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D.A. German

Д.А. Герман

TYPIFICATION OF SOME NAMES IN THE CRUCIFERAE, MOSTLY FROM NORTH ASIA

**ТИПИФИКАЦИЯ НАЗВАНИЙ НЕКОТОРЫХ, ПРЕИМУЩЕСТВЕННО
СЕВЕРОАЗИАТСКИХ, КРЕСТОЦВЕТНЫХ (CRUCIFERAE)**

Summary. The data on type specimens of 20 names of Cruciferae taxa described predominantly from North Asia are given. For all of them, lectotypes are designated, in six cases correcting previous typifications. Selected names published by A.A. Bunge, N.A. Busch, A.P. de Candolle, G.S. Karelin and I.P. Kirilov, M. Kitagawa, J. Mayer, C.F. Ledebour, E. Regel, B.K. Schischkin, and C.L. Willdenow are treated irrespective of being currently accepted or not, including three illegitimate names for which automatic typification is not applicable. Except for *Dimorphostemon* Kitag., the names of species and infraspecific taxa are in the focus.

Key words: Brassicaceae, name, nomenclature, Siberia.

Аннотация. В заметке приведена информация о типовых образцах 20 названий, установленных преимущественно для североазиатских крестоцветных (Cruciferae) А.А. Бунге, Н.А. Бушем, О.П. Декандалем, Г.С. Карелиным и И.П. Кириловым, М. Китагавой, Э. Регелем, Б.К. Шишкиным и К.Л. Вильденовым. Все они (в том числе шесть названий, некорректно типифицированных прежде) лектотипифицированы, независимо от того, принимаются ли современной систематикой или числятся в синонимах, включая три незаконных названия, к которым автоматическая типификация неприменима. За исключением *Dimorphostemon* Kitag., рассмотрены названия видового и внутривидового ранга.

Ключевые слова: Brassicaceae, название, номенклатура, Сибирь.

Further work on taxonomy of the Cruciferae in connection with the “Flora of Altai” and some other projects enabled typifying a set of names validated for various mustard taxa of primarily North Asian distribution with use of materials of B, G, HAL, KW, LE, MW, P, PR and, in few cases, also images from BW and K. The treated original material is characterized and nomenclatural comments are provided where needed. Typified names are given in italic bold; if differ from them, the names accepted by the present author are cited in square brackets. For some taxa, the most widely used synonyms are also listed.

***Dimorphostemon* Kitag.** 1939, Rep. Inst. Sci. Res. Manchoukuo, 3 (App. 1) : 239 [≡ *Dontostemon* sect. *Dimorphostemon* (Kitag.) V. Golubk.].

Lectotype (hic designatus): *Cheiranthus pinnatifidus* Willd. [≡ *Dontostemon pinnatifidus* (Willd.) Al-Shehbaz et H. Ohba]

Despite the generic name *Dimorphostemon* Kitag. is generally treated nowadays as a synonym of *Dontostemon* Andr. ex C.A. Mey.

(e. g., Al-Shehbaz, Ohba, 2000), it can be used for infrageneric classification of the latter genus and in any case its typification is needed for the purposes of nomenclature. Although *Dimorphostemon* was established as monotypic and its type has been mentioned twice: as “*D. asper* (Pall.) Kitag.” (Kitagawa, 1939) followed by Zijlstra (1979, with authorship corrected to “M. Kitagawa”; see also Farr, Zijlstra, 1996+) and as *D. pectinatus* (DC.) Golubk. (Golubkova, 1976 : 123), none of these designations can be accepted.

It is worthy to note that the name *D. asper* cannot be treated as being based on a basionym because the assumed basionym published as “*Sisymbrium an asperum*?” (Pallas, 1776 : 740) is not a valid name (otherwise it would be a later homonym of *S. asperum* L.). Therefore, binominal *D. asper* is a new name proposed by Kitagawa (1939). Apart from the “basionym”, seven synonyms of *D. asper* were cited in the protologue of *Dimorphostemon*, all with earlier priority date; two of them, *Cheiranthus pinnatifidus* Willd. (as “*Cheilanthus*”) and *Hesperis pinnata* Pers., are legitimate names. Hence, *D.*

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Centre for Organismal Studies, Heidelberg University, Im Neuenheimer Feld, 345; 69120, Heidelberg, Germany;
South-Siberian Botanical Garden, Altai State University, Lenina str., 61; 656049, Barnaul, Russia
Центр исследований организмов, Гейдельбергский университет, ул. Им Нойенхаймер Фельд, 345; 69120, Гейдельберг, Германия;
Южно-Сибирский ботанический сад, Алтайский государственный университет, пр-т Ленина, 61; 656049, Барнаул, Россия; e-mail: oreoloma@rambler.ru

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asper is not only illegitimate under ICBN Art. 52 (McNeill et al., 2006), but also includes types of both mentioned names, one of which should be chosen as lectotype for both *D. asper* and *Dimorphostemon*.

