

TYPIFICATION OF HIMALAYAN TAXA OF BRASSICACEAE (CRUCIFERAE)

IHSAN A. AL-SHEHBAZ¹

Abstract. The type status of 146 names of Himalayan taxa is discussed, of which the lectotypes of 133 names are designated here for the first time, including a few that were incompletely lectotypified due to the existence of more than one sheet in the institution where the type was said to be. These 133 species and infraspecific names were originally described in the genera *Arabis* (15), *Chorispora* (4), *Cochlearia* (4), *Dilophia* (2), *Draba* (64), *Ermania* (2), *Erysimum* (5), *Eutrema* (4), *Nasturtium* (3), *Sisymbrium* (9), and *Thlaspi* (2). In addition, lectotypes are designated for one name each in the 15 other genera: *Barbarea*, *Brassica*, *Capsella*, *Cardamine*, *Cheiranthus*, *Dipoma*, *Goldbachia*, *Hemilophia*, *Hutchinsia*, *Lepidostemon*, *Martinella*, *Megacarpaea*, *Microsisymbrium*, *Sinapis*, and *Sophiopsis*. The type status of 13 additional names in *Arabis* (1), *Buchingera* (1), *Draba* (8), *Erysimum* (2), *Parlatoria* (1), *Parrya* (2), *Sisymbrium* (1), and *Torularia* (1) are discussed.

Keywords: Brassicaceae, Cruciferae, Pan-Himalayan Flora, lectotypification

The Brassicaceae of the Himalayan Mountains include about 80 genera and 380 species that will be treated in a forthcoming volume of the Pan Himalayan Flora. The guidelines of that flora require the typification of names for all taxa. Unfortunately, the vast majority of names have not yet been typified, and although the present study typifies some of them, the remaining ones will be dealt with in other papers.

All taxa are arranged alphabetically by genus then by the basionym of species or variety, and all names in **Roman boldface** represent the currently accepted placements. For entries in italics, the taxon name is followed by its bibliographic citation and its homotypic synonym(s), if any exist. Following names of each entry, the next paragraph starts with “Described from,” which lists the exact locality text citation given in the original protologue of that taxon. This is intended to place in one publication all of the typifications of Himalayan taxa to help future workers of the Pan-Himalayan Flora.

The major world herbaria consulted during the past two decades by the author for this research include A, B, BM, E, F, CAS, G, G-BOIS, GH, K, KUN, LE, M, MO, NAS, NY, P, PE, S, UC, US, W, and WU, and loans and/or digital images from them and others (e.g., FI, L, MHA, OXF, UPS, Z) were also studied. Furthermore, digital images on JSTOR Plant Science (<http://plants.jstor.org/>) were constantly checked. The bibliographic citations of all taxa were verified from the original literature, as well as in databases such as IPNI (The International Plant Names Index; <http://ipni.org/>), Tropicos (<http://www.tropicos.org/>), and The Plant List (<http://www.theplantlist.org/>).

The International Code of Nomenclature for algae, fungi, and plants (McNeill et al., 2012) was strictly followed, and the recommendations recently presented by McNeill (2014)

were also fully taken into consideration.

1. *Arabis alpina* L. var. *parviflora* Franch., Bull. Soc. Bot. France 33: 401. 1887; *A. paniculata* var. *parviflora* (Franch.) W.T.Wang, Vasc. Pl. Hengduan Mount. 1: 642. 1993; **A. paniculata** Franch., Pl. Delavay. 57. 1889.

Described from: “Yun-nan, in silvis ad montem Mao-kou-tchan, supra Tapin-tze; fl., fr. 29 aug. 1883, (Delavay); in silvis ad Ta-long-tan, prope Tapin-tze, alt. 1800 m.; fl., fr. mat. 26 jul. 1885 (Delav. n. 1843).”

Lectotype (designated here): China. Yunnan, “Les bois de Mao Kou Tchang, au dessus de Ta Pin tze,” 29 Aug 1883, *J. M. Delavay s.n.* (P00747405; Isolectotype: P00747406).

Of the two collections cited by Franchet (1887), one (*Delavay 1843*) in print is most likely a typo for *Delavay 1842*, for which there are three duplicates at P (P00747403, P00747404, P000747467) that match the locality data and collection date. I have not seen any material at P with *Delavay 1843*, but there are two elsewhere (K000693299, US00324470). My preference would have been the above collection had it not been for the confusion in the collection number. For that reason, I have designated the second of Franchet’s (1887) cited collections as the lectotype.

2. *Arabis alpina* L. var. *rigida* Franch., Bull. Soc. Bot. France 33: 401. 1887; **A. paniculata** Franch., Pl. Delavay. 57. 1889.

Described from: “Yun-nan, in lapidosis calcareis ad Mo-so-yn, prope Lankong; fl., fr. 1 jun 1884 (Delavay n. 1062).”

Lectotype (designated here): China. Yunnan, “Terrains pierreux, calcaires, à Mo-so-yn, près de Lan Kong,” 1 Jun 1884, *J. M. Delavay 1062* (P00747407; Isolectotypes: B100249613, BM, K000693303, K000693304, P00747408, P00747409, P00747410).

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¹Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Missouri 63110, U.S.A.; ihsan.al-shehbaz@mobot.org

Both *Arabis paniculata* and *A. alpina* var. *rigida* were based on the same type collection, and two of the four duplicates at P (P00747407, P00747410) were annotated in Franchet's handwriting under both names. The more complete sheet of these is designated above as the lectotype.

3. *Arabis alpina* var. *rubrocalyx* Franch., Pl. Delavay. 58. 1889, non Muschl. ex Diels, Notes Roy. Bot. Gard. Edinburgh 31: 104. 1912; **A. paniculata** Franch., Pl. Delavay. 57. 1889.

Described from: "Yun-nan, in lapidosis circa Mo-so-yun (Lankong); fl. fr. immat. 10 jul. 1886 (Delavay, n. 2149); in rupibus calcareis prope collum Yen-tse-hay, alt. 3200 m.; 8 jul. 1886 (Delav. n. 2363)."

Lectotype (designated here): China. Yunnan, "rochers calcaires près du col de Yen-Tzé-hay (Lankong), 3200 m, 8 Jul 1886, *J. M. Delavay* 2363 (P00747398; Isolectotypes: P00747466, US00324472).

Of the two collections cited by Franchet (1889), *Delavay 2149* in print is almost certainly a typo for *Delavay 2139*, for which four duplicates are at P (P000747399, P00747400, P00747401, P00747402), and they match the locality and date in the protologue. Both collections have immature fruits, and the designated lectotype is unambiguous as far as the collector number is concerned. The US isolectotype does not carry any locality data but does have *Delavay 2363*.

4. *Arabis alticola* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1062. 1927; **A. amplexicaulis** Edgew., Trans. Linn. Soc. London 20: 31. 1851.

Described from: "Nordwest-Indien (Royle)–Kashmir: Gurais Valley, Tilainála, Gujran (blühend am 27. Juni 1901–Inayat n. 25511), Liddar Valley, Pálgám (blühend am 18. Mai 1901–Inayat n. 25514), Jhelum Valley, Baramulla, Khadaniar, 2650 m ü. M. (blühend am 4. May 1909–Keshavanand n. 1166)."

Lectotype (designated here): "Pálgám, Liddar V., 18.5.[19]01, Ináyat 25514" (K000397462; Isolectotype: DD [n.v., photo, K]).

Most of the new taxa described by Schulz (1927b) were either destroyed at B during World War II or were based on material housed at DD. Unfortunately, my attempts to obtain images of those taxa from DD did not materialize. Therefore, the K duplicate of *Arabis alticola*, which I have examined, is designated herein as the lectotype.

5. *Arabis charbonnelii* H.Lév., Repert. Spec. Nov. Regni Veg. 12: 100. 1913; **Sisymbrium irio** L., Sp. Pl. 2: 659. 1753.

Described from: "Frontière du Chan-Si et du Tche-Ly, à 6 kilom. De la Grande Muraille, 15 juin 1908, R (L. Chanet, 223)." (Holotype: E00386169).

Léveillé (1913) cited one collection number under *Arabis charbonnelii*, which is represented by two sheets in his herbarium at E. Of these, the above has the full locality data and the species name as in the protologue, but the other (E00386170) agrees only in the collection number and has the locality as "Montagnes de Kiu-Yang" and the collection

date as 15 May 1908. Therefore, I agree with Lauener (1965) in his holotype listing and not considering E00386170 as part of the type collection.

6. **Arabis amplexicaulis** Edgew., Trans. Linn. Soc. London 20: 31. 1846.

Described from: [India]. "In sylvis humidis, alt. ped. 8000–9000 [2,438.4–2,743.2 m]. Chúr; Shioli in Garahuál, &c. Floret Junio."

Lectotype (designated here): "Himalaya, Nigali-Choor, altit. 8–9000 ped. 1844. *M. P. Edgeworth*." (K000077254; Isolectotype: K000077253).

The locality data in the protologue (Chúr) differs from the label information (Nigali-Choor) on the specimens, but there are no collections of *Arabis amplexicaulis* at K or elsewhere by Edgeworth prior to the publication of this species. The two sheets above carry the original collection labels and species name in Edgeworth's handwriting, and I am considering them as representatives of the type collection. Jafri (1956:100) listed the type locality as given in the protologue but did not annotate any of the two specimens above. The sheet designated herein as the lectotype has three plants, of which one is in fruit and, one of the two in flower has a basal rosette. To the isolectotype sheet, number 93 was added after the publication of the species.

7. *Arabis pendula* var. *glabrescens* Franch., Pl. Delav. 58. 1889; **Catolobus pendulus** (L.) Al-Shehbaz, Novon 15: 521. 2005.

Described from: "Yun-nan, in faucibus Lan-ho, ad pedem montis Yang-in-chan prope Lankong; fl., fr. 7 aug. 1883, (Delav. 117)."

Lectotype (designated here): China. "Yunnan, (les bois) dens les gorges du Lan Ho, au pied du Mont Yan in Chan, près Lan Kong," 7 Aug 1883, *J. M. Delavay* 117 (P00747394; Isolectotypes: P00747395, P00747396).

Of the three duplicates of the single collection cited by Franchet (1899), the more complete sheet with Franchet's annotation of the varietal name and Delavay's handwritten label is designated above as the lectotype.

8. *Arabis pendula* var. *hypoglauca* Franch., Pl. David. 1: 33. 1884; **Catolobus pendulus** (L.) Al-Shehbaz, Novon 15: 521. 2005.

Described from: "Mongolie: montagnes d Géhol, sur le bord des ruisseaux, (n° 1986, 2181)."

Lectotype (designated here): "Mong[olie]. Or[jentale]., Géhol, bords de ruisseaux des montagnes, Jul 1864, " *A. J. P. David* 1986 (P00747391; Isolectotypes: P00747390, P00747392).

Franchet (1884) cited two collections, *David 1986* and *David 2181*, in the original publication of this variety. Of these, the former collection is represented at P by three sheets and the latter by one. The single sheet with mature fruits that carries Franchet's varietal name is designated herein as the lectotype.

9. *Arabis quinqueloba* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1065. 1927. **Crucihimalaya tibetica** (Hook.f. & Thomson) Al-Shehbaz, D.German & M.A.Koch, Pl. Divers. Evol. 129: 74. 2011.

Described from: “Kashmir, Kamri Pass, Náigund (blühend am 11. Juli 1901–Inayat n. 25512).”

Lectotype (designated here): Kashmir, 11 Jul 1901, *Inayat 25512* (K000397468; Isolectotype: DD (n.v.), photo, K).

The DD duplicate of the type collection was annotated in Schulz’s handwriting and photos of which are deposited at B and K. However, the DD specimen was not seen by me and therefore I preferred to designate the duplicate at K, which I have examined, as the lectotype.

10. *Arabis sagittata* DC. var. *nipponica* Franch. & Sav., Enum. Pl. Jap. 1: 34. 1875; *A. hirsuta* (L.) Scop. var. *nipponica* (Franch. & Sav.) Kitam., Acta Phytotax. Geobot. 20: 201. 1962; *A. hirsuta* (L.) Scop. var. *nipponica* (Franch. & Sav.) C.C.Yuan & T.Y.Cheo, Fl. Reipubl. Popularis Sin. 33:277. 1987, comb. superfl.; **A. nipponica** (Franch. & Sav.) H.Boissieu, Bull. Herb. Boissier 7: 785. 1899.

Described from: “Hab. in sepibus et saxosis umbrosis: Nippon media, frequens circa Yokoska (Savatier, n. 83).”

Lectotype (designated here): Japan. Circa Yokosaka, *P. A. L. Savatier 83* (P00720152; Isolectotypes: 2 at K, MO, P00720151, P00720153, P00720154, P00720155, P00720156, US).

The most complete duplicate of the type collection at P with fully mature fruits and flowers is designated herein as the lectotype.

11. *Arabis scaposa* O.E.Schulz, Notibl. Bot. Gart. Berlin-Dahlem 9: 1065. 1927; **Scapiarabis saxicola** (Edgew.) M.Koch, R.Karl, D.A.German & Al-Shehbaz, Taxon 61: 965. 2012.

Described from: “Afghanistan: Kurrum Valley, Serátigah, bei 4300 m ü M. (blühend in Juli 1879–J. E. T. Aitchison n. 822).”

Lectotype (designated here): Afghanistan, data as above (K000397464; Isolectotype: DD, n.v.; fragments of DD duplicate: B100241210A).

Schulz (1927b) listed the single collection above and annotated the DD fragments at B but not the duplicate at K. I have examined the K duplicate and selected it as the lectotype instead of designating the DD sheet that was not available for my study.

12. *Arabis scaposa* var. *elatior* O.E.Schulz, Notibl. Bot. Gart. Berlin-Dahlem 9: 1066. 1927; *A. saxicola* var. *elatior* (O.E.Schulz) Jafri, Notes Roy. Bot. Gard. Edinburgh 22: 100. 1956; **Scapiarabis saxicola** (Edgew.) M.Koch, R.Karl, D.A.German & Al-Shehbaz, Taxon 61: 965. 2012.

Described from: “Kashmir: Kamri Valley, bei Kálefiani an Felsen, 3300–3600 m ü, M. (Fruchtend am 25. August 1892–J. F. Duthie), Nittar Valley, Gilgit District, an Felsen, 3300–3,600 m ü. M. (fruchtend am 5. August 1892–Duthie n.12430).”

Lectotype listed as type by Jafri (1956: 100) and designated here: Nittar Valley, *J. F. Duthie 12430* (K000397466; Isolectotypes: K000397467, DD, n.v. [photo, K, fragments B100241210]).

Schulz (1927b) listed the two collections above in his original description of this variety. Jafri (1956: 100) designated *Duthie 12439* (B, K) as the type, but because he listed two herbaria and annotated only one of the two K duplicates, his action is considered as a first-step lectotypification finalized herein.

13. *Arabis taraxacifolia* T.Anderson in Hook.f., Fl. Brit. India 1: 136. 1872; *Arabidopsis taraxacifolia* (T.Anderson) Jafri in Nasir & Ali, Fl. W. Pakistan 55: 274. 1973; **Crucihimalaya wallichii** (Hook.f. & Thomson) Al-Shehbaz, O’Kane & R.A.Price, Novon 9: 301. 1999.

Described from: “Punjab, in sandy places near Peshawar, Stewart.”

Lectotype (designated here): India, Punjab, *J. L. Stewart s.n.* (K000247266; Isolectotype: E00438477).

A single collection was cited by Anderson (in Hooker & Anderson, 1872), and although Jafri (1973) indicated that the type is at E and K, his action does not constitute a lectotypification of the species.

14. *Arabis tenuisiliqua* Rech.f. & Köie, Anz. Österr. Akad. Wiss., Math.-Naturwiss. Kl. 91: 62. 1954; **Crucihimalaya tenuisiliqua** (Rech.f. & Köie) Al-Shehbaz, D.German & M.A.Koch, Pl. Divers. Evol. 129: 74. 2011.

Described from: “Afghanistan: Farakulum, 2,700 m, 19. Juli 1948 (Köie, 2532, Typus, C).”

Lectotype listed as holotype by Al-Shehbaz et al. (2001: 74) and designated here: Afghanistan, Farakulum, 19 Jul 1948, 2,700 m, *M. E. Köie 2532* (C10008794; Isolectotypes: C10008793, W).

Although Rechinger and Köie (in Rechinger, 1954), followed by Al-Shehbaz et al. (2011), indicated that the holotype of the species is at C, the existence of two sheets at C, both marked as “Typus,” calls for lectotypification of the species, and the more complete sheet is designated above.

15. *Arabis thomsonii* Hook.f. in Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 143. 1861; **Crucihimalaya tibetica** (Hook.f. & Thomson) Al-Shehbaz, D.German & M.A.Koch, Pl. Divers. Evol. 129: 74. 2011.

Described from: “*Hab.* In Himalaya occidentali temperata, inter Kashmir et Dras, alt. 9000–10,000 ped.! [2,743.2–3,048 m] *T.T.*; et in Tibetia occidentali, Zanskar! Et Ladak!, alt. 10000–14000 ped., *T. T.* (fl. Jun.).”

Lectotype (designated here): Kashmir & Dras, 29 Sep 1848, *T. Thomson s.n.* (K000397469).

