwal: Gangdltari, 4270–4870 m, 1 September 1897, *J. S. Gamble 11* (K); Tehri Garhwal: Bamsor pass, 4270–4570 m, 26 August 1883, *J. F. Duthie 823* (K). NEPAL. Dolkha District: Yalung Kharka–Yalung La, 8 September 1983, *H. Ohba et al. 8351376* (BM); Dolpa District: Jengla west of Namdo, 5300 m, 25 August 1973, *Grey-Wilson & Phillips 717* (K); Gorkha District: Jargeng Khola, 2 July 1950, *D. G. Lowndes 1104* (BM); Manang District, Annapurna Himal, Sabche valley, 4700 m, 3 October 1969, *T. Wraber 36471* (K); Mustang district, Damodar kund, north of Muktinath, 4720 m, 31 July 1954, *Stainton, Sykes & Williams 2114* (A, BM); Mustang District: Taglung, South of the Tukucha, Kali Gandaki, 3660 m, 11 July 1954, *Stainton, Sykes & Williams 1735* (BM); Mustang district: Thorong La, east of Muktinath, 5120 m, 9 September 1977, *G. Miehe 647* (BM); Mustang District: Kali Gandaki, ESE Thini, 3960 m, 18 July 1977, *G. Miehe 218* (BM); Rukum District: East of Chalike Pahar, 4420 m, 2 August 1954, *Stainton, Sykes & Williams 3719* (A); Sankhuwasabha District: Arun valley, Wabak Khola, 12 August 1956, *J. D. A. Stainton 1336* (A, BM); Sankhuwasabha District: Barun Khola, 4800 m, 28 August 1981, *Grey-Wilson et al. 4293* (K).

2. *Saussurea laneana* Smith (1911: 74). Type:—INDIA. Sikkim: Na Tung, 24 August 1878, *Dungboo s. n.* (lectotype designated by Lipschitz 1966: K000250104!).

Saussurea lyratifolia Chen *et al.* (1981: 95), **syn. nov.** Type:—CHINA. Xizang: Bomi, Guxiang, in *Betula* forests, 3800 m, 20 Aug. 1965, *T. S. Ying & D. Y. Hong 1218 B* (holotype PE!; isotype PE!).

Additional specimens examined:—BHUTAN. Somana: 4370 m, 23 August 1971, *R. Bedi 948* (K). CHINA. Xizang: Bomi, Galongla Shan, 3900–4100m, 8 August 2009, *Y. S. Chen & Z. H. Wang 9324* (KUN, PE); Bomi, Galongla Shan, 4000 m, 6 September 1980, *Z. C. Ni et al. 1483* (PE), Galongla Shan, 3780 m, 19 September 2009, *FLPH Tibet Exped. 12-1594* (PE); Bomi, Guxiang, 4170 m, 2 August 1965, *T. S. Ying & D. Y. Hong 650828* (PE); Mêdog, Nage, 31 July 1974, *Qinghai-Xizang Exped. 74-3805* (KUN, PE), Mêdog, Galongla Shan, 4150 m, 14 August 1982, *S. Z. Cheng & B. S. Li 20* (PE). INDIA. Sikkim: Bhola, 4270 m, 28 July 1910, *W. W. Smith 3920* (syntype K); Changu, 3960 m, 8 September 1913, *R. E. Cooper 823* (A, BM, K); Changu, 3660 m, 6 November 1917, *G. H. Cave s. n.* (A, E); Changu, September–October 1914, *Ribu & Rhomoo 4549* (syntype E).

Acknowledgements

We are grateful to the curators of A, BM, E, K, KUN, LE, PE and TI for allowing the study of their collections or for arranging specimens on loan. This research was supported by the National Natural Science Foundation of China (grant nos.: 31370226, 31110103911), “*Flora of Pan-Himalayas*” Program of Ministry of Science and Technology of the People’s Republic of China (grant no.: 2013FY112100).

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