Exactly the same reasons prevent accepting the later designation of *D. pectinatus* as a type of *Dimorphostemon* by Golubkova (l. c.). The widely used epithet “*pectinatus*” has been introduced by Candolle while establishing the binominal *Sisymbrium pectinatum* DC. (Candolle, 1821 : 485). Both earlier published legitimate names, *Cheiranthus pinnatifidus* and *Hesperis pinnata*, were cited as well, and even if such re-naming is treated as an intention to avoid creation of a later homonym of *Sisymbrium pinnatifidum* (Lam.) DC., the name *S. pectinatum* is still superfluous as soon as there were no reasons not to use Persoon’s binominal as a basionym for the combination in *Sisymbrium* L. As a result, the name *S. pectinatum* includes the same types of the two earlier published legitimate names as *D. asper*.

The name *Dimorphostemon* is typified here by the type of the earlier of the two potentially applicable names, *Cheiranthus pinnatifidus*, which is based on the holotype deposited in B: “Sibiria, [fl.], [misit] Stephan” (B-W 12111!). The same element is designated here as a lectotype for the illegitimate *Dimorphostemon asper* Kitag., *Dontostemon asper* Schischk. and *Sisymbrium pectinatum* DC. (previous typification of the latter name by Golubkova (l. c. : 126) has no taxonomical power). Two other names enumerated by the above cited authors, *Hesperis punctata* Poir. and *H. pilosa* Poir., both illegitimate because of having *Cheiranthus pinnatifidus* cited as a synonym in the protologues, are automatically typified by the same specimen (ICBN Art. 7.5, McNeill et al., 2006).

The name “*Alaida* Dvořák” is often mentioned as an illegitimate synonym of *Dimorphostemon* and/or *Dontostemon* (e. g., Al-Shehbaz, Ohba, 2001; Golubkova, 1974, 1976). However, “*Alaida*” is likely not to be a validly published name under ICBN Art. 37.1 and 37.3 (McNeill et al., 2006) as soon as its type was not indicated in the original publication (Dvořák, 1971), and I have no information regarding such indication in any subsequent work (conf. Farr, Zijlstra, 1996+).

Alyssum alpestre L. var. *orbiculare* Regel, 1861, Bull. Soc. Nat. Mosc. – *A. orbiculare* (Regel) Nyár., 1938, Bul. Grād. Bot. Muz. Bot. Univ. Cluj, 18 (1–4) : 97, nom. illeg., non Timb. et Jeanb., 1884–1885 [≡ *A. obovatum* (C.A. Mey.) Turcz. subsp. *orbiculare* (Regel) Peschkova].

Described from E Siberia: “Ostsibirien (Stubendorff)” (Regel, l. c.).

Lectotype (hic designatus) [Russia, E Siberia, Yakutiya (Sakha)]: “*Alyssum alpestre* L. β *orbiculare*. Teste Rgl. Nr. 24b. In itinire ad Kamtsch[atka, 1849], [fl., fr.], Dr. Stubendorff” (LE!).

Other original material (isolectotype?): “*Alyssum alpestre* L. *orbiculare*. Teste Rgl. Nr. 24b. In itinire ad Kamtsch[atka, 1849], [fl., fr.], Dr. Stubendorff” (LE!).

Most likely, both lectotype and assumed isolectotype are duplicates of the specimen: “Dr. Stubendorff. It. Kamtschat. 1849. № 24. 24/V, [fl., fr. sic.], Lena. *Alyssum lenense* Ad.” (LE!). Regel apparently did not study this specimen: unlike in the first two cases, there are no Regel’s handwritings on its label, and *A. lenense* is reported only “Im Juni mit Blumen und Früchten” (Regel, l. c. : 179). Therefore, original material on *Alyssum alpestre* var. *orbiculare* is likely to be represented by these three specimens (and not another two, № 123 and № 156, stored in the same folder).

Alyssum dasycarpum Steph. ex Willd. 1800, Sp. Pl. 3 : 469.

Described from pre-Caspian deserts: “Habitat in Sibiria ad Kamam [Kumam] et Wolgam fluvium” (Willdenow, l. c. : 470).

Lectotype (hic designatus): [Russia, most likely Astrachan prov.]: “*Alyssum dasycarpum* ... Habitat inter Kamam et Wolgam fluvium, [fl., fr. prim.]” (B-W 11918-4!).