Under his description of *Arabis thomsonii*, Hooker (in Hooker & Thomson, 1861: 143.) stated, “I have examined one good fruiting specimen, gathered by Dr. Thomson on his descent from Dras into Kashmir (29 Sept. 1848); and there are many others from Zanskar and Ladak which may belong to it or to the following [*A. tibetica*] from which in the fruiting state it differs conspicuously in its much larger size, long curved pods and broad winged seeds.” Of all the sheets annotated by J. D. Hooker as *A. thomsonii*, the

designated lectotype is the only one that does not have a question mark following the species name.

16. *Arabis tibetica* Hook.f. & Thomson var. *glabrescens* O.E.Schulz, Repert. Sp. Nov. Regni Veg. 31: 331. 1933; **Crucihimalaya tibetica** (Hook.f. & Thomson) Al-Shehbaz, D.German & M.A.Koch, Pl. Divers. Evol. 129: 74. 2011.

Described from: "N. W. Himalaya: Kashmir, Kolahoi Glacier, alt. ca. 12000 ft. (fast fruchtend im August–R. R. Stewart 1925 n. 8271), Upper Lidder, Har Nag, alt. ca. 12,000 ft. (fruchtend am 16–20 August–R. R. Stewart 1927 n. 9344A)."

Lectotype (designated here): Kashmir, Kalohoi Glacier, Upper Lidder, 12,000 ft [3,657.6 m], R. R. Stewart 8271 (NY172676; Isolectotypes: K, US00100396).

I have examined both collections cited by Schulz (1933), and the more complete collection with more duplicates is designated as the lectotype. Both collections were cited also by Jafri (1973) as *Arabis tibetica*.

17. *Barbarea elata* Hook.f. & Thomson, J. Linn. Soc., Bot. 5: 140. 1861; *Nasturtium elatum* (Hook.f. & Thomson) Kuntze ex O. E. Schulz, Acta Horti Gothob. 1: 158. 1924; **Rorippa elata** (Hook.f. & Thomson) Hand.-Mazz., Symb. Sin. 7: 357. 1931.

Described from: "*Hab.* In Himalaya orientali temperata et subalp. Sikkim, alt. 11000–13000 ped.! (fl. Jun.)."

Lectotype (designated here): India. [Tunga, 23 Jul 1849], 11000–13000 [3,352.8–3,062.4 m], J. D. Hooker s.n. (K000247224; Isolectotypes: B, K000247226, P).

Of the four authentic sheets at K that were collected by Joseph Dalton Hooker, three were from Sikkim and one from India. The two sheets that match the elevation as given by Hooker & Thomson (1861) were collected on the same date, and they are treated herein as the type collection. The third sheet from Sikkim was collected nine days earlier from a different locality (Latony) and, therefore, does not belong to the lectotype collection. Handel-Mazzetti (1931) did not examine the type collection and did not typify the species.

18. *Brassica griffithii* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 171. 1861; *Diploxys acris* Boiss. var. *griffithii* (Hook.f. & Thomson) Coss., Comp. Fl. Atlant. 2: 171. 1885; **D. griffithii** (Hook.f. & Thomson.) Boiss., Fl. Orient. 1: 388. 1867.

Described from: "*Hab.* In Affghanistan agris ad Oostad! *Griffith*; Beluchistan: Stocks; Panjab, Kalebag ad Salt Range! *Fleming*. (Fl. Feb.)."

Lectotype (designated here): Pakistan, Balochistan, 1851, J. E. Stocks 707 (K000653886).

The above three collections listed by Hooker & Thomson (1861) were cited by both Hedge (1968a) and Jafri (1973) but without typification. The most complete specimen is designated herein as the lectotype.

19. *Buchingera axillaris* Boiss. & Hohen in Boiss., Diagn. Pl. Orient. Ser. 1, 8: 29. 1849; **Asperuginoides axillaris** (Boiss. & Hohen.) Rauschert, Taxon 31: 558. 1982.

Described from: "*Hab.* ad versuras agrorum prope urbem *Tehran*, Aprili. Kotschy No. 10."

Holotype: Iran, Tehran, Apr 1843, C. G. T. Kotschy 10 (G-BOIS 00330399; isotypes, BM, G00382767, G00382768, GOET, HAL, 2 at K, 3 at P, WAG).

The single sheet in Boissier's herbarium includes four fragments the top two of which have only flowers and are accompanied by a partially printed label on which is written "ad versuras agrorum" and "15 April" but not in Boissier's handwriting, and the label does not carry the species name. The two fragments on the lower half of the sheet have mature fruits and carry a printed label with the species name and other data identical to the label of the upper fragments. Since Boissier's original description included details of the flowers and fruits, it is safe to assume that he based his description on the four fragments. Duplicates in the other herbaria have printed labels identical to that of the fragments on the lower part of the holotype sheet. The existence at G of two other sheets might raise the need for lectotypification. However, one sheet (G00382767) was donated from the de Candolle herbarium in 1921, and the other (G00382768) was donated from the Moricand herbarium in 1908. Neither of the above two G sheets was annotated by Boissier, and it is not known if he examined them prior to the publication of the species.

Both Rechinger (1968) and Jafri (1973) claimed that the type was collected from Esfahan (Iran) by A. Bunge. However, Boissier (1949) clearly stated otherwise, as quoted above.

20. *Capsella thomsonii* Hook.f. in Hook.f. & Thomson, J. Proc. Linn. Soc. Bot. 5: 172. 1861; **Smelowskia tibetica** (Thomson) Lipsky, Trudy Imp. S.-Peterburgsk. Bot. Sada 23: 76. 1904.

Described from: "*Hab.* in Tibetia occidentali alpina, 16000–18000 ped.! Ladak, T.T.; Nubra! *H. Strachey* (fl. July.) (n.v.)."

Lectotype (designated here): India. Nubra, *H. Strachey* 14 (K000247172; Isolectotype: K000247176).

It appears that Hooker (in Hooker & Thomson, 1861) renamed *Hutchinsia tibetica* Thomson as *Capsella thomsonii*. Nothing was listed in that entire work about the earlier-published *H. tibetica*. Indeed, *Hutchinsia* W.T.Aiton was numbered 35 in the outline on page 133, but the entire entry of the genus was deleted from the account, as evidenced from numbering *Clypeola* L. as genus 35 on page 178 and treating only 47 genera in the text out of the 48 listed in the outline. Despite that, the species ought to be lectotypified because every single sheet of the original collections of this complex has the name *C. thomsonii* on it instead of *H. tibetica*.

21. *Cardamine bracteata* S.Moore, J. Bot. 16: 130. 1878, non Phil., Anal. Univ. Chile 81: 85. 1893, nec Suksd., Rhodora 20: 198. 1918; *Eutrema bracteata* (S.Moore) Koidzumi, Fl. Symb. Or. Asiat. 24. 1930; **Eutrema tenue** (Miq.) Makino, Bot. Mag. (Tokyo) 26: 177. 1912.

Described from: "*Habit.*—Ad Oyama in Japonia legit J. Bisset."

Lectotype (designated here): Japan. Oyama, J. P. Bisset [993](K 000693905).

Although no collection numbers were cited in the original publication, the single sheet at K has two numbered collections by Bisset, 993 and 37, and both were annotated in Moore's handwriting as "*Cardamine bracteata* Biss. & S. Moore." Of these, the more complete one is designated herein as the lectotype.

22. *Cheiranthus himalayensis* Cambess. in Jacquem., Voy. Inde 4: 14, t. 13. 1844; *Christolea himalayensis* (Cambess.) Jafri, Notes Roy. Bot. Gard. Edinburgh 22: 53. 1955; *Desideria himalayensis* (Cambess.) Al-Shehbaz, Ann. Missouri Bot. Gard. 87: 555. 2001; *Ermania himalayensis* (Cambess.) O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1080. 1927; *Oreoblastus himalayensis* (Cambess.) Suslova, Bot. Zhurn. (Moscow & Leningrad) 57: 652. 1972; **Solms-laubachia himalayensis** (Cambess.) J.P.Yue, Al-Shehbaz & H.Sun, Ann. Missouri Bot. Gard. 95: 534. 2008.

Described from: "In declivitate orientali jugi vulgò Kioubrung-ghauti in Tartariâ sinensi."

Lectotype (designated here): India. V. Jacquemont [1782] (P00747237; Isolectotypes: K, P).

Cambessèdes (1844) did not give a collection number in his original description of the species, and the two authentic sheets at P carry different collection numbers. Neither Jafri (1955) nor Al-Shehbaz (2001) indicated either of the two sheets as the type. The more complete specimen with Cambessèdes annotation is designated herein as the lectotype. Jafri's (1955: 53) indication that the type is "N.W. Himalays, Kunawar, Jacquemont (P, K)" neither referred to any particular specimen nor gave the locality mentioned in the original description. Therefore, his listing is not considered as a first-step typification.

23. *Chorispora elegans* Cambess. in Jacquem., Voy. Bot. 15, t. 14. 1844; **C. sabulosa** Cambess. in Jacquem., Voy. Bot. 15, t. 15. 1844.

Described from: "In sylvis betulinis et pascuis excelsioribus vallis Sounneguele in regno Cachemir. Floret Junio."

Lectotype (designated here): India, V. Jacquemont 520 (P00741716; Isolectotype: K000693530).

The type collection consists of small plants in flower, and both duplicates were annotated by Cambessèdes. *Chorispora sabulosa* and *C. elegans* were simultaneously published by Cambessèdes (1844). Hooker & Anderson (1872) reduced the latter to synonymy of the former and, therefore, *C. sabulosa* has priority based on Article 11.5 in McNeill et al. (2012).

24. *Chorispora elegans* var. *integrifolia* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1072. 1927; **C. sabulosa** Cambess. in Jacquem., Voy. Bot. 15, t. 15. 1844.

Described from: "Nordwest-Himalaya: 3300–5600 m ü. M. (T. Thomson, auch f. *oligosperma*, Hb. Berlin).–West-Tibet (Falconer, Hb. East Ind. Comp. n. 182 mit var. *sabulosa*, Hb. Berlin).–Kashmir: Burzil Pass, 4300 m ü. M. (blühend Mitte September 1893–Duthie n. 14043, auch var. *sabulosa*, Hb. Berlin)."

Lectotype (designated here): Kashmir, Burzil Pass, 4,300 m, Sep 1893, J. F. Duthie 14043 (B100244922).

All three collections cited by Schulz (1927b) are housed in B, and I have not seen any duplicates elsewhere. *Chorispora sabulosa* is quite variable in morphology of basal leaves, and dentate or subentire leaves of the above variety are easily accommodated within the overall variability of the species.

25. *Chorispora elegans* var. *stenophylla* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1072. 1927; **C. sabulosa** Cambess. in Jacquem., Voy. Bot. 15, t. 15. 1844.

Described from: "Himalaya: ca. 5000 m ü. M. (1868–Jaschke in Hb. W. Hans [Herrnhut], Hb. Berlin).–Tibet: Provinz Tsánskar, Páder am Nordfuss de Shinku La Pass bis Sulle (blühend im Juni 1856–Schlagintweit n. I 6256, Hb. Berlin)."

Lectotype (designated here): China. Tibet, Provinz Tsánskar, Páder am Nordfuss de Shinku La Pass bis Sulle, Jun 1856, H. A. R. v. Schlagintweit 6256 (B100244919).

Of the two collections cited by Schulz (1927b), I have examined only the above sheet. The original description fits exceptionally well with that of the type collection of *Chorispora sabulosa*.

26. **Chorispora sabulosa** Cambess. in Jacquem., Voy. Bot. 15, t. 15. 1844; *C. elegans* var. *sabulosa* (Cambess.) O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1071. 1927.

Described from "In excelsissimis ad torrentes supra praedium Bombour ad fines regni Cachemir et provinciae Thibet. Floret Augusto."

Lectotype (designated here): [China. Xizang], V. Jacquemont 985 (P00741715; Isolectotypes: K000693527, P00741714).

Jafri (1973: 205) stated that the type is "Kashmir, V. Jacquemont (P, K)," but he did not specify which of the two collection numbers of Jacquemont at K and P is the type or where the lectotype should be. Therefore, his statement is not a lectotypification of the species name. Of the two sheets at P, the more complete one, which more closely corresponds to the illustration accompanying the original description, is taken herein as the lectotype.

27. *Cochlearia alatipes* Hand.-Mazz., Symb. Sin. Pt. 7: 370. 1931; *Hilliella alatipes* (Hand.-Mazz.) Y.H.Zhang & H.W.Li, Acta Bot. Yunnan. 8: 402. 1986; *Yinshania alatipes* (Hand.-Mazz.) Y.Z.Zhao, Acta Sci. Nat. Univ. Intramongol. 23: 568. 1992; **Cardamine fragariifolia** O.E.Schulz, Bot. Jahrb. Syst. 32: 446. 1903.

Described from: "SW-H.: Im wtp. Laubhochwalde des Yün-schan bei Wukang in dem ne des Tempels Gwanyingo herabziehenden Graben, Tonschiefer, 1000 m, 12. VI. 1918 (1209, TYPUS). Kwangshi: Binlung, Minschan in N-Kudschön an der Grenze von KW., 1500 m, 17. VI. 1928 (Ching 6044)."

Lectotype (designated here): China. SW Hunan, Mt. Yünschan, near Wukang, 1,000 m, 12 Jun 1918, H. F.

von Handel-Mazzetti 12097 (1209 in the protologue) (WU0024357; Isolectotypes: E, W, WU0024348).

Of the two sheets of the type collection of *Cochlearia alatipes* at WU, the one with the full label information and Handel-Mazzetti's annotation of the species name is designated herein as the lectotype.

28. *Cochlearia hobsonii* H.Pearson, Hook. Icon. Pl. 7: t. 2643. 1900; *Lignariella hobsonii* (H.Pearson) Baehni, Candollea 15: 57. 1955; **Aphragmus hobsonii** (H.Pearson) Al-Shehbaz & Warwick, Canad. J. Bot. 84: 279. 2006.

Described from: "Tibet: Yatung, near the Sikkim border, *Hobson*."

Lectotype listed as type by Baehni (1955: 59) and Jafri (1957: 134) and designated here: [China, Xizang], Yatung, [2751N, 8835E, 1897], *H. B. Hobson s.n.* (K000247184; Isolectotype: K000247276).

Both Baehni (1955) and Jafri (1957) indicated that the type is at K, but both sheets at K were annotated by Baehni as the type. The sheet designated herein as the lectotype consists of about 15 fragments of this species accompanied by the line drawing used in the original publication, whereas the isolectotype consists of six plants of the same species plus two of what is now known as *Aphragmus serpens* (W.W.Sm.) Al-Shehbaz & Warwick. Baehni (1955) overlooked the fact that the material he cited under *Lignariella hobsonii* actually belongs to three species, including the two above and *Aphragmus ohbana* (Al-Shehbaz & Kats.Arai) Al-Shehbaz & Warwick. The three species differ remarkably in flower size, seed number, and fruit shape and size.

29. *Cochlearia scapiflora* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 154. 1861; *Pegaeophyton scapiflorum* (Hook.f. & Thomson) O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 11: 229. 1931, comb. illeg.; **P. scapiflorum** (Hook.f. & Thomson) C.Marq. & Airy Shaw, J. Linn. Soc., Bot. 48: 229. 1929.

Described from: "*Hab.* Himalaya orientali alpina, Sikkim interiore, alt. 15000–17000 ped.! *J. D. H.*; Tibetia occidentalis alpina, Gugi, 15500 pd.! *Str[achey]. & Wint[erbottom].*; Ladak! Nubra! Et Pangong! Alt 16000–18000 ped., *H. Strachey, T.T.* (fl. Jul.) (v.v.)."

Lectotype initially listed as type by Jafri (1973: 164) and designated here: India. Sikkim, 15000–17000 ft, [4,572–5,181.6 m], "*J. D. Hooker s.n.* (K000247223; Isolectotypes: GH, GOET, K000247222).

Of the three collections mounted on the type sheet, two were collected by J. D. Hooker and one by N. M. Przewalski. Jafri (1973) did not indicate which of the two Hooker's collections is the type. Therefore, his lectotypification is considered a first-step finalized herein.

30. *Cochlearia serpens* W.W.Sm. in W.W.Sm. & G.H.Cave, Record. Bot. Surv. India 4: 175. 1911; *Lignariella serpens* (W.W.Sm.) Al-Shehbaz, Arai, and H.Ohba, Harvard Pap. Bot. 5: 119. 2000; **Aphragmus serpens** (W.W.Sm.) Al-Shehbaz & Warwick, Canad. J. Bot. 84: 279. 2006.

Described from: "Sikkim Himalaya, at Jongri, 14,000 ft Gammie No. 156, Watt. No. 5795 in Herb. Kew."

Lectotype (first-step designation by Al-Shehbaz et al. (2000) designated here): India. Sikkim, Jongri, 14,000 ft [4,267.2 m], *Watt 5795* (K000484410; Isolectotype: K000247182).

In addition to the above two collections cited in the protologue, Smith & Cave (1911) listed two additional ones collected by them. Al-Shehbaz et al. (2000) indicated that the lectotype of this species is at K but overlooked the fact that *Watt 5795* is mounted on two sheets. Of these, the one taken herein as the lectotype has the original pencil drawing and notes in W. W. Smith's handwriting, whereas the isolectotype is a mixed collection with plants of *Aphragmus hobsonii* (see above).

31. *Dilophia macrosperma* O.E.Schulz in W. Limpricht, Repert. Sp. Nov. Regni Veg. Beih. 12: 385. 1922; **Eutrema fontanum** (Maxim.) Al-Shehbaz & Warwick, Harvard Pap. Bot. 10: 132. 2005.

Described from: "Ost-Tibet: Batang–Litang, Pungtschaumu-Taschü, an Felsen des Passes Dshagala, 5260 m (n. 2235); Hor Tschango, Schtiala, im Geröll des Schao kirr bu, 4700 m (n. 2068)."

Lectotype (designated here): China. Tibet, Batang-Litang, Pungtschamu-Taschü, 5,260 m, 22 Aug 1914, *W. Limpricht 2235* (WU024358; Isolectotype: WRSL, n.v.).

Schulz (1922) did not list any herbarium in which the above two collections are housed. I have examined the WU duplicate of the former collection and was unable to study the complete set of Limpricht's collection at WRSL.

32. **Dilophia salsa** Thomson, Hooker's J. Bot. Kew Gard. Misc. 5: 20. 1853.

Described from: "Hab. In salsis paludibus Tibetiae occidentalis, alt. 12–17,000 pedum."

Lectotype (designated here): [India. Nubra, 25 Jul 1848], *T. Thomson s.n.* (K000247180; Isolectotypes: B, BM, E, GH, K000247179, NY, P).

There are five collections of Thomson from India (as Western Tibet) mounted on two sheets at K. One sheet includes 14 plants collected from Nubra on 25 Jul 1848, and this sheet is designated herein as the lectotype. The second sheet includes four collections and 11 plants, of which the four plants on the lower right corner represent the isolectotype. The pencillar illustration of flower and fruit details is mounted on the top right corner of the isolectotype sheet. However, it is not possible to determine which of the 25 plants on two sheets was used for drawing the original illustration in Thomson (1853).

33. **Dipoma iberideum** Franch., Bull. Soc. Bot. France 33: 405. 1887.

Described from: "Yun-nan, in lapidosis calcareis delabentibus ad juga nivalia Li-kiang, alt. 3800 m.; fl. fr. 9 jul. 1884, (Delav. *Lepidium*, n.8)."

Lectotype (designated here): China, Yunnan, "Pierres mouvantes au glacier de Li-Kiang," 3,800 m, 9 Jul 1884, *Lepidium # 8*," *J. M. Delavay* (P01817491; Isolectotypes: K000484373).

Possible isolectotypes: P01817490, P01817492.

Only one of three sheets of the type collection at P and the K duplicate carry Delavay's hand writing as *Lepidium* # 8 and the same locality, date of collection, and elevation as given in the protologue. Although P01817490 and P01817492 have similar data (locality, date, and collection number), they differ from the lectotype in the elevations from which they were collected: 3,500 m and 4,000 m, respectively.

34. *Draba affghanica* Boiss. var. *subtomentosa* O.E.Schulz in Engler, Pflanzenr. IV. 105(Heft 89): 118. 1927; **D. affghanica** Boiss., Fl. Orient. Suppl. 55. 1888.

Described from: "Kurrum Valley, Serátgah, 3600–4300 m ü. M. (Aitchison 1879, n. 825 [6]–am 19. Juli blühend und fruchtend, hb. Kew)."

Lectotype (designated here): Kurrum Valley, Serátgah, 11–13,000 ft [3,352.8–3,962.4 m], 19 Jul 1879, *J. E. T. Aitchison* 825 (K000729817; Isolectotype: K000568095).

Schulz (1927a) indicated that the type of this variety is at K, but there are two sheets with the same collection number. The one annotated by Schulz without any indication of type status is taken here as the lectotype. The elevation given in meters in the protologue is higher than the conversion of elevation given in feet on the herbarium sheets.

35. *Draba alpina* L. var. *involutrata* W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 8: 121. 1913; **D. involutrata** (W.W.Sm.) W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 206. 1919.

Described from: "Crevice and ledges of moist limestone cliffs on the eastern flank of the Lichiang Range. Lat. 2725N. Alt. 11,000–12,000 ft. June 1910. G. Forrest No. 5732" and "On boulders and limestone drift on the eastern flank of the Lichiang Range. Lat. 2740N. Alt. 15,000–16,000 ft. July 1910. G. Forrest. No. 6138."

Lectotype (designated here): China. Yunnan, E flank of Lichiang Range, 2725N, 11–12,000 ft [3,352.8–3,657.6 m], Jun 1910, *George Forrest* 5732 (E00386061; Isolectotypes: BM, K, US).

Smith (1913a) cited two collections in his original description of this taxon at the varietal level, and he (Smith, 1919) cited eight additional collections when he recognized it as a distinct species. Unfortunately, five of those additional collections turned out to be misidentifications of *Draba jucunda* W.W.Sm., a species that he described in the same publication. Despite that, lectotypification of the varietal/species name is based on one of the two collections he cited in the original publication of the variety. Of the four duplicates I examined of the above lectotype collection, only the sheet at E carries the basionym at the varietal and species ranks; the other three were identified as *Draba involutrata*. This indicates that duplicates of the lectotype were sent well after the publication of the combination at the species rank and that Smith had likely examined the entire collection before the distribution of duplicates.

36. *Draba alpina* var. *leiophylla* Franch., Bull. Soc. Bot. France 33: 401. 1887; **D. involutrata** (W.W.Sm.) W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 206. 1919.

Described from: "Yun-nan, in fissuris rupium calcarearum ad juga nivalia Li-kiang, alt. 3500 m, fl. 9 jul. 1884 (Delav. *Draba*, n. 9)."

Lectotype (designated here): China. "Yunnan: Au pied du glacier de Li Kiang, 9 Jul 1884, 4000 m, *J. M. Delavay* 6." (P02272408; Isolectotype: P02272409).

In his original description of *Draba alpina* var. *leiophylla*, Franchet (1887) cited a single collection (*Delavay* 9) collected at an elevation of 3,500 m. No such specimen was seen at P, and it is possible that the collection he intended to cite was *Delavay* 6 that was gathered at 4000 m. Of the two sheets at P that qualify for the type collection, the more complete one carrying the varietal name in Franchet's handwriting is designated as the lectotype.

37. *Draba altaica* var. *foliosa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 219. 1927; **D. altaica** (C.A.Mey.) Bunge, Delect. Seminum Hort. Bot. Dorpat. 1841: 8. 1841.

Described from: "Sikkim: Tungu, ca. 4000 m ü. M (J. D. Hooker 1849–in Juli blühend)."

Lectotype (designated here): India. Sikkim, Tungua, 13,000 ft [3,962.4 m], 24 Jul 1849, *J. D. Hooker s.n.* (B100294007; Isolectotype: K).

I have examined two of the four collections cited by Schulz (1927a) under var. *foliosa*. The sheet annotated by him at B is selected herein as the lectotype.

38. *Draba altaica* var. *microcarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 219. 1927; **D. altaica** (C.A.Mey.) Bunge, Delect. Seminum Hort. Bot. Dorpat. 1841: 8. 1841.

Described from: "Karakoram, 4500 m ü. M. (C. B. Clarke 1876–am 9. August fruchtend, hb. Kew)."

Lectotype (designated here): [Pakistan]. Karakoram, 13,500 ft [4,114.8 m], 9 Aug 1876, *C. B. Clarke* 30261 (K000397461).

Schulz (1927a) cited five collections under this variety and, of the four housed at K, the most complete specimen is taken herein as the lectotype.

39. *Draba altaica* var. *racemosa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 219. 1927; **D. altaica** (C.A.Mey.) Bunge, Delect. Seminum Hort. Bot. Dorpat. 1841: 8. 1841.

Described from: "Östliches Altaigebirge (Bunge 1839)."

Lectotype (designated here): [Russia]. "Herbar. Bung. *Draba altaica* mihi. Flor. orient. altaica. 1839," *A. A. von Bunge s.n.* (B100294008; Isolectotypes: 2 at BR).

Of the four collections cited by Schulz (1927a) under var. *racemosa*, I have examined the above and *Clarke* 30181 (K). The Bunge collection was annotated by him and is likely represented by duplicates in other herbaria (e.g., LE, P) that I have not yet examined.

40. *Draba amoena* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 188. 1927.

Described from: "West-Nepal: Birkenwald über Budhi Village, 3600–4000 m ü. M. (Duthie 1886, n. 5358a–am 18. Juli blühend, hb. Dehra Dun, Kew)."

Lectotype (designated here): Nepal, Budhi Village, 11–12,000 ft [3,352.8–3,657.6 m], 18 Jul 1886, *J. F. Duthie* 5358 (K000247206; Isolectotypes: B, BM, G, WU).

In the original description of *Draba amoena*, Schulz (1927a) cited three collections housed at DD and K. I have examined all those at K only. Ideally, the material at B should be considered first for the lectotypification of any Brassicaceae described by Schulz. However, in the case of *D. amoena*, the B sheets consist of a collection of plant fragments accompanied by four pencil drawings, all apparently based on the K sheet designated above as the lectotype.

41. *Draba amplexicaulis* Franch., Bull. Soc. Bot. France 33: 403. 1887.

Described from: “Yun-nan, in pratis humidis ad juga nivalia Li-kiang, alt. 3000 m.; fl., fr. 10 jul. 1884 (Delav. n. 702).”

Lectotype (designated here): China, Yunnan, “Prairies fraiches au pied du glacier de Li-Kiang,” 3000 m, 10 July 1884, *J. M. Delavay* 702 (P02272373; Isolectotypes: E, P02272374, P02272375, ?US00810685).

Franchet (1887) cited a single collection under this species, and it is represented by three duplicates at P. Two of these carry the original handwritten label by Delavay, of which only the designated lectotype above has a complete plant in flower and another in fruit. The isolectotype at US does not carry the collection date, though it is very likely to be a duplicate of the type collections.

42. *Draba amplexicaulis* Franch. var. *dasycarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 181. 1927; *Draba calcicola* O.E.Schulz in Engler, Pflanzenr. 89(IV. 105): 373. 1927.

Described from: “Yünnan: Region von Tungshan, Yangtze drainage basin, östlich von Likiang (J. F. Rock 1923, n. 10533).”

Lectotype (designated here): China. Yunnan, region of Tungshan, Yangtze drainage basin, E of Likiang, Aug 1923, *J. F. Rock* 10533 (B; Isolectotypes: GH00312596, P02272378, US00100161).

Schulz (1927a) cited a single collection for this variety without indicating the herbaria housing the specimens he examined. Although the designated B lectotype was examined by the present author, no digital image is available on the B website, and the specimen may have been misplaced or not yet digitized. However, all three sheets of the isolectotypes are available on the JSTOR website (<http://plants.jstor.org/>).

43. *Draba amplexicaulis* var. *dolichocarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 181. 1927; *D. amplexicaulis* Franch., Bull. Soc. Bot. France 33: 403. 1887.

Described from: “Yünnan: Yangtze-watershed, Prefectural District of Likiang, Ostabhänge von Likiang Snow Range, 3650 m ü. M. (J. F. Rock 1922, n. 6066–am 24 August fast fruchtend).”

Lectotype (designated here): China. Yunnan, Yangtze watershed, Prefectural district of Likiang, E slopes of Likiang Snow Range, 1922, 11,000 ft, *J. F. Rock* 6066

(B100294010; Isolectotypes: E00386070, GH00112022, P02272376, US00100160, W1926-0015875).

Two collections were cited by Schulz (1927a), *Rock* 6066 and *Handel-Mazzetti* 4500 (WU, W), and I have examined all their duplicates in the major herbaria consulted. The most complete is designated herein as the lectotype.

44. *Draba cachemirica* Gandoger, Bull. Soc. Bot. France 46: 418. 1899.

Described from: “Hab.–Cum praecedente [Hab. Cachemir: Baltistán ad Marpu-Drás, alt. 12–13000 ped.]”

Lectotype (designated here): Kashmir, Baltistan, Marpu nullah, above Drás, 12–13,000 ft [3,352.8–3,657.6 m], 3 Jul 1892, *J. F. Duthie* 11800 (K000772474; Isolectotypes: B, E, G).

A single collection was cited in the original publication of the species, but no herbarium name was given. The sheets at both B and K were annotated as “type,” but of all duplicates I examined, the K specimen is the most complete and therefore designated above as the lectotype.

45. *Draba calcicola* O.E.Schulz in Engler, Pflanzenr. 89(IV. 105): 373. 1927; *Draba aprica* O.E.Schulz in Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 63: 96. 1926, non Beadle in Small, Fl. SE U.S., ed. 2, App. 1336. 1913; *D. moupinensis* var. *calcicola* (O.E.Schulz) W.T.Wang, Acta Bot. Yunnan. 9: 4. 1987.

Described from: “Prov. Yünnan boreo-occ.: In rupibus calceis apricis reg. temperata ad fontem calidum infra vicum Baoschi prope pagum Dschungdien (“Chungtien”), 3400 m, legi 17. VIII. 1915 fl., fr. (Nr. 7698).”

Lectotype (designated here): China. NW Yunnan, near Chungtien [Zhongdian], below Baoschi, 3,400 m, 17 Aug 1915, *H. F. von Handel-Mazzetti* 7698 (B100294045; Isolectotypes: W1926-0004140, WU024354).

No herbarium was indicated in the original publication of the species or its later renaming, and the three duplicates, any of which could easily serve as the lectotype, carry identical labels. However, the B sheet is the only one that carries the renaming of the species in Schulz’s handwriting and is taken here as the lectotype.

46. *Draba cholaensis* W.W.Sm., Rec. Bot. Surv. India 4: 352. 1913.

Described from: “West of Tanka La, Sikkim, very sparingly at an elevation of 13,000 ft., No. 4175.”

Lectotype (designated here): India. Sikkim, West of Tanka La, 13,000 ft, 11 Aug 1910, *W. W. Smith* 4175 (K000247211; Isolectotype: CAL, n.v.).

Smith (1913b) did not list any herbarium in his original publication of the species, but because the description is based on his own collection, of which there is a duplicate at CAL, the name needed lectotypification. I am designating the K sheet, which I examined, as the lectotype.

47. *Draba composita* O.E.Schulz in Hand.-Mazz., Anz. Akad. Wiss. Wien, Math. Naturwiss. Kl. 63: 96. 1926; *D. oreodoxa* W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 209. 1919.

Described from: “Prov. Yünnan: cum praecedente [Prov. Yünnan: In glare calcea alpine lateris occid. montium Piepun ad austro-orientem pagi Dschungdien, 4500–4650 m, legi 11. VIII 1914 fr.] (Nr. 4683).”

Lectotype (designated here): China. Yunnan, in lateris occid. montis Piepun ad austro-orient. pagi Dschungdien (Chungtien). 4500–4650 m, 11 Aug 1914, *H. F. von Handel-Mazzetti* 4683 (WU0045118; Isolectotype: W1962-0004142).

The WU sheet was annotated in February 1926 in Schulz’s handwriting as *Draba lichiangensis* × *D. piepunensis* O.E.Schulz, and the name *D. composita* was later added by Handel-Mazzetti. By contrast, the W duplicate has all three names annotated by Handel-Mazzetti but without dates. Although the WU sheet was anonymously annotated as the holotype, it is more appropriate to treat it as the lectotype.

The alleged hybrid origin of *Draba composita* as emphasized by Schulz (1927b) is highly unlikely, and its type collection is a perfect match to that of *D. oreodoxa* in every morphological character. Indeed, there is nothing in the type collection of *D. composita* that is morphologically intermediate between its alleged parents in characters such as the white flowers of *D. lichiangensis* W.W. Sm. and the scapose habit of *D. piepunensis* (= *D. senilis* O.E.Schulz), a species with leafless stems and ebracteate racemes.

48. *Draba dasyastra* Gilg & O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 265. 1927; **D. winterbottomii** (Hook.f. & Thomson) Pohle, Repert. Spec. Nov. Regni Veg. Beih. 32: 138. 1925.

Described from: “Zentralasiatisches Gebiet.–Provinz des alpinen Himalaya: Khambajong, 5000 m ü. M. (Major D. Prain, Sept. 1903, Major F. E. Younghusband, Tibet Frontier Commission 1903, n. 86–am 16. Juli mit unreifen Früchten, hb. Calcutta as *D. lasiophylla*).”

Lectotype (designated here): China. Tibet, Khambajong, 15,000 ft [4,572 m], 16 Jul 1903, *F. E. Younghusband* 86 (K000568098; Isolectotypes: CAL (n.v.), P02272449).

Of the above two collections cited by Schulz (1927a), I have examined only the latter collection.

49. ***Draba elata*** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 150. 1861.

Described from: “*Hab.* In Himalaya oriental subalpina, alt. 11000–12000 ped.! *J.D.H.* (fl. Jul.).”

Lectotype (designated here): India. Sikkim, 5 Sep 1849, 11,000–13,000 ft [3,352.8–3,962.4 m], *J. D. Hooker s.n.* (K000077290, the two plants in the middle).

There is a single sheet at K with Hooker’s handwritten description of the species. The sheet is a mixed collection, and the plant on the right and two on the left represent *Draba polyphylla* O.E.Schulz, whereas the two in the middle are *D. elata*. The original description (Hooker & Thomson, 1861) was based on plants of both species, and the flowers and cauline leaves are characteristic of *D. elata* plants, whereas the mature fruits “siliquis tortis longe racemosis” were based on the fruiting plants of *D. polyphylla*. Although Schulz (1927a) did not annotate the type material at K, he provided a description for *D. elata* that perfectly matches the two plants designated above as the lectotype and distinguished

the species from *D. polyphylla* by having pilose and straight or only slightly curved fruits (vs. glabrous and contorted fruits). Therefore, his species concept of *D. elata*, which was adopted by Zhou et al. (2001), is accepted herein as well.

50. ***Draba falconeri*** O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 300. 1927.