Other original material: [the same label, fl., fr.] (B-W 11918-2!, B-W 11918-3!).

Possible original material: “*Alyssum dasycarpum*. Willdenow dedit Ottoni. Sibiria, [fl., fr.], Herb. Otto” (B 10 0241645!); “Sibiria, [fl., fr.], P.S. Pallas” (BM 000583333) [seen at low resolution via plants.jstor.org]; “10. In desertis arenosis provenit copiose aprili florens, [fl., fr. prim.], Sokolow” (LE!).

“Kama” apparently represents a misspelling (originating from Stephan’s label) because the species does not occur in Kama basin or Volga-Kama interfluves; it should be applied to the river Kuma, as improved by Candolle (l. c. : 318).

The type of *A. dasycarpum* was previously designated as “Type: in Sibiria ad Kamam et Wolgam fluvium, Stephan (holo. LE, iso BM!, G!, K!)” by Dudley (1965 : 375; 1968 : 153). Thorough search of the specimen with such a label or at least originating from the herbarium of Stephan in LE gave no results. The only gathering in LE which could be a duplicate of any of Willdenow’s

specimens is the above collection of N.P. Sokolov, a member of Pallas's expedition explored pre-Caspian deserts in spring and early summer 1773 (Pallas, 1776; Sytin, 1997). Apparently, this specimen can not be treated as lectotype and even if any specimen from the herbarium of Stephan is found in LE, those in B have priority as the validating (Willdenow's) description was based on the samples from B-W. In addition to the cited above Willdenow's folder label, the following original labels glued inside the folder belong to the original material: "*Alyssum (Mönchia) dasycarpum*. Kama et Volga. Caules plures ex 1 radice (Stephan)"; "Species mihi ignota ... ab affini *Alyso campestri*, foli... latissima et styli fruct... longissima distinguenda ... *Alyssum calycinum* variet. [Stephan]"; "*Alyssum minimum? Clypeola* [stricken out] ad Nitrariam officinam supra Astrachaniam frequensiss[ima]. (Pallas)". One more specimen stored in this folder, B-W 11918-1, represent *A. turkestanicum* Regel et Schmalh. (widely known under the name *A. desertorum* Stapf).

Regarding other specimens annotated and reported by Dudley (l. c.) as isotypes, the one in Kew, bearing the only label "*Psilonema dasycarpum* nob." (K 000697044; seen at The [Kew] Herbarium Catalogue, 2006) is a later (1826) gathering of C.A. Meyer from NE Kazakhstan. Preliminary search of relevant material in G gave no result; probably, the specimen "*Alyssum dasycarpum* W. Astrachan, [fl., fr.], m. Steven 1820" (G-DC: G 00205604!) was meant but its attribution to the original material is far not obvious.

Andreoskia dentata Bunge, 1833, Enum. Pl. Chin. Bor. : 6 [= *Dontostemon dentatus* (Bunge) Ledeb.].

Described from N China: "Hab. rarior in collibus apricis prope Pan-schan montium orientaliu" (Bunge, l. c.).

Lectotype (hic designatus): [China, east of Beijing]: "*Andreoskia dentata* mihi. Chin. bor., [fl.], 1831. B[unge]" (P 02272588!).

Isolectotype: "China, [fl., fr. prim.], D. Bunge. 1831" (LE!).

Arabis glandulosa Kar. et Kir. 1842, Bull. Soc. Nat. Mosc. 15, 1 : 146. – *Dimorphostemon glandulosus* (Kar. et Kir.) V. Golubk. 1974, Bot. Zhurn. (Moscow & Leningrad), 59, 10 : 1453. – "*Alaïda glandulosa*" (Kar. et Kir.) Dvořák, 1971, Feddes Repert., 82 (6) : 431 [= *Dontostemon glandulosus* (Kar. et Kir.) O.E. Schulz].

Described from SE Kazakhstan: "Hab. in lapidosis subalpinis Alatau ad fl. Sarchan, rarissima. Florentem et fructiferam medio Julio invenimus" (Karelin, Kirilow, l. c.).

Lectotype (hic designatus): [Kazakhstan, Almaty prov.]: "1231. K. K., [fr.], Herb. Fischer" (LE!).