Described from: “Zentralasiatisches Gebiet.–Provinz des alpinen Himalaya. Kashmir: Alibad, 3350 m ü. M. (C. B. Clarke 1876, n. 28697B, hb. Calcutta, n. 28955A, hb. Kew, n. 28955B, hb. Calcutta–Anfang Juli blühend un etwas fruchtend).”

Lectotype (designated here): Pakistan. Kashmir, Aliabad (as Alibad), 6 Jul 1876, 10,500 ft [3,200.4 m], *C. B. Clarke* 28955A (K 000247209; Isolectotype: B100241518).

Schulz (1927a) cited nine collections in the original description of *Draba falconeri*. Jafri (1973) was the first to attempt the lectotypification of this species and indicated that the type is *Clarke* 28697 (K, B). However, his lectotypification is erroneous for a number of reasons. First, Clarke’s collection numbers cited by Schulz are alphabetized, and Jafri did not indicate that in his designated type collection. Second, *Clarke* 28697 was cited by Schulz (1927a) as *Clarke* 28697B from CAL. Third, this *Clarke* 28697B was never cited by Schulz from the B or K herbaria but from CAL. Fourth, neither the K nor the B herbaria has duplicates of *Clarke* 28697. Fifth, Schulz (1927a) listed in the synonymy of *D. falconeri* the unpublished name *D. incana* L. var. *falconeri* C.B.Clarke, and of all the collections he cited, only *Clarke* 28955A bears Schulz’s annotations and Clarke’s handwriting of that unpublished varietal name. For these reasons, I am designating the last collection as the lectotype.

51. ***Draba glomerata*** Royle, Ill. Bot. Himal. Mts. 1: 71. 1834.

Described from: “*Hab.* Soongnum,” *J. F. Royle s.n.* (Holotype, DD, n.v.).

Jafri (1973: 138), indicated that the type of *Draba glomerata* is housed at LIV. However, extensive search by the LIV staff of Royle’s *Draba* types did not yield anything, and the single known original sheet of the species is housed at DD, which I was unable to study.

52. *Draba granitica* Hand.-Mazz., Anz. Akad. Wiss. Wien, Math. Naturwiss. Kl. 62: 143. 1925; ***D. gracillima*** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 153. 1861.

Described from: “Yünnan bor.-occid.: prope fines Tibeto-Birmanicas inter fluvios Lu-djiang (Salween) et Djiou-djiang (Irrawadi or. sup.) in regione alpina retro montem Gomba-la supra Tschamutong, ad rupes versus jug. Buschao. (9497)”

Lectotype (designated here): China. “Yünnan bor.-occid.: prope fines Tibeto-Birmanicas inter fluvios Lu-djiang (Salween) et Djiou-djiang (Irrawadi or. sup.) in regione alpina retro montem Gomba-la supra Tschamutong, ad rupes versus jug. Buschao,” 4050–4100 m, 10 Jul 1916, *H. F. von Handel-Mazzetti* 9497 (WU0024363; Isolectotypes: B100241511, E00373108, W1925-0002036).

The lectotype and isolectotypes at E and W carry identical labels, whereas that at B includes two small plants with a handwritten label by Otto E. Schulz. The WU and W sheets were initially identified by W. W. Smith as *Draba gracillima*, but the species and Smith's names were crossed out by Handel-Mazzetti and replaced by "granitica Hand. Mazzt, sp. nova" and "H.M.," respectively. Evidently, all plants were studied by Handel-Mazzetti when describing the species, and the original description did not specify where the type is housed. Although I have annotated the WU sheet as holotype, the presence of more than one sheet examined by the species author requires lectotypification (see McNeill, 2014).

53. ***Draba handelii*** O.E.Schulz in Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 63: 97. 1926.

Described from: "Prov. Yünnan bor.-occid.: prope fines Tibeto-Birmanicas ad rupes graniticas alpinas retro montem Gomba-la versus jugum Buschao inter vicum Tschamutong et fl. Irrawadi, 4050–4100 m, legi 10. VII. 1916 fl. et fr. juv. (Nr. 9502)."

Lectotype (designated here): China. Yunnan, "prope fines Tibeto-Birmanicas inter fluvios Lu-djiang (Salween) et Djiou-djiang (Irrawadi or. sup.) in rgione alpina retro montem Gomba-la supra Tschamutong, ad rupes versus jug. Buschao," 4050–4100 m, 10 Jul 1916, *H. F. von Handel-Mazzetti 9502* (B100241510; Isolectotypes: W1926-0004147; WU0024362).

In the protologue of *Draba handelii*, Schulz (in Handel-Mazzetti, 1926) gave the locality somewhat differently from the label as indicated above, though the information in both is identical. Both the B and WU sheets were annotated in Schulz's handwriting prior to the publication of the species, which indicates that he based his description on more than one sheet. Therefore, the species name needs lectotypification, and the better and more complete sheet at WU is designated as the lectotype.

54. ***Draba humillima*** O.E.Schulz in Engler, Pflanzenr. 89(IV. 105): 114. 1927.

Described from: "Provinz des Himalaya-Gebirges.–Sikkim: Cheumsanthang, 4650 m ü. M. (Ribu and Rhomoo 1911, n. 5049–blühend in September, auch vorjährige Früchte)."

Lectotype (designated here): India. Sikkim, Cheumsanthang, 14,000 ft [4,267.2 m], 6 Sep 1911, *Ribu & Rhomoo 5049* (B100386901; Isolectotype: K000077287).

Schulz (1927a) cited five collections for this species, of which I have examined only the single collection above, and the better and more complete duplicate is designated as the lectotype. The other four are housed in CAL.

54. *Draba hystrix* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 149. 1861; ***Pseudodraba hystrix*** (Hook.f. & Thomson) Al-Shehbaz, D.A.German & M.Koch, Pl. Divers. Evol. 129: 73. 2011.

Described from: "*Griff. It. Not.* p. 257 (No. 478). *Hab.* In Affghanistan and summum portarum Koshuk Pass, alt. 7300 ped.! *Griffith.*"

Lectotype (designated here): [Pakistan. Baluchistan], Khojak (Koshuk) Pass, *Griffith 478* (K000697209; Isolectotype: K000697213).

Although Hedge (1968b: 177) and Al-Shehbaz et al. (2011) correctly gave *Griffith 478* (K) as the type collection, their typification can only be considered as a first-step because there are two duplicate sheets at K. Both sheets were annotated in Hooker's handwriting as "*Draba Hystrix Hf&T*," and the one with the original Griffith label and number is designated as the lectotype. In addition, there are several other unnumbered collections by Griffith at K, and none can be considered for lectotypification.

56. ***Draba jucunda*** W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 207. 1919.

Described from: "China: N.W. Yunnan. 1913." F. K. Ward. No. 123A.

Lectotype (designated here): China. NW Yunnan, without locality, 1913, *F. Kingdon-Ward 1023a* (E00386060).

Smith (1919) cited three collections in his original description of *Draba jucunda*, and I have examined all of them. The Kingdon-Ward's collection, which carries Smith's subsequent pencil writing as the "type" and which is the most complete of all, is designated herein as the lectotype.

57. ***Draba lanceolata*** Royle, Ill. Bot. Himal. Mts. 1: 72. 1834.

Described from: "Hab. Shalkur."

Lectotype (designated here): India. Shalkur, *J. F. Royle, s.n.* (K000568101, plant on the lower right; Isolectotype: DD, n.v.).

As discussed under *Draba glomerata*, Royle's *Draba* types appear to be housed in CAL, DD, and some at K, and none was found in LIV. I have not seen the material in the first two herbaria, and I am recognizing the K specimen as the lectotype.

58. *Draba lanceolata* var. *brachycarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 298. 1927; ***D. lanceolata*** Royle, Ill. Bot. Himal. Mts. 1: 72. 1834.

Described from: "Thianschan, am Berge Keuleu, 2000–2500 m ü. M. (Jules Brocherel 1900, n. 66, hb. Deless.)."

Lectotype (designated here): [Kazakhstan?]. Tian Shan, Berge Keuleu, 2,000–2,500 m, 1900, *J. Brocherel 66* (G-DEL).

Of the four collections listed by Schulz (1927a), I have examined only the above collection, and it perfectly matches the description.

59. *Draba lanceolata* Royle var. *chingii* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 298. 1927; ***D. ladyginii*** Pohle, Izv. Imp. Bot. Sada Petra Velikago 14: 472. 1914.

Described from: "China: Provinz Kansu, bei Pingfan, am Waldrande, 2350–2800 m ü. M. (R. C. Ching 1923, n. 497–im Juli blühend und mit vorjährigen Fruchstengeln)."

Lectotype (designated here): China. Gansu, near Pingfan, 2,350–2,800 m, 13 Jul 1923, *R. C. Ching 497* (US00100208; Isolectotypes: E00414268, GH00112008, P02272413, PE).

Only the above collection was cited in the original publication of the variety. I have been unable to find a duplicate of this taxon that was annotated by Schulz and, therefore, the above designation of the lectotype is arbitrary though based on selecting the more complete duplicate.

60. *Draba lanceolata* Royle var. *latifolia* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 10: 555. 1929; **D. ladyginii** Pohle, Izv. Imp. Bot. Sada Petra Velikago 14: 472. 1914.

Described from: "Eastern Tibet: Radja and Yellow River gorges, Deyang valley east of Radja, alt. 10000 ft. (blühend im Juni 1926–J. F. Rock, 1924–1927 n. 14134.)"

Lectotype (designated here): China. E Tibet, Radja and Yellow River gorges, Deyang Valley, E of Radga, 10,000 ft [3,048 m], Jun 1926, *J. F. Rock 14134* (GH00046947; Isolectotypes: E00414269, K000697271).

The lectotype designation here follows the same comment given for the previous variety.

61. *Draba lanceolata* var. *leiocarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 297. 1927; **D. lanceolata** Royle, Ill. Bot. Himal. Mts. 1: 72. 1834.

Described from: "Provinz Kansu, Lo Lan Shan Mts. an Felsabhängen, 1750–2650 m ü. M. (R. C. Ching 1923, n. 1047–im Juli blühend)."

Lectotype (designated here): China. Gansu, Lo Lan Shan, 1,750–2,650 m, Jul 1923, *R. C. Ching 1047* (GH; Isolectotypes: E, P, PE, US, W).

Schulz (1927a) cited eight collections for this variety, and I have examined only the one above. Unfortunately, none of the duplicates was annotated by him and, therefore, the lectotype designation is arbitrary. The variety was based on a trivial character (lack vs. presence of fruit trichomes), a feature often found within the same population.

62. *Draba lanceolata* Royle var. *sonamargensis* O.E.Schulz, Repert. Sp. Nov. Regni Veg. 31: 331. 1933; **D. lasiophylla** Royle, Ill. Bot. Himal. Mts. 1: 71. 1834.

Described from: "N. W. Himalaya: Kashmir, Har Nag near Mt. Kolahoi, alt. 13000 ft (fruchtend im August–R. R. Stewart 1927 n. 9354)."

Lectotype (designated here): Kashmir, Har Nag, near Mt. Kolahoi, Aug 1927, 13,000 ft [3,962.4 m], *R. R. Stewart 9354* (B100294134; Isolectotypes: K000568092, MO, NY00115383, US00100209).

Under this variety, Schulz (1933) cited four collections, all collected by Ralph R. Stewart, but without indicating where the collections are housed. I have examined duplicates of all four collections and designated as the lectotype the one that most fully agrees with the original protologue and which has more duplicates.

63. ***Draba lasiophylla*** Royle, Ill. Bot. Himal. Mts. 1: 71. 1834.

Described from: "Hab. Shalkur and Lippa."

Lectotype (designated here): NW India. Shalkur and Lippa, *J. F. Royle s.n.* (K000772473; Isolectotype: B100241641).

Labels of both the K or B sheets above do not have the exact locality data (Shalkur and Lippa) as given in the original description of the species. However, both labels have Royle's handwritten annotation, and there is no reason to doubt their authenticity. It is unknown to me if duplicates of the above collection are housed in Indian herbaria (e.g., CAL or DD).

64. ***Draba lichiangensis*** W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 208. 1919.

Described from: "CHINA: Yunnan, western flank of the Lichiang Range, Lat. 2720N. Alt. 13,000 ft. Plant of 1–2 inches. Flowers white. Crevices of limestone cliffs. May 1910. G. Forrest. No. 5698."

Lectotype listed as type by Cheo et al. (2001: 72): CHINA. Yunnan, E flank of Lichiang Range, 13,000 ft [3,962.4 m], 2720N, May 1910, *G. Forrest 5698* (E 00386059; Isolectotype: BM).

Smith (1919) cited four collections in his original description of *Draba lichiangensis* and annotated *Forrest 5698* (E) in his own handwriting as the type. This collection was taken by Zhou et al. (2001) as the holotype and designated herein as the lectotype.

65. *Draba lichiangensis* var. *microcarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 214. 1927; **D. lichiangensis** W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 208. 1919.

Described from: "Provinz Sze-ch'uan: Dongrergo, auf felsen oberhalb Huang-lung-ssü, ca. 5000 m ü. M (H. Smith n. 4961)."

Lectotype (designated here): China. Sichuan, Dongrergo, 5,000 m, 9 Aug 1922, *H. Smith 4961* (B100241638; Isolectotype: UPS).

This and the following variety have the same locality and collection date, and they represent a fraction of the overall variation of this widespread Himalayan species (Bhutan, China (Sichuan, Xizang, Yunnan), India, and Nepal). In my opinion, neither variety merits recognition because they were based on minor variations.

66. *Draba lichiangensis* var. *trichocarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 215. 1927; ***Draba lichiangensis*** W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 208. 1919.

Described from: "Provinz Sze-ch'uan: Dongrergo, auf felsen oberhalb Huang-lung-ssü, ca. 5000 m ü. M (H. Smith n. 4961)."

Lectotype (designated here): China. Sichuan, Dongrergo, 5,000 m, 9 Aug 1922, *H. Smith 4959* (UPS; isolectotype, B).

67. ***Draba matangensis*** O.E.Schulz, Acta Horti Gothob. 1: 163. 1924.

Described from: "Nordwest-Sze-ch'uan: Berge NE von Matang, steinge Schutthalden, 4800–5100 m, 15 IX. (fr.) 1922 (no. 4415)."

Lectotype (designated here): China. Sichuan, Matang, in declivo lapidoso, 4,800–5,100 m, 15 Sep 1922, *H. Smith 4415* (UPS; Isolectotypes: B100386864, W).

The original description of the species cited a single specimen, and the most complete duplicate, which was annotated by me on 13 Sep 2000 as the holotype, is taken herein as the lectotype. The B isoelectotype represents fragments taken from the UPS material, and it carries Schulz's handwritten label instead of the printed labels of the UPS and W sheets.

68. *Draba melanopus* var. *gilgitica* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 317. 1927; **D. melanopus** Kom., Trudy Imp. S.-Peterburgsk. Obshch. Estestvoisp., Vyp. 3, Otd. Bot. 26: 102. 1896.

Described from: "Norwest-Himalaya: Tui Pass, 4000–4600 m ü. M. (Giles, Gilgit Exped. 1881, n. 468–am 12 Juli blühend)."

Lectotype (designated here): Pakistan. Gilgit, Tui Pass, 12,000–14,000 ft [3,657.6–4,267.2 m], 12 Jul 1881, *G. M. J. Giles 468* (K000568091; Isoelectotype: ?B100241619).

Although the printed label of the K and B sheets of var. *gilgitica* are the same, the B sheet does not carry the locality, altitude, or collection number and, therefore, it may not be part of the type collection. The specimens of both sheets were donated by Duthie in 1887, and there is no doubt that both were used in the description of the species because they were annotated in Schulz's handwriting in 1923.

69. *Draba modesta* W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 208. 1919; *D. altaica* prol. *modesta* (W.W.Sm.) O.E.Schulz, Meddel. Göteborgsl. Bot. Trädg. 1: 163. 1924; *D. altaica* var. *modesta* (W.W.Sm.) W.T.Wang, Acta Bot. Yunnan. 9: 5. 1987; **D. altaica** (C.A.Mey.) Bunge, Delect. Seminum Hort. Bot. Dorpat. 1841: 8. 1841.

Described from: "N.W. Yunnan at A-tun-tsu, on rocks and screes at 15,000 ft. August 1913. F. K. Ward. Nos. 943, 737."

Lectotype (designated here): China. NW Yunnan, A-tun-tsu [Deqin], on rocks and scree, 15,000 ft [4,572 m], Aug 1913, *F. Kingdon-Ward 943* (E00386071).

Both collections cited by Smith (1919) are housed E, but he did not state in the publication which one is the type. The sheet annotated in Smith's handwriting as "type" is designated herein as the lectotype.

70. *Draba mongolica* var. *trichocarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 278. 1927; **D. mongolica** Turcz., Bull. Soc. Imp. Naturalistes Moscou 15: 256. 1842.

Described from: "Dongrergo, am Kalkbach unterhalb Huang-lung-ssü, 3900–4400 m ü. M. (H. Smith n. 3597, 3924, 3944)."

Lectotype (designated here): China. Sichuan, Dongrergo, 23 Jul 1922, 3,900–4,100 m, *H. Smith 3597* (UPS).

Six of the nine collections cited by Schulz (1927a) for this variety were collected by Harry Smith and housed at UPS.

71. *Draba moupinensis* Franch., Nouv. Arch. Mus. Paris, Sér. 2, 8: 200. 1886; **D. surculosa** Franch., Bull. Soc. Bot. France 33: 401. 1887.

Described from: "Moupin, in silvis humidis. Fl. fruct. Aug. 1869."

Lectotype (designated here): [China]. "Thibet oriental Prov. De Moupin, aug 1863," *Abbé David s.n.* (Lectotype: P02272438; Isoelectotype: P02272437).

Neither of the above two duplicates of the type collection of this species was cited as the type, and the more complete sheet of the two at P is taken herein as the lectotype. The year of collection was mistyped in print as 1869 instead of 1863.

72. *Draba nichanaica* O.E.Schulz, Repert. Sp. Nov. Regni Veg. 31: 331. 1933; **D. lanceolata** Royle, Ill. Bot. Himal. Mts. 1: 72. 1834.

Described from: "N.W. Himalaya: Kashmir, Nichanai Pass near Sonamarg, alt. 13000 ft. (fruchtend am 16. August–R. R. Stewart 1928 n. 9888, Ladak Road, Zoji Pass, alt. ca. 12000 ft. (fruchend im August–R. R. Stewart 1928 n. 9960A)."

Lectotype (designated here): Kashmir. Ladak road, Zoji Pass, ca. 12,000 ft [2,657.6 m], *R. R. Stewart 9960A* (B100293377).

Schulz (1933) indicated that *Draba nichanaica* is of a hybrid origin between *D. lanceolata* and *D. lasiophylla* Royle. An examination of both original collections reveals that the plants represent a minor variant of *D. lanceolata* but with slightly denser indumentum and smaller leaves.

73. *Draba nubigena* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 291. 1927; **D. lasiophylla** Royle, Ill. Bot. Himal. Mts. 1: 71. 1834.

Described from: "Kumaun, am Lebung glacier, 4300–5000 m ü. M. (Duthie 1886, n. 5336–am 3. August fruchtend, hb. Dehra Dun)."

Lectotype (designated here): [India]. Near Lebung Glacier, 13,000–15,000 ft [3,962.4–4,572 m], 3 Aug 1896, *J. F. Duthie 5336* (B100241597; Isoelectotype: DD, n.v.).

Schulz (1927a) cited three collections under this species, of which a plant and fragments of one are deposited at B that I have examined. It is indistinguishable from plants of *Draba lasiophylla* except for the presence of some simple trichomes on the stems and their alleged absence in *D. lasiophylla*. The latter species is extremely variable and widespread throughout the Himalayas and the Central Asian republics of the former Soviet Union, and it can easily accommodate *D. nubigena*.

74. *Draba oaricarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 279. 1927; **D. stenobotrys** Gilg & O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 291. 1927.

Described from: "Zentralasiatische Gebiet–Provinz des extratropischen Himalaya. Sikkim: Llonakh, 4650 m ü. M. (Smith und Cave 1909, 2042–am 28. Juli blühend un kaum fruchtend, hb. Calcutta)."

Lectotype (designated here): India. Sikkim, Llonak, 14,000 ft [4,267.2 m], 28 Jul 1909, *W. W. Smith & G. H. Cave 2042* (B100386903; Isoelectotype: CAL, n.v.).

Although Schulz (1927a) mentioned “hb. Calcutta” following the citation of the type collection, it most likely implies that the origin of the material is from that herbarium because the duplicate at B, which was annotated by him in 1924, has a label that says “Herb Hort Bot Calcuttensis.”

Both *Draba stenobotrys* and *D. oaricarpa* were simultaneously published by Schulz (1927a), the former was selected by Cheo et al. (2001) for the combined species and therefore that name has priority (see Article 11.5 in McNeill et al., 2012).

75. *Draba obscura* Dunn, Bull. Misc. Inform. Kew 1924: 383. 1924, non Rollins, Gen. Lesquerella 10. 1973; *Lignariella obscura* (Dunn) Jafri, Candollea 16: 134. 1957; **Aphragmus obscurus** (Dunn) O.E.Schulz, Repert. Sp. Nov. Regni Veg. 31: 330. 1933.

Described from: “N.W. India. Kashmir; Sonamarg, usually inconspicuous in damp grassy places at 3000–3500 m., Sept. 1917, R. R. & I. D. Stewart 3547.”

Holotype: [India. Jammu &] Kashmir, Sonamarg, 12,000–13,000 ft [3,657.6–3,962.4 m], 3 Sep 1917, R. R. Stewart & I. D. Stewart 3547 (K000247258; possible isotype: K000397458).

There are two sheets at K that have the same collection number, date, and locality. The one considered herein as the holotype was annotated by Stephen T. Dunn and on which is mounted a copy of the original description of the species. The possible isotype was acquired by Kew in 1924, the year in which the species was published, but was not annotated by Dunn and was collected by R. R. Stewart alone at 12,000 ft.

76. *Draba oreades* prol. *chinensis* O.E.Schulz in Engler, Pflanzenreich IV, 105(Heft 89): 109. 1927; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: “Ost-Tibet: zwischen Tatsienlu und Lifanfu am Passe Hungkiao (Potanin 1893–im August blühend).”

Lectotype (designated here): China. “Tibet orientali, inter Tatienu et Lifanfu trajectus Hung Kiao. VIII 1893, [G. N.] Potanin s.n. (B100386893; Isolectotype: LE).

Thirteen collections were cited in the original publication of prol. *chinensis*, and I have examined seven of them.

Draba oreades is one of most widespread species in the genus, and its range extends from Mongolia and Russia into central Asia, the Himalayas, and China. It is also one of the most variable species, and almost all of the infraspecific taxa below were based on trivial characters of continuous nature, including the density of trichomes on the plant and their presence or absence on the fruit. Such variations are often encountered within a single population. The majority of infraspecific taxa below were described by Schulz (1927a), who often listed under each several to many collections. In order to avoid excessive discussions and save space, lectotypifications of the infraspecific taxa of *D. oreades* is done herein to reflect the best specimens cited by the original author and examined by the present author.

77. *Draba oreades* prol. *exigua* O.E.Schulz in Engler, Pflanzenreich IV, 105(Heft 89): 111. 1927; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: “Karakorum: 5000 m ü. M. (C. B. Clarke, 1876, n. 30227–am 8. August verblüht, hb. Kew).”

Lectotype (designated here): [Pakistan]. Karakorum, 15,000 m, 8 Aug 1896, C. B. Clarke 30227 (K000340148).

I have examined only the above collection out of the three cited by Schulz (1927a).

78. *Draba oreades* prol. *pikai* O.E.Schulz in Engler, Pflanzenreich IV, 105(Heft 89): 111. 1927; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: “Tibet (Arnold Pike chiefly in Capt. Deasy’s Expedition 1896–1897, hb. Calcutta und Kew n. 833).”

Lectotype (designated here): India. Without locality, Capt. Deasy’s Expedition 1896–1897, *Arnold Pike 833* (K000397460; Isolectotype: CAL, n.v.).

Schulz (1927a) cited two collections (*Pike 833* and *Duthie 925*), and each is represented by duplicates at K and DD. I have examined both specimens at K, and designated the above as the lectotype that commemorates its collector.

79. *Draba oreades* var. *dasycarpa* O.E.Schulz in Engler, Pflanzenreich IV, 105(Heft 89): 109. 1927; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: “Sikkim: 4000–6000 m ü. M. (J. D. Hooker).”

Lectotype (designated here): India. Sikkim, 12–18,000 ft [3,657.6–5,486.4 m], *J. D. Hooker s.n.* (B100386894; Isolectotypes: BM, F, K, P).

Of the two collections cited in the original publication, I have examined only the above.

80. *Draba oreades* var. *glabrescens* O.E.Schulz in Engler, Pflanzenreich IV, 105(Heft 89): 110. 1927; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: “Himalaya (J. L. Stewart n. 43/HK, auch typisch, hb. Kew).”

Lectotype (designated here): [India]. Himalaya, without locality, *J. L. Stewart 43* (K000340147).

Of the two collections cited by Schulz (1927a), I have examined only the above.

81. *Draba oreades* var. *occulata* O.E.Schulz in Engler, Pflanzenreich IV, 105(Heft 89): 110. 1927; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: “Tihri-Garhwál, . . . auch auf der Moräne des Dudu-Gletschers (Duthie 1883, n. 925–in August blühend und mit vorjährigen Früchten).”

Lectotype (designated here): India. Tihri-Garhwál, Dudu-Gád, under Srikanta, 15–16,000 ft [4,572–4,876.8 m], 9 Aug 1883, *J. F. Duthie 925* (K000568093; Isolectotype: K000568094).

Four of the five collections cited by Schulz (1927a) are housed at CAL or DD, and those were not available for my study and verification. The designated lectotype, which I have examined, matches the varietal description perfectly well.

82. *Draba oreades* var. *racemosa* O.E.Schulz in Engler, Pflanzenreich IV, 105(Heft 89): 109. 1927; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: "WEST-CHINA: auf Felsen, 4660 m ü. M. (E. H. Wilson 1904, n. 3207, hb. Kew)."

Lectotype (designated here): Western China. Rock, 14000 ft [4,267.2 m], 1904, *E. H. Wilson 3207* (K000697255; Isolectotypes: BM, GH).

I have examined material of all six collections cited by Schulz (1927a), of which five are housed at LE.

83. *Draba pakistanica* Jafri in E.Nasir & S.I.Ali, Fl. West Pakistan 55: 133. 1973; **D. olgae** Regel & Schmalh. in Regel, Izv. Imp. Obshch. Ljubit. Estestv. Moskovsk. Univ. 34(2): 8. 1882.

Described from: "Chitral gol, W. of Chitral, 3800 m, on stony slopes, fls. yellow, *Stainton 2670* (BM, RAW, HJ)."

Lectotype (designated here): Pakistan. Chitral, Chitral Gol, W of Chitral, stony slopes, 11,500 m [3,505.2 m], 14 Jun 1958, *J. D. A. Stainton 2670* (BM000041390; Isolectotypes: A00046956, E00438304, RAW (n.v.), US00324478).

Although the BM sheet of *Draba pakistanica* is annotated as the type, Jafri (1973: 133) listed the BM, HJ, and RAW sheets as the type, and therefore a lectotypification is needed.

84. *Draba piepunensis* O.E.Schulz ex Hand.-Mazz., Anzeiger Akad. Wiss. Wien, Math. Naturwiss. Kl. 63: 96. [20 May] 1926; **D. senilis** O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 475. [25 Feb] 1926.

Described from: "Prov. Yünnan: In glare calcea alpina lateris occid. montium Piepun ad austro-orientem pagi Dschungdien, 4500–4650 m, legi 11. VIII 1914 fr. (Nr. 4712)."

Lectotype (designated here): China. Yunnan, "in lateris occid. montis Piepun ad austro-orient. pagi Dschungdien [Zhongdian]," 4,500–4,650 m, 11 Aug 1914, *H. F. von Handel-Mazzetti 4712* (B100386865; Isolectotypes: W1926-0004150, WU0024364).

The publication of *Draba piepunensis* and *D. senilis* (see below) were each based on a single collection. However, in describing the fruiting as the former species, Schulz (in Handel-Mazzetti, 1926) did not realize that he (Schulz, 1926) described the flowering material three months earlier as *D. senilis*. Both B and WU duplicates of *D. piepunensis* were annotated by Schulz in February 1926, and either can serve as the lectotype. The B duplicate was annotated by me on 26 September 2000 as the holotype, and I am designating it as the lectotype.

85. *Draba polyphylla* O.E.Schulz in Engler, Pflanzenr. 89(IV. 105): 180. 1927.

Described from: "Too-koo-la (G. King 1877, n. 4317)."

Lectotype (designated here): India. Sikkim, Too-koo-la, 14 Jul 1877, *G. King 4317* (B100386995; Isolectotype: BM000041431).

Schulz (1927a) cited 14 collections in the protologue, but the majority of which are housed in CAL and DD, and were unavailable for my studies. However, I have examined two

collections (*Hooker s.n.* and *King 4317*, both at K), and the latter perfectly agrees with the original description of the species.

86. *Draba radicans* Royle, Ill. Bot. Himal. Mts. 1: 71. 1834.

Described from: "Hab. Shalma and Manma."

Lectotype (designated here): NW India. Shalma and Manma, *J. F. Royle s.n.* (K000247203).

As in the other taxa described by Royle, the labels list the type locality as "NW India" and no other data are given. The above lectotype is the only authentic material I have examined thus far for the species, though duplicates of Royle's collections are found in Indian herbaria, including CAL and DD.

87. *Draba radicans* var. *leiocarpa* O.E.Schulz in Engler, Pflanzenreich IV. 105(89): 186. 1927; **D. radicans** Royle, Ill. Bot. Himal. Mts. 1: 71. 1834.

Described from: "Kumaun, Nampa Gádh, Byáns, 3800 m ü. M. (Duthie 1886, n. 5344—am 20. Juli fat fruchtend)."

Lectotype (designated here): India. Pálang (as Nampa) Gadh, Byáns, 11,400 ft [3,474.7 m], 20 Jul 1886, *J. F. Duthie 5344* (K000247205; Isolectotypes: BM000795415, G).

Schulz (1927a) cited two collections (*Duthie 5344* and *Gamble 24315*) for this variety, and I have examined both. However, I am designating the former collection with three duplicates, instead of taking *Gamble 24315* (K) with a duplicate at DD that I have not examined.

88. *Draba remotiflora* O.E.Schulz, Acta Horti Gothob. 1: 165. 1924.

Described from: "Nord-Sze-ch'uan: Dongrergo, lange schneebedeckte Schutthalden, ca. 4600 m, 9. VIII (fl. u. subfr.) 1922 (n. 3474)."

Lectotype (designated here): China. Sichuan, Dongrergo, 4,600 m, 9 August 1922, *H. Smith 3474* (UPS; Isolectotypes: B100386898, BM, E, K, S, W).

Although one might be tempted to designate the B duplicate of the above type collection as the lectotype, its label was completely handwritten by Schulz, and the B material represents fragmentary parts taken from the UPS sheet that he examined. All other duplicates have printed labels, with the species name, locality, and elevation added in apparently Harry Smith's handwriting. Therefore, the UPS sheet, where the first set of Smith's collections is housed and which was annotated by me on 13 Sept. 2000 as the holotype, is designated herein as the lectotype.

89. *Draba rockii* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 10: 555. 1929; **D. oreades** Schrenk in Fisch. & C.A.Mey., Enum. Pl. Nov. 2: 56. 1842.

Described from: "Southwestern Kansu: T'ao River basin; Mishan range; alpine meadows, alt. 12–13000 ft. and higher; flowers deep yellow (blühend im Juni 1925—J. F. Rock, Arnold Arboretum, Harvard University, Expedition to Northwestern China and Northeastern Tibet 1924–27 n. 12405)."

Lectotype (designated here): China. Gansu, Tao River basin, Mishan range, alpine meadows, 12–13,000

ft [3,657.2–3,962.4], Jun 1925, *J. F. Rock 12405* (GH00046949; fragment: PE00029180).

Schulz (1929) cited the single collection above, but I have not seen any duplicate that he annotated, and his description must have been based on another duplicate(s). Therefore, I am arbitrarily designating the GH sheet as the lectotype.

90. *Draba rostrata* Pohle, Repert. Sp. Nov. Regni Veg. Beih. 32: 136. 1925; *D. affghanica* var. *rostrata* (Pohle) O.E.Schulz in Engler, Pflanzenr. IV. 105(Heft 89): 118. 1927; **D. affghanica** Boiss., Fl. Orient. Suppl. 55. 1888.

Described from: “Kurrum Valley. 1879 Aitchison n. 464 (5). *Draba rostrata* R. Pohle spec. nov. Spec. authent. Ex H. H. Bot. Reg. Kew. Commun. Visi in H. H. P.”

Lectotype (designated here): Kurrum Valley, Shéndtoi, 31/5/1879, alt. 11,000 ft [3,352.8 m], *J. E. T. Aitchison 464-5* (K000568067; Isolectotypes: K000568066, K000568068).

Although Pohle (1925) cited *Aitchison 464-5* at K as the type of *Draba rostrata*, the existence at K of three duplicates with the same collection number, of which none was annotated by Pohle as *D. rostrata*, necessitated lectotypification of the species. Of the three, the most complete sheet with full locality data and Aitchison’s original label is taken here as the lectotype. The duplicate K000568068 has undated annotation by Pohle as “*olgae affinis nova*.”

91. ***Draba senilis*** O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 475. [25 Feb] 1926.

Described from: “China. Yunnan, Yangtze watershed, Prefectural District of Likiang, E slopes of Likiang Snow Range, 4000 m s. m. (J. F. Rock Mai 1922 n. 3968).”

Lectotype (designated here): CHINA. Yunnan, Yangtze watershed, Prefectural District of Likiang, E slopes of Likiang Snow Range, Mt. Tse Koo, 12,000 ft [3,657.6 m], 25 May 1922, *J. F. Rock 3968* (B100386994; Isolectotypes: E00386056, GH00046950, P02272431, PE, US00100241, US00996982, W).

See the comment under *Draba piepunensis*.

92. ***Draba setosa*** Royle, Ill. Bot. Himal. Mts. 1: 71. 1834.

Described from: “Hab. Soongnum in Kunawur.”

Lectotype listed as type by Jafri (1973: 131) as a first-step and finally designated here: India. Soongnum, Kunawur, *J. F. Royle s.n.* (K000772475).

Jafri (1973) listed both the K and LIV sheets as the type collection of *Draba setosa*, but no duplicate was found in Royle’s herbarium at LIV, and it is not known if such a duplicate is lost. Furthermore, as is the case for of the other Royle types, duplicates almost certainly are found in either CAL or DD.