Isolectotypes: "*Arabis glandulosa* Kar. et Kir. In lapidosis subalpinis Alatau ad fl. Sarchan fl. et fr. medio Julio, [defl., fr.], Kar. et Kir. 1841" (KW!); "1231. *Arabis glandulosa* Kar. et Kir. In lapidosis subalpinis Alatau ad fl. Sarchan leg. Karelin et Kiriloff a. 1841, [fr.], Soc. Imp. Nat. Mosq. Reliq. Ledebour"; "*Sisymbrium glandulosum* K. et K. *Arabis glandulosa* Kar. et Kir.: Altai. Kar. et Kir. coll. n 1231, [defl., fr.], [Herb. Turczaninow]"; "Songaria. *Arabis glandulosa* Kar. et Kir. Alatau / *Arabis glandulosa* Kar. et Kir. In lapidosis subalpinis Alatau ad fl. Sarchan, rarissima, florentem et fructiferam medio Julio invenimus. № 67, [fr.], 1841. Kar. et Kir." (LE!).

The first attempt to designate the type of *Arabis glandulosa* was undertaken by Golubkova (1976 : 128–129) who cited relevant part of the protologue and published a photo of the specimen annotated by her on February 1972 as "typus!". This specimen, however, does not belong to the original material which is evident from its label written by S.S. Stchegleyev: "*Arabis glandulosa* Kar. et Kir. enum. 1841. № 67. 1842 una cum *Sisymbrio sophia* L." (LE!). Along with one more specimen in LE, this plant was obviously collected in 1842 by G.S. Karelin alone who visited during his stay in Semipalatinsk in 1842–1844 many localities where he worked together with I.P. Kirilow in previous two years and repeated a number of their joint collections.

Later, Gubanov et al. (1998 : 27) cited the type as follows: "Typus: "In lapidosis subalpinis Alatau ad fl. Sarchan". Lectotypus (LE): "a. 1841, № 1231" – designated by Golubkova in February 1972". Here, citation from the protologue is again correct but reference to the specimen chosen by Golubkova as type (i. e., as lectotype) is direct and explicit and therefore cannot be taken as an improvement of Golubkova's incorrect typification.

Here, the specimen with the only label bearing original (authors') indication "1231" is designated as lectotype. Different numbers (1231 and 67) on the labels of isolectotypes reflect initial (field) and subsequent (published) numbering of the same collection. The first isolectotype is mounted on one sheet with lectotype and, representing the same col-

lection, can be treated as its part as the whole sheet fits the definition of a specimen (ICBN Art. 8.2; McNeill et al., 2006).

Borodinia baicalensis N. Busch, 1921, Notul. Syst. Herb. Hort. Bot. Petrop. 2, 35 : 137 [= *B. macrophylla* (Turcz.) O.E. Schulz].

Described from eastern shore of Baikal: “Transbaikalia, distr. Barguzin. Litus lac. Baical, peninsula Swjatoj Nos. In alpe ad fontes fluvii Baltaj, in cacumine lapidoso, inter lapides, frequens. 2 (15). VI. 1916. fl. fr. imm. Leg. I. Larin et G. Kanewski! Hb. Fl. Ross. Acad. Petrop. Ineditum n° 6245 (Exemplara herb. 50). Ibidem, alpes. 1200 m. In declivio arenoso-glaresoso et in fissuris rupium, frequens. 27. V. (9. VI.) 1916. fl.; 9 (22) VI. 1916. fr. imm. I. Larin et G. Kanewski! Ibidem, lacus Sor, in alpe ad fontes fluvii Cziverkuj Minor, in declivio lapidoso, in fissuris lapidum, 1200–1300 m, frequens. 27. V. (9. VI.) 1916. fl. I. Larin et G. Kanewski!” (Busch, l. c. : 138).

Lectotype (hic designatus): [Russia, E Siberia, Buryatiya]: “Transbaikalskaya prov., Barguzinsky distr., Baikal shore, lake Sor. Golets in the upper reaches of M[alyi] Chiverkui. Stony slope, in crevices, abundant from 1200–1300 m a.s.l. № 11. 27 V 1916, [fl.], I. Larin & G. Kanevsky” (LE!).

Syntypes: “Transbaikalskaya prov., Barguzinsky distr. Baikal shore, Saint Nose peninsula. Golets in sources of Baltai, on the top, between stones, often. № 18. 2 VI 1916, [fr. immat.], I. Larin & G. Kanevsky”; “Transbaikalskaya prov., Barguzinsky distr. Baikal shore. Goltsy at 1200 m a.s.l. Sandy and gravelly slope and rock crevices, abundant. 27 V 1916, fl., I. Larin & G. Kanevsky” (3); “Transbaikalskaya prov., Barguzinsky distr. Baikal shore. Goltsy at 1200 m a.s.l. Sandy and gravelly slope and rock crevices, abundant. 9 VI 1916, fr. imm., I. Larin & G. Kanevsky” (3) (all – LE!).