93. ***Draba stenocarpa*** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 153. 1861.

Described from: “*Hab.* In Tibetia occidentali temperata ad Das Kirim! *Winterbottom*. (fl. Jul.)”

Holotype: Kashmir, Balti, Das Kirin, 1 Jul 1847, *J. E. Winterbottom [679]* (K000247210).

Hooker and Thomson (1861) cited a single collection, and there is no indication that they based their description of the species on more than that single sheet. Furthermore, I have seen no duplicate of the above collection anywhere and, therefore, it is safe to consider it as the holotype.

94. ***Draba surculosa*** Franch., Bull. Soc. Bot. France 33: 401. 1887.

Described from: “Yun-nan, in vicinitate fontium ad juga nivalia Li-kiang, alt. 4000 m.; fl. 11 jul. 1804 (Delav. n. 48); ad cacumina montis Tsang-chan supra Tali; fr. mat. 25 sept. 1884 (Delav. n. 1052).”

Lectotype (designated here): China. “Yunnan: près de sources, au pied du glacier de Li Kiang,” 4,000 m, 11 Jul 1884, *J. M. Delavay 48* (P02272439; Isolectotypes: MO, P02272440, P02272441, P02272442).

Franchet (1887) cited two collections, *Delavay 48* and *Delavay 1052*, in his original description of the species. I have examined at P four duplicates of the former and none of the latter, and the year of collection was mistyped as 1804 instead of 1884. The designated lectotype carries both the original handwritten label by Delavay and Franchet’s annotation of the species name constituting the best of four duplicates in showing the typically surculose habit.

95. ***Draba tenerrima*** O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 11: 640. 1932; *Erophila tenerrima* (O.E.Schulz) Jafri in Nasir & Ali, Fl. West Pakistan 55: 149. 1973.

Described from: “Western Himalayas: Shushal, Ladak, Kashmir in shade among grass, alt. 14200 ft. (blühend und fruchtend am 26. 1931–Walter Koelz, n. 2451).”

Lectotype (designated here): Kashmir, Ladak: Shushal, in shade along grass, 14,200 ft [4,328.2 m], 26 Jul 1931, *Walter Koelz 2451* (B100386900; Isolectotypes: K000697523, NY00115387, US00100257).

Except for the single mounted plant and envelope on the lower right of the lectotype sheet, all other 22 plants have glabrous fruits and belong to *Draba tenerrima*. The excluded plant has pubescent fruits and represents the type material of the following variety. The isolectotype at NY is also a mixed collection.

96. *Draba tenerrima* var. *trichocarpa* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 640. 1932. TYPE: see the previous entry.

97. ***Draba tibetica*** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 152. 1861.

Described from: “in Tibetia occidentali alpina, Zanskar, alt. 13000–15000 ped.! *T.T.*”

Lectotype listed in part as type by Jafri (1956: 106) and finally designated here: India. Zanskar, 13,000–15,000 ft [3,962.4–4,572 m], *T. Thomson s.n.* (K000568102; Isolectotypes: B100386897, GH00112002).

Hooker & Thomson (1861) divided *Draba tibetica* into three varieties: var. α is *thomsonii*, var. β is *sikkimensis*, and var. γ is *winterbottomii*. There is no sheet at K carrying the name var. *thomsonii* or var. α , but there is one sheet each

labeled var. β and var. γ handwritten by J. D. Hooker. The nine plants of the type collection of var. *sikkimensis* are mounted with three of *D. tibetica* on the K sheet labeled as " β ." Although two barcodes have recently been added to the sheet, it is important to indicate which plants belong to each taxon, as this sheet is the only authentic one at K, and it is the key to resolving the lectotypification of both *D. sikkimensis* and *D. tibetica*. The nine *D. sikkimensis* plants (barcode K000568103) are the five on top of the sheet, three on the lower right, and the third plant from the left. The three plants representing the lectotype of *D. tibetica* (K000568102) are the two to the lower left and the one in the lower middle (fourth from either side).

Although Jafri (1956, 1973) indicated that the type is at K, he did not specify which plants on the mixed sheet belong to *Draba tibetica* or *D. sikkimensis*, and he did not annotate that mixed sheet. Therefore, his typification is unacceptable.

The lack at K of any authentic material labeled by J. D. Hooker as var. α or var. *thomsonii* is a clear indication that the latter variety is the same as *D. tibetica*, especially after determining the identities of var. *sikkimensis* and var. *winterbottomii* (see next two entries).

98. *Draba tibetica* Hook.f. & Thomson var. *sikkimensis* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 152. 1861; **D. sikkimensis** (Hook.f. & Thomson) Pohle, Repert. Spec. Nov. Regni Veg. Beih. 32: 144. 1925.

Described from: " β , in Tibetia occidental, alt. 14000–16000 ped.! *J. D.H.* (fl. Jun.-Jul.)."

Lectotype (designated here): India. Sikkim, 14,000–16,000 m [4,267.2–4,876.8 m], *J. D. Hooker s.n.* (K000568103; Isolectotypes: B100241594, BM000041190, E00438303, G, GH00112003, GOET002774, GOET002775, L, NY000743736, P02272432, P02272433, W).

Draba sikkimensis is easily distinguished from *D. tibetica* by having white (vs. yellow) petals 5–7 \times 2.5–4.5 mm (vs. 3.5–5 \times 1.5–2.5 mm), floccose (vs. tomentose) basal leaves, ovules 8–12 (vs. 18–24) per ovary, and oblong to elliptic (vs. oblong-linear to linear-lanceolate) fruits with styles 1–1.5 (vs. 0.4–0.8) mm.

99. *Draba tibetica* var. *winterbottomii* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 152. 1861; **D. winterbottomii** (Hook.f. & Thomson) Pohle, Repert. Spec. Nov. Regni Veg. Beih. 32: 138. 1925.

Described from: " γ , in Tibetia occidental, Balti as Deotsa et Takhala, alt. 11000–13000 ped.! *Winterbottom.*"

Lectotype listed as type by Jafri (1973: 140) as a first-step and finally designated here: Kashmir, Balti, ascent to Deotso, 13,000 ft [3,962.4 m], 23 Jul 1947, *J. E. Winterbottom [623]* (K000247208; Isolectotypes: K000568097, LE).

The collector (*Winterbottom*) but not the collection number (623) was given in the original description of this taxon. Jafri (1973) designated that collection number as the type, but the existence of two such-numbered sheets at K necessitates the lectotypification presented herein. The sheet designated above as the lectotype carries Hooker's handwriting "D.tibetica Hf&T γ ," and the sign " γ " corresponds to var. *winterbottomii* in the original publication.

100. **Draba trinervis** O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 131. 1927.

Described from: "Provinz des extratropischen Himalaya. Chitrál District (Colonel A. Barrett, hb. Kew)."

Lectotype designated as type by Jafri (1973: 136): Chitrál, no locality data, Oct 1904, *A. Barrett s.n.* (K000077288).

Schulz (1927A) based his original description of *Draba trinervis* on about 20 collections, and the sheet annotated by him at K was taken by Jafri (l.c.) as the type.

101. *Draba winterbottomii* (Hook.f. & Thomson) Pohle var. *stracheyi* O.E.Schulz in Engler, Pflanzenreich, IV. 105(Heft 89): 266. 1927; **D. alajica** Litv., Trudy Bot. Muz. Imp. Akad. Nauk 1: 14. 1902.

Described from: "Tibet: 5150 m ü. M. (R. Strachey in Strachey and Winterbottom, Himal. Herb. n. 10, hb. Kew)."

Holotype: China. Tibet, [Yarkand Expedition, 10 Jul 1870], 15,500 ft [4,724.4 m], *R. Strachey & J. E. Winterbottom 10* (K000697273; Isotypes: B100241568, BM000041404, GH00112009, P02272366).

Schulz (1927a) cited the single collection above and listed only the K herbarium. He did not examine or annotate the duplicates at BM, GH, or P. The fragments at B were taken from the K sheet. Therefore, the K sheet is considered herein as the holotype.

102. **Draba yunnanensis** Franch., Bull. Soc. Bot. France 33: 402. 1887.

Described from: "Yun-nan, in rupibus calcariis ad montem Koua-la-po inter Hokin et Tali; fl. 26 maj.; fr. aug. 1884 (Delav. n. 81)."

Lectotype (designated here): China. Yunnan, "Montagne de Koua-la-po Hokin et Tali," 26 Aug 1884, *J. M. Delavay 81* (P02272450; Isolectotypes: A00112037, K000697261, P02272451, P02272452, P02272453).

Franchet (1887) cited the single collection above, and gave flowering and fruiting dates separated by three months for the same collection number. Of the four duplicates at P with *Delavay 81*, the designated lectotype is the best sheet carrying Delavay's handwritten label and Franchet's annotation, and all four are fruiting specimens collected in August.

103. *Draba yunnanensis* var. *gracilipes* Franch., Bull. Soc. Bot. France 33: 402. 1887; **D. yunnanensis** Franch., Bull. Soc. Bot. France 33: 402. 1887.

Described from: "Yun-nan, in rupibus calcareis prope jua nivalia Lankong, alt. 3000 m.; fl., fr. 10 jul. 1884 (Delav. n. 704)."

Lectotype (designated here): China. Yunnan, "Au pied du glacier de Li-Kiang (Lankong)," *J. M. Delavay 703 (704)* in the protologue (P02272455; Isolectotypes: P02272456, P02272457).

Of the three P duplicates of the type collection of this variety, the most complete one carrying the varietal name in Franchet's handwriting and Delavay's handwritten label is designated herein as the lectotype.

104. *Draba yunnanensis* var. *latifolia* O.E.Schulz, Pflanzenreich IV. 105 (Heft 89): 182. 1927; **D. yunnanensis** Franch., Bull. Soc. Bot. France 33: 402. 1887.

Described from: “Yünnan: Ostabhänge von Likiang Snow Range, Yangtze-watershed, 5500–5650 m ü. M (J. F. Rock 1923, n. 9430–im Juli blühend).”

Lectotype (designated here): China. Yunnan, E slopes of Likiang Snow Range, Yangtze watershed, Jul 1923, 16,500–17,000 ft [5,029.2–5,181.6 m], *J. R. Rock 9430* (B100241565; Isolectotypes: E00386051, GH00112036, US).

A single collection was cited for this variety but no herbarium was listed.

105. *Draba yunnanensis* Franch. var. *ramosa* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 89): 182. 1927; **D. amplexicaulis** Franch., Bull. Soc. Bot. France 33: 403. 1887.

Described from: “Südwest-Szechuan: offene, steinige Abhänge und Ränder der Kalkklippen auf den Bergen östlich von Yungning, 4000 m ü. M (G. Forrest 1922, n. 21231, hb. Mus. Wien).

Holotype: China. SW Sichuan, open stony slopes on ledges of limestone cliffs on mountains E of Yungning, 12,000 ft [3,657.6 m], 2748N, 101E, Jun 1922, *George Forrest 21231* (W; Isotypes: E, K000697263, US00810686).

Schulz (1927a) based this taxon on the single collection above and cited only the W herbarium. He did not examine or annotate any other duplicate of that collection and therefore the W sheet ought to be considered as the holotype. However, searching the Virtual Herbaria, as well as JSTOR, failed to show that W specimen. It is not known if that sheet is lost or not yet digitized.

106. *Ermania koelzii* O.E.Schulz, Repert. Sp. Nov. Regni Veg. 31: 332. 1933; **Solms-laubachia pumila** (Kurz) F.Dvořák, Folia Fac. Sci. Nat. Univ. Purkyniane Brun. Biol. 13(4): 24. 1972.

Described from: “Western Himalayas: Kashmir, Rupshu, Kyensa La, in earth on hill top, alt. 19000 ft. (blühend am 9. Juli 1931–Walter Koelz n. 2231).”

Lectotype (designated here): Kashmir, Rupshu, Kyensa La, 19,000 ft [5,791.2 m], 9 Jul 1931, *W. Koelz 2231* (B100386932; Isolectotypes: NY00185382, US00100462).

Schulz (1933) listed a single collection for the species but did not give any herbarium where the collection is housed, though his mentioning the New York Botanical Garden was simply copying what is printed on the herbarium label.

107. *Ermania parkeri* O.E.Schulz, Repert. Sp. Nov. Regni Veg. 31: 333. 1933; *Christolea parkeri* (O.E.Schulz) Jafri, Notes Roy. Bot. Gard. Edinburgh 22: 52. 1955; *Oreoblastus parkeri* (O.E.Schulz) Suslova, Bot. Zhurn. (Moscow & Leningrad) 57: 653. 1972; **Solms-laubachia linearis** (N.Busch) J.P.Yue, Al-Shehbaz & H.Sun, Ann. Missouri Bot. Gard. 95: 535. 2008.

Described from: “N. W. Himalaya: Kashmir, Sonamarg, Luderwas, alt. ca. 13000 ft. (blühend und fast fruchtend am 11. August–R. R. Stewart 1928 n. 9874a).”

Lectotype (designated here): Kashmir, Sonamarg, Luderwas, 13,000 ft [3,962.4 m], 11 Aug 1928, *R. R. Stewart 9874A* (B100386889; Isolectotypes: G, MO).

Schulz (1933) did not give any herbarium name where the single-cited collection is housed, and it is not known if he examined material other than the duplicate housed at B. Therefore, that particular duplicate is designated herein as the lectotype.

108. *Erysimum benthamii* var. *grandiflorum* Monnet, Not. Syst. (Paris) 2: 243. 1912; **E. benthamii** Monnet, Not. Syst. (Paris) 2: 242. 1912.

Described from: “Thibet oriental, Tongolo, Kia-la, n 809 [Soulie].”

Lectotype (designated here): China. Thibet oriental, Tongolo, Kia-la, *J.-A. Soulié 808* (P02272696; Isolectotypes: K, P00531957, P02272697).

Monnet (1912) cited two collections, *Soulié 808* and *Wilson 3294*. I have not examined the latter collection but studied the above four duplicates of the former. Polatschek (2010) correctly reduced the variety to synonymy of *Erysimum benthamii* but did not lectotypify it, though he listed *Soulié 808* among the cited collections of the species.

109. *Erysimum bhutanicum* W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 10: 31. 1917; **E. pachycarpum** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 167. 1861.

Described from: “Bhutan:–Shado, Timpu, Alt. 13,000 ft. Coarse herb in meadow with orange flowers. Oct 1914. R. E. Cooper No. 3549 (Fruiting Plant only). Flowering specimen in Herb. Edin., cult. Bees, Ltd., from seeds of No. 3449; upper leaves and flowers.”

Lectotype designated by Polatschek (2010: 212): Bhutan, Shado, Timpu, 20 Oct 1914, 13,000 ft. [3,962.4 m], *R. E. Cooper 3449* [3549 in the protologue] (BM000522237; Isolectotype: E00438480).

Smith (1917) based his species description on the original fruiting material, of which there is a duplicate at BM, and flowering material grown at E from seeds of the type collection. It is not known if the cultivated material was taken from the BM or E duplicate, and it is not known if Smith examined both of these sheets. Therefore, I am accepting Polatschek’s (2010) lectotypification, though ideally the E, rather than the BM, sheet should have been taken as the lectotype because that is where all of W. W. Smith’s types are housed.

110. **Erysimum erosum** O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1081. 1927.

Described from: “Chitral: Ihala Drosh, 4800 m ü. M. (fruchtend am 29. August 1898–S. A. Harriss n. 15901), Drosh, 1500 m ü. M. (blühend im April 1908–asus dem Vermächtnis de Major S. M. Toppin n. 136, Hb. Kew).”

Lectotype listed initially as type by Jafri (1973: 238) as a first-step and finalized by Polatschek (2010: 219): Chitral, Kala Dorsh, 4,800 m, 29 May 1895, *S. A. Harriss 15901* (K000247249; Isolectotype: DD, photos at B & K).

Of the above two gatherings listed by Schulz (1927b),

Jafri (1973) designated *Harriss 15901* (B, K) as the type, but B has only a photo of the duplicate at DD. Therefore, Jafri's typification is considered as a first-step finalized by Polatschek (2010), who took the K sheet as the lectotype.

111. *Erysimum glandulosum* Monnet, Notul. Syst. (Paris) 11: 241. 1912, non Kuntze, Revis. Gen. Pl. 2: 933. 1891; **Dontostemon pinnatifidus** (Willd.) Al-Shehbaz & H.Ohba, Novon 10: 96. 2000.

Described from: "In arenis; flores albi; n 2471 [*Soulié*]."

Lectotype (designated here): China. E Tibet, Tongolo, Kiala, 10 Jun 1894, *J.-A. Soulié 2471* (P2272595; Isolectotypes: P2272596).

Monnet (1912) cited only one collection under this species. The lectotype sheet was annotated by him and has a piece of paper with sketches of floral parts and a brief description of the species.

112. *Erysimum hookeri* Monnet, Notul. Syst. (Paris) 11: 242. 1912, non Boiss., Fl. Orient 1: 203. 1867; **Dontostemon pinnatifidus** (Willd.) Al-Shehbaz & H.Ohba, Novon 10: 96. 2000.

Described from: "In arenis; floret et frucificat aprili-majo.—Thibet: Tongolo, n 2460 [*Soulié*]."

Lectotype (designated here): China. E Tibet, Tongola, Kiala, 13 Apr 1894, *J.-A. Soulié 2460* (P02272601; Isolectotypes: P2272602, P2272603).

Monnet (1912) annotated the three sheets at P of the single collection he cited, and the more complete duplicate annotated by V. I. Dorofeyev on 12 April 1997 as the holotype is designated herein as the lectotype.

113. *Erysimum melicentae* var. *dolichocarpum* O.E.Schulz, Feddes Repert. Spec. Nov. Regni Veg. 31: 334. 1933; **E. melicentae** Dunn, Bull. Misc. Inform. Kew 1920: 336. 1920.

Described from: "Kashmir: Ladak Road, Misahoi, alt. ca. 10000 ft. (blühend und fruchtend im August—R. R. Stewart 1928 n. 10016, 12590A)."

Lectotype (designated here): Kashmir, Ladak Road, Mitsahoi, 10,000 ft [3,048 m], Aug 1928, *R. R. Stewart 12590A* (B100263592; Isolectotype: NY00185400).

Duplicates of both collections cited by Schulz (1933) are housed at B. The specimen with mature fruits is designated herein as the lectotype. Polatschek (2010) cited both collections under the account of *Erysimum melicentae* but did not lectotypify the varietal name.

114. *Erysimum szechuanense* O.E.Schulz, Acta Hort. Gothoburg 1: 158. 1924; **Erysimum benthamii** Monnet, Not. Syst. (Paris) 2: 242. 1912).

Described from: "Nord-Sze-ch'uan: 8 km W von Sungpan, an Felsen und Bachufern, ca. 3200 m, 9 u. 11. VII (fl.) 1922 (no. 2470 u. 2882)."

Lectotype (partially but erroneously selected by Polatschek (2010: 239) and (designated here): China. Sichuan, 8 km W Sung-pan, ca. 3,200 m, 9 Jul 1922, *Harry Smith 2470* (UPS V-043762).

Schulz (1924a) cited two collections (*Smith 2470* and 2882) that are mounted on separate herbarium sheets at UPS.

Polatschek (2010) designated *Smith 2470* (B100263586) as the lectotype. However, his lectotypification cannot be accepted for two reasons. First, the B sheet consists of an envelope containing a fragmentary mixture of flowers, leaves, and a fruit taken from both UPS syntypes. Second, it is impossible to tell which fragment was taken from what collection. Label of the B specimen was handwritten by Schulz, and it listed both of Smith's collections. Although the lectotype I am designating is the same collection number (*Smith 2470*), as did Polatschek, it is the UPS, rather than B, specimen that should be recognized as the lectotype.

115. *Eutrema hederifolium* Franch. & Sav., Enumer. Pl. Jap. 2: 283. 1879; *Wasabia hederifolia* (Franch. & Sav.) Matsum., Bot. Mag. (Tokyo) 12: 72. 1899; **E. tenue** (Miq.) Makino, Bot. Mag. (Tokyo) 26: 177. 1912.

Described from: "Hab. Ad rivulos: Nippon, in montibus Hakone legit Niewerth (Savatier, n. 3822. Kiouisiou (Saba in Savatier, n. 3353)."

Lectotype (designated here): Japan, Mt. Hakone, *P. A. L. Savatier 3822* (P 05413458).

Under the original description of *Eutrema hederifolium*, Franchet & Savatier (1879) cited the above two collections and both are at P. However, *Savatier 3353* (P02272668, P02272669) clearly belongs to *E. heterophyllum* (W.W.Sm.) H.Hara.

116. **Eutrema himalaicum** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 164. 1861; *Sisymbrium hookeri* E.Fourn., Recherch. Anat. Taxon. Fam. Crucif. 120. 1865, nom. illeg. [cited the earlier-published *E. himalaicum* in synonymy], non *S. himalaicum* (Edgew.) Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 160. 1861.

Described from: "*Hab.* In Himalaya orientali temperata, Sikkim! Alt. 10000–13000 ped., *J. D. H.* (fl. Jun.)."

Lectotype (designated here): India. Sikkim, Laiha, 10,000–13,000 ft [3,048–3,962.4 m], 25 Jul 1849, *J. D. Hooker s.n.* (K000077269; Isolectotype: K000077270).

Two sheets of the type collection of *Eutrema himalaicum* are at K, and the more complete one with mature fruits is designated herein as the lectotype.

117. **Eutrema yunnanense** Franch., Pl. Delavay. 61. 1889; *Wasabia yunnanensis* (Franch.) Nakai, J. Jap. Bot. 11: 151. 1935.

Described from: "Yun-nan, in silvis ad collum Yen-tze-hay (Lankong), alt. 3000 m.; fl. 9 maj. 1887 (Delavay); in silvis ad San-tcha-ho supra Mo-so-yn, alt. 3000 m.; fr. had mature 17 jun. 1887 (id)."

Lectotype listed as holotype by Al-Shehbaz & Warwick (2005: 135) and designated here: China. Yunnan, Yen-tze-hay, Lankong [Lichiang], *J. M. Delavay s.n.* (P05413368; Isolectotypes: GH, K, MO, P05413369, P05413370).

Franchet (1889) listed two collectins (both Delavay's collections) under *Eutrema yunnanense*, of which one was collected from Yen-tae-yat (Lankong) on 9 May 1887, and the other from San-tcho-ho above Mo-so-yn collected in 17 June 1887. Al-Shehbaz and Warwick (2005) stated that the former collection is the holotype instead of the lectotype, but because there are three other collections that fit the exact

locality, date, and altitude information, their typification must be considered as a first-step. There are at P 13 other collections by Delavay from both localities, but only the above three agree with Al-Shehbaz & Warwick partial lectotypification. The complete specimen with handwritten label by Delavay's and Franchet's annotation is taken herein as the lectotype.

118. *Eutrema yunnanense* var. *tenerum* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 38. 1924; **E. yunnanense** Franch., Pl. Delavay. 61. 1889.

Described from: "CHINA: Nord-Shenzi bei Huan-son-shan (G. Giraldi 1900 n. 7033—in Juli blühend, WEST CHINA: Changyang (E. H. Wilson n. 157—in April blühend, hb. Kew)."

Lectotype (designated here): China. [Hubei], Changyang, E. H. Wilson 157 (K; Isolectotypes: E, GH, NY, P, W).

Of the two collections cited by Schulz (1924b), the designated lectotype contains better material and has more duplicates.

119. *Goldbachia lancifolia* Franch., Bull. Soc. Bot. Fr. 33: 408. 1887; *Eutrema lancifolium* (Franch.) O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 35. 1924; **E. himalaicum** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 164. 1861.

Described from: "Yun-nan, secus rivulos et prope fontes, ad pedem jugorum nivalium Li-kiang, alt. 3800 m.; fl. 11 jul. 1884 (Delav. n. 781)."

Lectotype (designated here): China. Yunnan, Lichiang (as Likiang), 3,800 m, 11 Jul 1884, J. M. Delavay 701 (as 781 in the protologue) (P02272671; Isolectotype: P02272672).

Franchet (1887) cited the type collection of *Goldbachia lancifolia* as *Delavay 781*, but no such collection in the Brassicaceae exists at P. The correct collection number, *Delavay 701*, is represented by two sheets, neither of which was designated by him as the type.

120. **Hemilophia pulchella** Franch., Pl. Delavay. 65. 1889.

Described from: "Yun-nan, ad rupem calcaream, ad basin jugorum nivalium Likiang, alt. 4000 m., 14 aug, 1886 (Delavay, n. 2437)."

Lectotype (designated here): China. Yunnan, "au pied du glacier de Li-Kiang," 4,000 m, J. M. Delavay 2437 (P01817485; Isolectotypes: K000484370; P01817486, P01817487, P1817488).

Although Al-Shehbaz (1999) indicated that the holotype and isotypes of this species are housed at P, none of them had yet been barcoded to enable precise identification. The more complete sheet with Delavay's original handwritten label, which was annotated by me in 1999 as the holotype, is designated herein as the lectotype.

121. *Hutchinsia tibetica* Thomson, Icon. Pl. 9: t. 900. 1852; *Hedinia tibetica* (Thomson) Ostenf. in Hedin, S. Tibet 6(3), Bot. 76. 1922; **Smelowskia tibetica** (Thomson) Lipsky, Trudy Imp. S.-Peterburgsk. Bot. Sada 23: 76. 1904.

Described from: "Hab. Western Tibet; Lanak Pass, alt. 18–19,000 feet, Thomson. Mountains above Pangong Lake, Capt. H. Strachey. Fl. and fr. Aug., Sept."

Lectotype listed as holotype by Al-Shehbaz & Warwick (2006: 98) and finally designated here: [India]. Western Tibet; Lanak Pass, alt. 18–19,000 ft [ca. 5,486.4–5,791.2 m], [13 Sep 1847], *Thomas Thomson [2161]* (K 000484355).

Al-Shehbaz & Warwick (2006) listing of the holotype at K can only be considered as a first-step lectotypification because they did not select any of the three duplicates. The duplicate with the pencil illustration, which matches the plate in Thomson (1852), is designated herein as the lectotype. Jafri (1973: 92) stated that the type was collected from "Ladak, Nubra," but none of the sheets carry that information, and the original publication did not list such locality data. Therefore, Jafri's listing is considered inaccurate and not accepted herein.

122. **Lepidostemon pedunculatus** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 156. 1861.

Described from: "Hab. in Himalaya orientali alpina, Sikkim interiore, 14000–16000 ped. J. D. H. (fl. Jul.)."

Lectotype (listed at holotype by Al-Shehbaz (2000a: 330) and finally designated here): India. [above Tungh and Lachu Pie, J. D. Hooker s.n. (K000693649; Isolectotypes: BM000583705, GH00368044, K000693648, P02272598).

There are two collections of J. D. Hooker from the same general locality mounted on the same sheet at K, and no dates or elevations were given. The designated lectotype is represented by eight complete plants on the lower part of the sheet and have more mature fruits, as well as pencil drawings of the fruit, petal, and stamens.

123. *Martinella violifolia* H.Lév., Bull. Soc. Bot. France 51: 290. 1904; *Neomartinella violifolia* (H.Lév.) Pilger in Engler & Prantl, Nat. Pflanzenfam. Nachtr. 3: 134. 1906; *Esquirolia violifolia* (H.Lév.) H.Lév., Mondes Plantes, ser. 2, 18: 31. 1916; **Eutrema violifolium** (H.Lév.) Al-Shehbaz & S. I. Warwick, Harvard Pap. Bot. 10: 134. 2005.

Described from: "Kouy-Tchéo: environs de Gan-pin, Parois do Ta-long. District de Tsin-gay. Mont de Kao-tchay, 11 février et 8 mars 1898; n° 2069 (*L[éon]. Martin et Em[ile]. Bodinier* leg.)."

Lectotype (listed as holotype by Lauener (1965: 339) and Al-Shehbaz (2000b: 338), and finally designated here): China. Guizhou, Gan-pin, Parois do Ta-long. District de Tsin-gay. Mont de Kao-tchay, 11 Feb 1898, *Martin & Bodinier 2069* (E00022752, flowering plant on top of the sheet; Isolectotypes: P00747229, P00747230).

The species was originally described in the later homonym *Martinella* H.Lév. The type specimen consists of two gatherings, both *Martin & Bodinier 2069*, that were collected 25 days apart. The plant at the bottom of the E sheet has fruits and was collected on 8 March 1898, whereas that at the top was collected on 11 February 1898 and has flowers only. The sheet was taken as the holotype by Lauener (1965) and Al-Shehbaz (2000b), but because of the two collection dates given on the same label and because neither author indicated which is the type, lectotypification is needed. Both isolectotypes at P were also in flower and collected on 11 February 1898. A third sheet at P (P00747231) carries the number *2069bis* and was collected on March 8, just as was the fruiting plant in the mixed E sheet.

124. *Megacarpaea delavayi* Franch., Bull. Soc. Bot. France 33: 406. 1887.

Described from: "Yun-nan, in pratis montis Tsangchan, prope cacumen, alt. 4000 m.; fl. fr., immat. 4 aug. 1884 (Delav. n. 863); in umbrosis secus rivulos, ad pedem jugorum nivalium Li-kiang, alt. 3800 m.; fl. 11 jul. 1884 (Delav. n. 699)."

Lectotype (designated here): China. Yunnan, "lieux frais et humides, bord des ruisseaux au pied du glacier de Li-Kiang," 3,800 m, 11 Jul 1884," *J. M. Delavay* 699 (P01817529; Isolectotype: P01817528).

Of the 13 specimens of *Megacarpaea delavayi* collected by J. M. Delavay from Yunnan, only three of two collections, *Delavay* 699 and 863, were cited by Franchet (1887). Both collections fully agree with the species description, and the former is designated as the lectotype because it is more complete and is represented at P by two instead of a single sheet.

125. *Microsymbrium flaccidum* O.E.Schulz, Notizbl. Bot. Gart. Berlin-Dahlem 9: 1090. 1927; *Guillenia flaccidum* (O.E.Schulz) Bennett, J. Econ. Tax. Bot. 4: 593. 1983; **Crucihimalaya wallichii** (Hook.f. & Thomson) Al-Shehbaz, O'Kane & R.A.Price, Novon 9: 301. 1999.

Described from: "Kashmir: Kajmag range, Limbar nullah, 3000–3300 m ü. M. (blühend am 18. Mai 1892–J. F. Duthie n. 11055).—Hazara: Khágán (fruchtend am 16. Mai 1896–Inayat n. 19172)."

Lectotype (listed as type by Jafri (1973: 256) and designated here): Kashmir, Kajmag range, Limbar Nullah, 9–10,000 ft [2,743.2–3,048 m], 18 May 1892, *J. F. Duthie* 11055 (K000247265; Isolectotype: DD, fragments and photo at B).

Schulz (1927b) cited the two collections above but did not list any herbarium. Jafri (1973) indicated that the type is "Kashmir, *Duthie* 11055 (K, B)" and, therefore, his lectotypification is considered as a first-step. The sheet at B consists of fragments from DD, but the K specimen is more complete.

126. *Nasturtium barbareaifolium* Franch., Bull. Soc. Bot. France 33: 396. 1887, non Baker, Fl. Mauritius 7: 1877; **Rorippa elata** (Hook.f. & Thomson) Hand.-Mazz., Symb. Sin. 7: 357. 1931.

Described from: "Yun-nan, in paludibus Kan-hay-tze, in monte Hee-chan-men, prope Lankong, alt. 2,600 m.; fl., fr. 25 sept. 1884 (Delav. n. 705 et 1840)."

Lectotype (designated here): China. Yunnan, Kan-hay-tze, prope Lankong, 25 Sep 1884, *J. M. Delavay* 705 (P00271174; Isolectotypes: E00386081, K000693342).

I have examined three duplicates of each of the above two original collections. All those of *Delavay* 1840 are deposited at P, whereas the *Delavay* 705 duplicates are housed in three herbaria. Both collections agree fully with original description.

127. *Nasturtium cantoniense* Hance, J. Bot. 3: 378. 1865; **Rorippa globosa** (Turcz. ex Fisch. & C.A.Mey.) Hayek, Beih. Bot. Centralbl. 27: 195. 1911.

Described from: "the margin of a pond in the environs of Canton," Dec. 1859.

Lectotype (designated here): China "In vicinibus urbis Canton, ad margines stagni," Dec 1859, *H. F. Hance* 5429 (BM 000583685; Isolectotype: K000693353).

Hance (1865) indicated that he examined two collections, the above and *Sampson s.n.* Both collections are mounted on the same sheet at BM, and the four plant pieces collected by him represent the designated lectotype.

128. *Nasturtium montanum* Wall. ex Hook.f. & Thomson, J. Linn. Soc., Bot. 5: 139. 1861, non Brügger, Jahresber. Naturf. Ges. Graubündens 31. Beil. 10. 1887–88, nec Kuntze, Revis. Gen. Pl. 2: 937. 1891; *Rorippa montana* (Wall. ex Hook.f. & Thomson) Small, Fl. S.E. U.S., ed. 2: 1336, 1375. 1913; **R. dubia** (Pers.) H.Hara, J. Jap. Bot. 30: 196. 1955.

Described from: "*Hab.* In Himalaya tropica et subtropica, alt. 1000–7000 ped., a Simla! Ad Sikkim! Punjab! *T. Thomson*; Bengal! Et Ava! *Wallich*, &c.; mont. ad Khasia! *Griffith*, &c. (fl. tot. ann.)."

Lectotype (listed as type by Jafri (1973: 188) and finally designated here: India. Oudh, 1825, *Wallich* Cat. No. 4778B (K-W001039879; Isolectotypes: B100241868, B100272111).

The four sheets at K of *Wallich* 4778 are marked a, b, c, and d, and they were collected from different countries (India. Myanmar, Nepal) in different years. Jafri (1973) indicated the "b" sheet from Nepal is the type, but the "b" sheet was collected from India in 1825, whereas the Nepal material is sheet "a" collected in 1821. Despite these errors, Jafri's action is considered as a first-step lectotypification because he narrowed material of the three collectors to one.

129. *Parlatoria griffithiana* Boiss., Diagn. Pl. Orient. Ser. 2, 1: 23. 1854; *Arabidopsis mollissima* (C.A.Mey.) O.E.Schulz var. *griffithiana* (Boiss.) O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 281. 1924; **Arabis bijuga** Watt, J. Linn. Soc., Bot. 18: 378. 1881.

Described from: "Hab. in regno *Cabulico* (cl. Griffith N° 1472)."

Holotype: Afghanistan. Aharawal, *Griffith* 1472 (G-BOIS00330375; Isotypes: 3 at K).