Original material consists of four gatherings; lectotype and first syntype are mounted each on a separate sheet while the rest of six syntypes representing two gatherings are mounted in pairs on three sheets; each such sheet is supplied with a label: “Transbaikalia, Barguzin, Sv[yatoi] Nos peninsula, Baikal shore. Goltsy at 1200 a.s.l. Sandy and gravelly slope and rock crevices, abundant. I. Larin & G. Kamensky. 27 V [19]16 fl.; 9 VI [19]16 fr. imm.”. This label was cited by A.N. Berkutenko first as “type specimen” (Berkutenko, 1982 : 105) and later as lectotype (Berkutenko, 2003 : 129) and one of three relevant sheets was annotated by her on 11 December 2001 as “lectotypus”. Representing a mixture of two collections (one plant in bloom and

two with young fruits), this sheet cannot be taken as lectotype because no specimen as determined by ICBN Art. 8.2 (McNeill et al., 2006) has been designated as type.

The specimen represented by a single plant pictured in the original publication (Busch, 1921 : 141) supplied with a label bearing author’s identification is taken here as lectotype.

Braya tilingii Regel, 1859, Nouv. Mém. Soc. Nat. Mosc. 11 : 61. – *Borodinia tilingii* (Regel) Berkut., 1982, Novit. Syst. Plant. Vasc., 19 : 106. – *Arabis tilingii* (Regel) Berkut., 2003, Bot. Zhurn. (St. Petersburg) 88 (11) : 132 [= *Borodinia macrophylla* (Turcz.) O.E. Schulz].

Described from the western shore of Okhotsk sea (Ayan): “Habitat in montibus et collibus sterilibus [Ajanensis]” (Regel, Tiling, 1859).

Lectotype (Berkutenko, 1982 : 105; id., 2003 : 133, “typus”; German & Berkutenko, hic designatus): [Russia, Far East, Khabarovsk prov.]: “*Draba* [struck out] *Braya tilingii* Rgl. (Fl. ajan. № 47). Prope Ajan in montibus et collibus sterilibus legit Tiling, [fl., fr. immat.], v. s. Rgl. [stamped]: Herbarium Trautvetter” (LE!).

Isolectotype: “*Braya tilingii* Rgl. Rgl. et Tiling, fl. ajan. N. 47. Prope Ajan legit Tiling, [fl., fr. immat.], v. s. Regel” (LE!).

Berkutenko (1982 : 105; 2003 : 133) twice cited the specimen designated here as lectotype but it did never resulted in a typification as determined by the ICBN. In the first case, both samples, hereafter lectotype and isolectotype, were cited as “type specimens”; in the subsequent publication, the first specimen was explicitly designated as type but requirements of ICBN Art. 7.11 and 9.21 of (McNeill et al., 2006) were not met.

Cardamine lyrata Bunge, 1833, Enum. Pl. Chin. Bor. : 5.

Described from N China: “Hab. in humidis ad rivulum pr. Ssi-jüi-ssy” (Bunge, l. c.).

Lectotype (hic designatus): [China, vicin. of Beijing]: “*Cardamine lyrata* Bge. Chin. bor., [fl., fr. prim.], 1831. B[unge]” (P 00747521!).

Isolectotypes: “*Cardamine lyrata* m. Ch. b., [generative part absent], M[isit]. Bunge”; “*Cardamine lyrata* Bge. Ch. b., [fl.], Bunge (Herb. Fischer)” (LE!); “*Cardamine lyrata* mihi. Chin. bor., [fl.], 1831. Bunge” (P 00747520!).

Lectotype is represented by two plants, isolectotypes by one each; isolectotypes in LE are mounted on one herbarium sheet and could be trea-

ted as one specimen. All original labels are written by Al. Bunge; few technical details are added later.

Cheiranthus fruticosus J. Mayer, 1786, Abh. Böhm. Ges. Wiss. (Math.-Nat.), 2 : 237, tab. 7, fig. 2, nom. illeg., non L., 1753 [= *Stevenia cheiranthoides* DC. subsp. *incarnata* (DC.) D. German].

Described from S Siberia: “Diese Pflanze mohnet an trockenem Orten in Sibirien ... in Sibiriae siccioribus” (Mayer, 1786 : 238).

Lectotype (hic designatus): [Russia, S Siberia, most likely Krasnoyarsk prov. or Khakassia]: “Fig. II. *Cheiranthus fruticosus*; foliis linearibus integerrimis, caule ramoso, pedunculis glabris, siliquis virgatis, [fl.] / Ex herbario Meyeriano” (PR!).

Other original material: “*Hesperis* caule ramosissimo, foliis linearibus, pedunculis glabris. Flor. Sib. Tom III. p. 262, [fl., fr.] / Ex herbario Meyeriano” (PR!).

Both specimens are represented by the single plant each and both are pictured in the original publication (complete first plant and upper part of infructescence of the second one). However, the second specimen is not treated as a syntype because it is not cited by Mayer; its label is written by A.W. Martini, a companion of J.G. Gmelin at the last stage (since 1740) of his famous Siberian journey (Litwinow, 1909). The same material should be regarded as a source of the lectotype of *Hesperis rupestris* Pall. (German, forthcoming).

Cochlearia sisymbrioides DC. 1821, Reg. Veg. Syst. Nat. 2 : 368 [≡ *Armoracia sisymbrioides* (DC.) Cajand.].

Described from NE Siberia: “Hab. in Sibiria ad littora maris glacialis et ad Lenam fluvium (Adams ex Fisch. v. s. sp.)” (Candolle, 1821).

Lectotype (hic designatus): [Russia, NE Siberia, Yakutiya (Sakha)]: “E littoral mar. glacialis, Adams [1806], [fl., fr. prim.], m. Steven. 1820” (G-DC: G00202192!).

Syntype: “... Cl. Adams ad Lenam fl[uvium], [fl., fr. prim.], mr. Fischer 1819” (G-DC: G00202147!).

Both samples are mounted on one herbarium sheet.

Other collections of the species definitely or presumably made by Adams during his famous trip in 1806, are deposited in herbaria of St. Petersburg and Moscow: “№ 83 ... Tetradyman..., am ... Mam-mouth vorzüglich häufig ... an *Erysimum*? Byk-mys [= Bykovsky cape], [buds]”; “№ 82. *Cochlearia* an *macrophylla* an species nova? In ... ab ... Lenea

[Lenae], [fr. mat.]” (MW); “Herb. Fischer, [sine data, fl.]”; “Cochl., [fl., fr. prim.], Herb. Fischer” (LE).

Some of these specimens, especially with flowers and young fruits, might represent duplicates of lecto- and/or syntype of *C. sisymbrioides*.

Dentaria tenuifolia Ledeb. 1815, Mém. Acad. Sci. Pétersb. 5, 5 : 547 [= *Cardamine trifida* (Lam. ex Poir.) B.M.G. Jones].

Described from Siberia: “Hab. in Sibiria a Tomo fluvio ad Lenam usque fluvium” (Ledebour, l. c. : 548).

Lectotype (hic designatus): “*Dentaria tenuifolia* mihi. In Sibiria a Tomo fluvio ad Lenam usque ... Tilesii, [fl., fr. prim.], 6 [Aug.? 18]13” (LE!).

Other type material: image “Tab. LXV [Cardamine foliis trifidis acutis, laciniis integris vel incises, caule erecto]” (Gmelin, 1768).

The text of the lectotype label generally repeats the distribution given in Gmelin (l. c. : 272) who’s description was used by Ledebour (e. g., for characterization of the underground organs) and should be treated also as validating. Therefore, both Gmelin’s illustration and specimens belong to the original material from which only the picture was available for the present study.

The following specimen is also worthy of mentioning: “*Dentaria tenuifolia* mihi, [fl.], ad Lenam” (KW!) with the label written by Ledebour.

Isatis oblongata DC. 1821, Reg. Veg. Syst. Nat. 2 : 571.

Described from SE Siberia: “Hab. verosimiliter in Sibiria Ircutensi unde semina missa fuerant ad cl. Steven (v. s. c. in h. Nikitensi)” (Candolle, l. c. : 572).

Lectotype (hic designatus): “Culta in H.[ortus] Nikitensis e seminibus sibiricis, Ircutia missis, [fr.], Mis. Steven. 1820” (G-DC: G00206196!).

Syntype: [the same label, fl.] (G-DC: G00206164!).

Possible original material: “*Isatis oblongata*, [fl., fr.]. Cult. Nik. ex sem. Ircut.” (LE!).

Both elements in G (upper part of stem with fruits and complete plant with flowers) are mounted on the same sheet and share one label. From their habit and phenological state it is very likely that they do not represent one collection; therefore, lectotypification is proposed.

The envelope “In Ircutia m. Steven” with the seeds apparently of the same origin, from which the plants treated by Candolle were grown, is mounted on another herbarium sheet in LE along with plants grown from these seeds in the botanical garden of Tartu.

Isatis tinctoria L. subsp. *jacutensis* N. Busch, 1913, Fl. Sib. et Orient. Extrim. 1 : 159 [= *Isatis jacutensis* (N. Busch) N. Busch].