130. *Parrya finchiana* Dunn, Bull. Misc. Inform. Kew 1927: 247. 1927; **Solms-laubachia platycarpa** (Hook.f. & Thomson) Botsch., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 17: 171. 1955.

Described from: "Tibet. Stony hillside facing south east, along the Chongphu torrent, about 20 miles north east of Mt. Everest, 5700 m., 8th June, 1922. *Major E. F. Norton* 41 (Mount Everest Expedition)."

Holotype: China. Tibet, stony hillside, Chongphu chu, 17,000 ft. [5,181.6 m], 8 Jun 1922, *E. F. Norton* 41 (K 000077264).

There is another collection of the same species apparently from the same area: "Tibet, along Chongphu torrent, ca. 20 miles NE of Mt. Everest, Chongpin Chu, 17,000 ft. [5,181.6 m], 8 Jun 1922, *E. F. Norton* 12 (K 000077263)." This sheet was annotated by Botschantzev on 19 Oct 1954 as the

type, but because it has a collection number not cited in the original publication, the sheet should not be considered as part of the type collection for typification.

131. *Parrya lanuginosa* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 136. 1861; *Ermania lanuginosa* (Hook.f. & Thomson) O.E.Schulz, Repert Sp. Nov. Regni Veg. 28: 185. 1933; *Eurycarpus lanuginosus* (Hook.f. & Thomson) Botsch., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 17: 172. 1955; *Christolea lanuginosa* (Hook.f. & Thomson) Jafri, Notes Roy. Bot. Gard. Edinburgh 22: 52. 1955; ***Solms-laubachia lanuginosa*** (Hook.f. & Thomson) D.A.German & Al-Shehbaz, Nordic J. Bot. 28: 649. 2010.

Described from: “Hab. in Tibetia occidental ad Lanjar Prov. Gugi, alt. 17500 ped.! Str[achey]. & Wint[erbottom].”

Holotype: India (as Tibet), Lanjar, 17,500 ft [5,334 m], *R. Strachey & J. E. Winterbottom* 7 (K000077280; Isotypes, BM000041439 [the holotype of *Draba lanjarica* O.E.Schulz], K000077281, LE).

Although Jafri (1955) and German & Al-Shehbaz (2010) have correctly indicated that the holotype is at K, some additional clarification is needed because there are two duplicates of *Strachey & Winterbottom* 7 mounted on the same sheet. The label of the two plants on the right side was annotated in Joseph D. Hooker’s handwriting as *Parrya lanuginosa* Hf&T. The plant on the left was part of Winterbottom’s herbarium presented to Kew in 1900 and was not annotated by Hooker and, therefore, is taken herein as the isotype.

132. *Sinapis harra* Forssk., Fl. Aegypt.-Arab. 118. 1775; ***Diplotaxis harra*** (Forssk.) Boiss., Fl. Orient. 1: 388. 1867.

Described from: “Káhirae” (Cairo).

Lectotype listed as type by Hedge (1968a: 41) and designated here: [EGYPT], “Káhirae” (Cairo), 1762, *P. Forsskal s.n.* (C10003085, plant on bottom of sheet; Isolectotypes: C10003083, C10003084).

Hedge (1968a) indicated that the type is at C, but the existence there of three specimens, all annotated by N. Hepper as type, necessitate lectotypification of the species. The specimen with mature fruits originally housed in Forsskal’s herbarium is designated here as the lectotype.

133. *Sisymbrium axillare* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 162. 1861; *Microsisymbrium axillare* (Hook.f. & Thomson) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 160. 1924; *Hesperis axillaris* (Hook.f. & Thomson) Kuntze, Revis. Gen. Pl. 2: 934. 1891; *Guillenilla axillare* (Hook.f. & Thomson) Bennet, J. Econ. Taxon. Bot. 4: 593. 1983; ***Cruchihimalaya axillaris*** (Hook.f. & Thomson) Al-Shehbaz, O’Kane & R.A.Price, Novon 9: 301. 1999.

Described from: “Hab. In Himalaya orientali temperata, Bhotan rupibus murisque at Chupcha! Griffith; Sikkim lapidosis, alt. 8000–10000 ped.! J. D. H. (fl. Jun.)”

Lectotype (listed as type by Jafri (1956: 112) and finally designated here): India, Sikkim, Lacher, 9,000 ft [2,743.2 m], 3 Jun 1849, *J. D. Hooker s.n.* (K000397490; Isolectotypes: K000397491, B, G, W).

Hooker and Thomson (1861) cited the above two collections, of which the Griffith gathering is mounted on the sheet of the isolectotype. On the lower left side of the lectotype sheet is mounted a plant that was collected, perhaps by Hooker, on 27 May 1849, and therefore this plant should be excluded from the typification process because the protologue indicated a collection in June. Jafri (1956) selected Hooker’s Sikkim collection at K as the type, but he did not indicate which of the two sheets is the type and did not annotate either of them. Therefore, his typification is considered herein as a first-step.

134. *Sisymbrium deltoideum* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 163. 1861; *Hesperis deltoidea* (Hook.f. & Thomson) Kuntze; Revis. Gen. Pl. 2: 934. 1891; ***Eutrema deltoideum*** (Hook.f. & Thomson) O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 35. 1924.

Described from: “Hab. In Himalaya orientali temperata, Sikkim, alt. 11000–13000 ped.! J. D. H. (fl. Jul.)”

Lectotype (designated here): India, Sikkim, 11,000–13,000 ft [3,048–3,962.4 m], *J. D. Hooker s.n.* (K000247256 (two leafy flowering branches with immature fruits); Isolectotypes: B100249575, P).

Al-Shehbaz & Warwick (2005) indicated that the holotype of the species is at K because it is a unicate. However, that sheet has two species. The two plants with green leaves and young fruits (upper left) or flowers (lower right) do represent *E. deltoideum*. However, the branch with linear fruits that had shed their valves and seeds belongs to *E. himalaicum* Hook.f. & Thomson. Therefore, typification of the material is needed. Furthermore, the isolectotypes at B and P are also mixed collections, whereas the sheet at GOET, said to belong to the type collection of *E. deltoideum*, has, in fact, plants of only *E. himalaicum*.

135. *Sisymbrium foliosum* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 6: 160. 1861, non Phil., Linnaea 33: 10. 1864; ***Olimarabidopsis pumila*** (Stephan) Al-Shehbaz, O’Kane & R.A.Price, Novon 9: 303. 1999.

Described from: “Hab. In Himalaya occidentali temperata, Kashmir, alt. 5000–7000 pd.! [1,524–2,133.6 m], T. T. (fl. April.)”

Lectotype (designated here): India, Kashmir, Apr 1848, *T. Thomson s.n.* (K000247269; Isolectotypes: GH00415771, K000397470).

Both of the two sheets of *Sisymbrium foliosum* at K were annotated in J. D. Hooker’s handwriting, and the better one is taken as the lectotype.

136. *Sisymbrium jacquemontii* E.Fourn., Recherches Anat. Taxon. Fam. Crucifer. 111. 1865; ***S. brassiciforme*** C.A.Mey. in Ledeb., Fl. Altaic. 3: 129. 1831.

Described from: “Crescit in India superiore, ad Kachmir (Jacquemont *exicc.* in herb. Mus. Paris n. 494).”

Lectotype (designated here): India, Cachemire, V. *Jacquemont III* (P02272609; Isolectotype: P02272610).

Fournier (1865) cited a single collection for the species, and the better of two duplicates at P is designated as the lectotype.

137. *Sisymbrium lasiocarpum* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 162. 1861, non (F.Mueller) F.Mueller, Fragm. 7: 20. 1869, nom. illeg.; *Hesperis lasiocarpa* (Hook.f. & Thomson) Kuntze, Revis. Gen. Pl. 2: 934. 1891; *Arabidopsis lasiocarpa* (Hook. & Thomson) O.E. Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 282. 1924; **Crucihimalaya lasiocarpa** (Hook.f. & Thomson) Al-Shehbaz, O’Kane & R.A. Price, Novon 9: 300. 1999.

Described from: “*Hab.* In Himalaya orientali temperata, Bhotan ad Panga! et ad vias prope Lamnoo! *Griffith.*”

Lectotype (designated here): Bhutan. Panga near on banks, 1838, *Griffith [991]* (K 000247260).

Hooker & Thomson (1861) cited two collections of William Griffith from Panga and Lamno, Bhutan. They are mounted on one sheet at K, of which one is from Panga (#991) and the other from Bootan (#1761), which may or may not be from Lamno and for which there is a duplicate at BM. Although Jafri (1973: 276) indicated that the type was collected by Griffith from Bhutan, he did not lectotypify the species because he neither selected one of the two collections nor did he annotate them.

138. *Sisymbrium mollissimum* var. *glaberrimum* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 160. 1861; *Arabidopsis mollissima* var. *glaberrima* (Hook. & Thomson) O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 281. 1924; *A. mollissima* O.E.Schulz var. *glaberrima* (Hook.f. & Thomson) Naqshi & Javeid, J. Econ. Taxon. Bot. 7: 619. 1986, comb. illeg.; **Crucihimalaya mollissima** (C.A.Mey.) Al-Shehbaz, O’Kane & R.A.Price, Novon 9: 299. 1999.

Described from: “var. β . Kishtwar! et Zanskar! *T. T.*”

Lectotype (designated here): India. Zanskar, near Pudum, 23 Jun 1848, *T. Thomson s.n.* (K000397482).

Hooker & Thomson (1861) cited five collections under *Sisymbrium mollissimum* C. A. Mey. and two (Zanskar and Kishtwar) under var. β *glaberrima*. Three sheets at K, all collected by Thomas Thomson, carry Hooker’s varietal annotation, and the sheet with complete collection and locality data is designated above as the lectotype.

139. *Sisymbrium primulifolium* Thomson, J. Bot. 5: 18. 1853; *Eutrema primulifolium* (Thomson) Hook.f. & Thomson, J. Proc. Linn. Soc. Bot. 5: 164. 1861; **Arcyosperma primulifolium** (Thomson) O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 182. 1924.

Described from: “*Hab.* In monte Hattu Himalayae occidentalis, alt. 10,000 ped. [3048 m], in rupibus madidis. Junio mense fere defloratum legi.”

Holotype: [India. Simla, 10 Jun 1849], *T. Thomson s.n.* (K000247369).

Thomson (1853) cited the single collection from Hattu Mt., and his other collections and that of Strachy and Winterbottom are mounted on the same sheet. The Simla collection is considered here as the holotype instead of lectotype because Hattu Mt. is above Simla, and it is the only one with mature fruit and seeds, on which the original description and illustration (Thomson, 1853) must have been based. The other collections on the sheet have flowers and immature fruits.

140. *Sisymbrium spectabile* Hook.f. & Thomson ex E.Fourn., Recherch. Anat. Taxon. Fam. Crucif. 121. 1865; *Hesperis spectabilis* (Hook.f. & Thomson ex E.Fourn.) Kuntze, Revis. Gen. Pl. 2: 935. 1891; **Eutrema himalaicum** Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 164. 1861.

Described from: “*Crescit* in Himalaya orientali temperata, in Sikkim, 6000–9000 ped. [1,828.8–2,743.2 m], alta (J.-D. Hook.).”

Lectotype (designated here): India, Sikkim, region temp., *J. D. Hooker s.n.* (P02272670; Isolectotypes: B100386929, GH00415772, K, NY00185681, P04686474, P05324596).

Fournier (1865) annotated two sheets at P, and the more complete one is designated herein as the lectotype.

141. *Sisymbrium thomsonii* Hook.f., J. Linn. Soc. Bot. 5: 161. 1861; *Arabidopsis mollissima* var. *thomsonii* (Hook.f.) O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 281. 1924; **Crucihimalaya mollissima** (C.A.Mey.) Al-Shehbaz, O’Kane & R.A.Price, Novon 9: 299. 1999.

Described from: “*Hab.* In Tibetia occidentali temperata, Ladak, alt. 12000–13000 ped. [3,657.6–3,962.4 m]! *T. T.* (fl. Jun.)”

Lectotype (designated here): [Seh (as Se), Jul 1848], *T. Thomson s.n.* (K000397483; Isolectotypes: GH, K000397484, K000397485, K000397486, K000397487).

Hooker & Thomson (1861) cited a single collection for this species, and it is represented at K by five sheets all of which indicate the locality and date as “Se 7/48” and annotated in pencil by J. D. Hooker as “*S. thomsonii* Hf.,” though none has the elevation range given in the publication. The most complete specimen with the handwritten description on an attached paper is designated herein as the lectotype.

142. **Sisymbrium yunnanense** W.W.Sm., Notes Roy. Bot. Gard. Edinburgh 11: 229. 1919; *S. luteum* (Maxim.) O.E.Schulz prol. *yunnanense* (W.W.Sm.) O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 71. 1924.

Described from: “CHINA: Mountains in the N.E. of the Yangtze bend, Yunnan, in stony situations amongst scrub. Lat. 2745N. Alt. 10,000 ft. Plants of 4–5 ft. Flowers pale yellow. July 1913. G. Forrest. No. 10,593.”

Lectotype (designated here): China. Yunnan, mountains NE of the Yangtze bend, 10,000 ft [3048 m], 2745N, 15 Jul 1913, *George Forrest 10593* (E00083300; Isolectotype: K000693945).

Smith (1919) cited two collections, *Forrest 10,593* and *Forrest 14,016* (both at E) without indicating which one is the holotype. However, he annotated the former as the type, and it is designated herein as the lectotype.

143. *Sophiopsis annua* var. *fontinalis* O.E.Schulz in Engler, Pflanzenreich IV. 105(Heft 86): 348. 1924; **Smelowskia annua** Rupr., Mém. Acad. Imp.Sci. Saint Pétersbourg, Sér.7, 14: 39. 1869.

Described from: “Terski Alatau: Kokbulak an den Quellen des Flusses Naryn in der alpinen Region (V. F. Brotherus, Pl. turk. N. 63–im August blühend und fruchtend).”

Lectotype (designated here): Kyrgyzstan. Terski Alatau, Kokbulak ad fontes fl. Naryn, 9 Aug 1896, *V. F. Brotherus 63* (B100277571).

Schulz cited two collections, *Brotherus 63* at B and *Alcock 17682* at K. I have examined both collections and designated the more complete one as the lectotype.

144. *Thlaspi cardiocarpum* Hook.f. & Thomson, J. Proc. Linn. Soc., Bot. 5: 176. 1861; ***Noccaea platycarpa*** (Fisch. & C.A.Mey.) Al-Shehbaz, Harvard Pap. Bot. 19: 44. 2014.

Described from: “*Hab.* In Himalaya occidental temperate, Kashmir! Alt. 6000–9000 ped., *T.T.*; Afghanistan! *Griffith.* (fl. Apr.–Mai).”

Lectotype (designated here): Afghanistan. 1838–1840, *W. Griffith 1402* (K; isolectotype: W).

Although Al-Shehbaz (2014: 44) attributed the lectotypification of this name to Meyer (2001: 49), that lectotypification was ineffective because it did not follow Article 9, note 6 of the International Code of Nomenclature (McNeill et al., 2012).

145. *Thlaspi yunnanense* Franch., Bull. Soc. Bot. France 33: 407. 1887; ***Noccaea yunnanensis*** (Franch.) Al-Shehbaz, Adansonia sér. 3, 24(1): 91. 2002.

Described from: “Yun-nan, ad collum Yen-tze-hay circa lacum, haud procul ab urbe Lankong, alt. 3200 m.; 1 jun. 1886 (Delav. n. 4077).”

Lectotype (listed as holotype by Al-Shehbaz (2002: 91) and finally designated here: China. “Province du Yun-nan, au col du “Yen-tze-hay” pautour du lac Lan Kong,” 3,200 m, 1 Jun 1886, *J. M. Delavay 2077* (P02141454; Isolectotypes: K000484324, MO, NY, P2141455, P00730123, P00730133, US, W).

Franchet (1887) cited a single collection and erroneously listed *Delavay 4077* instead of *2077*, as there are four sheets of *Delavay 4077*, and all belong to *Blysmus compressus* (L.) Panz. ex Lin. By contrast, there are four sheets of *Thlaspi yunnanense* with *Delavay 2077*.

In treating *Thlaspi yunnanense* as *Noccaea*, Al-Shehbaz (2002, 2014) indicated that the holotype is at P. However, lectotypification of the species is needed, and the best of the four sheets is designated herein.

146. *Torularia shuanghuica* K.C.Kuan & C.H.An, Fl. Xizang. 2: 404. 1985, nom. illeg.; ***Sisymbriopsis shuanghuica*** (K.C.Kuan & C.H.An) Al-Shehbaz, C.H.An & G.Yang, Novon 9: 311. 1999.

Described from: “Xizang: Shanghu, Qinghai-Xizang Comp. Exp. 9891 (Typus in Inst. Bot. Acad. Sinic. Conservatur), alt. 4950 m., 29. VII 1976.”

Lectotype designated by Al-Shehbaz et al. (1999: 311): China. Xizang (Tibet), Shuanghu, 4,950 m, 29 Jul 1976, *Lang Kai-yong 9891* (PE 00133858; Isolectotypes: HNWP60059, KUN, PE 00133857).

The basionym was illegitimate because it was assigned to the later homonym *Torularia* O.E.Schulz. Al-Shehbaz et al. (1999) transferred the species to *Sisymbriopsis* and indicated that the “holotype” and “isotype” at PE carry the herbarium numbers 1172825 (current barcode PE00133858) and 1172826 (current barcode PE00133857), respectively.

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