Described from NE Siberia: “Yakut[skaya prov.]. Yak[utsky distr.]. Yakutsk. Hb. Ak[ademiæ Scientiarum Petropolitanae]! Gar’ near Bestyakhskaya, along Amginsky road. Drob[ov]! Lena, right bank below the mouth of Aldan. Ol[enin]! Valley of Lena, Kusagan-El’sky ul[us]! Sular-Bran, sandy bank. Dolenko! – Vil[yuysky distr.]. Vilyuysk – Olekminsk. Kruhse! Vilyuy bank, sandy places Bad[erke]! Vilyuy 64° – Olenek 68°. Maack! Sokho-Khaya island; right bank of Vilyuy in 90 km upper its mouth; Vilyuysk – Verkhnevilyuyskaya board. Pavl. Lower Lena. Shakh[uridin]! Siktyakh 24 VII fl. fr. Czek[anovskiy]! – V[erkho]-Yan[sky distr.]. Along Yana, Kharbotar. B[unge]. s[on].!” (Busch, 1913 : 160).

Lectotype (hic designatus) and isolectotype: [Russia, NE Siberia, Yakutiya (Sakha)]: “Ad fluvium Lenam inferiorem, prope pagum Ssiktjach, [fr. pro more mat.], 24 Julii 1875. Czekanowski” (LE!).

Syntypes: “Jakutsk, 17 VI, [sine coll., fl., fr. prim.]”; “Yakutskaya prov. and vicin., ashes near the station Bestyakhskaya at Amginsky road. № 42. 8. VI. 1912, [fl.], W.P. Drobow”; “Yakutsk. prov. and vicin. [Valley of] river Lena. Right bank below the mouth of Aldan. [№] 758. 1901, [defl., fr.], Olenin”; “[The same locality], [№] 691. 1901, [defl., fr.], Leg. P. Olenin”; “Yakutsk. prov. and vicin. Valley of Lena. Sular-Bran. Steep sandy slope of an ancient bank. № 590. 10 VII 1912, [fr.], G.I. Dolenko” (2); “Yakutsk. prov. and vicin. Valley of Lena. Weedy vegetation near Kusagan of El’sky ulus. № 407. 27 VII 1912, [defl., fr.], G.I. Dolenko”; “Inter Wiluisk & Olokminsk, [fl., fr. imm.], leg. Kruhse”; “Am Ufer der Wilui. № 76. W. den 22/6. [18]75, [fl.], [Baderke]”; “... № 96. W. den 26/6. [18]75. Wilui. Baderke, [fl., fr.]”; “Sibiria orient. inter fl. Wilui 64° et Olenek 68°. № 325, [fl., fr. immat.]. Exped. soc. geogr. leg. R. Maack 1854”; “Untere Lena, 1862, [fr.], Schachuridin” (2); “Sibiria orientalis: ad fl. Janam. Charbotarr, [№] 6. 8–9/20–21 Jul. 1885, [defl., fr.], Dr. A. Bunge”; “Sibiria orientalis: ad fl. Janam. Adytscha, Charbotarr, infra ostium Tostuch, [№] 6a. 8–9/20–21 Jul. 1885, [fl., almost destroyed], Dr. A. Bunge”; “Sibiria orientalis: ad fl. Janam. Charbotarr, [fr. immat.], Leg. Alex. Bunge 8–9 Jul. 1885” (all – LE!).

Isolectotype is represented by three racemes apparently taken from the lectotype mounted together with one of Bunge’s specimens represented by one inflorescence; the sheet originates, according to the stamp, from “Herbarium Trautvetter”.

Lepidium amplexicaule Willd. 1800, Sp. Pl. 3 : 436.

Described (fide Busch, 1939 : 516, based evidently on the information of Georgi, 1802 : 285) from Irtysh valley [in NE Kazakhstan]: “Habitat in Sibiria” (Willdenow, l. c.).

Lectotype (hic designatus): “*Lepidium amplexicaule* W., [defl., fr.; fragm. ex herb. Willd.]” (G-DC: G00203941!).

Possible isolectotypes: “*Lepidium obtusifolium* [stricken out] Stev. *amplexicaule* W. *L. cordatum* W. Herb. obs. Stev. Sibiria. Salesow, [fl., fr.] Herb. W. Besser / Herbarium Andrzejofskii 1841” (KW!); “*Lepidium amplexicaule*. Ex Sibiria, [defl., fr.], Comm. Stephan. Remitte! [M. v. Bieberstein]” (LE!).

The holotype specimen was expected to be deposited in Willdenow’s herbarium in B (e. g., Busch, l. c.); however, no material on *L. amplexicaule* has been found by the present author in either B-W or in general collection of B which is in agreement with the absence of relevant specimen in the online database of Berlin-Dahlem (Röpert, 2000–). The specimen (upper portion of one branch, less than 10 cm long) in G-DC apparently representing a part of original Willdenow’s one (but not the whole specimen described as branched plant ca. foot tall) obtained by Candolle via Ch. Steven is designated here as lectotype.

Lepidium affine Ledeb. 1821, Ind. Sem. Horti Dorpat., App. 1 : 22.

Described based on the plants grown from seeds in the Botanical Garden of Tartu; no information was given in the original publication (Ledebour, 1821) regarding the origin of seed material but morphology it typical for Siberian specimens. It is likely that the species, often treated as *L. latifolium* L. subsp. *sibiricum* Thell., is restricted to North Asia and its reports from other regions belong to other taxa.

Lectotype (hic designatus): “*Lepidium affine* mihi, [fr.], H[ortus]. D[orpatensis]. [18]20. [C.F. Ledebour]” (LE!).

Several other specimens in LE might potentially belong to the original material, including: “Cult. in horto botanico dorpatensi s: diu, nom. *Lep. sibirici* et *L. affinis*. Fl. Junio, [fr.], Hb. Meyer” and unannotated specimens from Fischer’s herbarium.

Lepidium cordatum Willd. ex Steven, 1821, in DC. Reg. Veg. Syst. Nat. 2 : 554.

Described from Siberia, very likely from Altai: “Hab. in Sibiria” (Candolle, l. c.).

Lectotype (hic designatus): “Habitat in Sibiria, [fl., fr. prim.], [comm.] Bieberstein. W[illdenow].” (B-W 11817!).

Possible isolectotypes: “*Lepidium obtusifolium* novum, [fl., fr. prim.] e Sibiria, Salesow” (KW!); “*Lepidium obtusifolium* nov., [fl., fr. prim.], Ex Sibiria, Salesow. remitte! [Added later:] = *L. cordatum* herb. Willd. ex Stev. Dec. syst.”; “*Lepidium amplexicaule*, [defl., fr.], [Herb. Stephan №] 804. Salesow. Sibiria.” (LE!).

Candolle (l. c.) apparently had seen no material on this species prior to publishing the protologue, and placed it among “species non satis notae”; description was based on the information provided by Steven. One of the two mentioned elements is a specimen obtained by Willdenow from Bieberstein, is chosen as lectotype. The second element, “*L. amplexicaule*. Stev. herb. non Willd.”, was not available for this study and probably is to be found in collection of Steven in H. It is noteworthy that the cited specimen from Stephan’s herbarium is also initially determined as *L. amplexicaule*: could not it be Steven’s identification? Among two specimens signed as “*Lepidium obtusifolium*”, the one in LE has the label written by Bieberstein who probably is the author of this nomen nudum. Habit, condition and phenophase of all specimens are very similar to those of the lectotype.

Thlaspi cartilagineum J. Mayer, 1786, Abh. Böhm. Ges. Wiss. (Math.-Nat.), 2 : 235, tab. 7, fig. 1 [≡ *Lepidium cartilagineum* (J. Mayer) Thell.].

Described from SW Siberia: “Dr. D. [A.W.] Martini hat diese Pflanze in der verlassenen Barabenser Steppen an salzigten Orten häufig gefunden. ... In deserto Barabensi locis salinis abunde crescit” (Mayer, 1786 : 237).

Lectotype (hic designatus): [Russia, SW Siberia, most likely Novosibirsk prov.]: “Fig. 1. *Thlaspi cartilagineum*; capsulis subrotundis integris, foliis ovato-lanceolatis cartilagineis, [fl., fr. prim.] / Ex herbario Meyeriano” (PR!).

Other original material: “*Thlaspi* foliis ex ovato-lanceolatis cartilagineis, capsulis subrotundis integris. Fl. Sib. Suppl. [buds]” (PR!).

The single plant representing the lectotype is pictured in the original publication. Like in the

above case of *Cheiranthus fruticosus*, the second specimen (its label is written by Martini) is not treated as a syntype because it is not cited although the polynominal from the protologue appearing on the label of the lectotype apparently derived from Martini’s label. J.G. Gmelin is obviously the author of this original polynominal.

The very similar label (with the only difference in “Gmel. sen.” instead of “Fl. Sib. Suppl.”), also by Martini, is glued on one sheet in LE where another two specimens of *L. cartilagineum* are mounted, both grown from seeds collected by P.S. Pallas (herb. Pott). Cultivars are represented by one complete plant and another one lacking the root; most likely, five separately mounted rosette leaves also belong there. Martini’s label might only refer to a small envelope with very few plant remnants which than represents another element of the original material; otherwise this is just a label not accompanied by any specimen.

Another two specimens labeled as “In salsis deserti Barabensis et ad fluv. Irtim frequens”, both with ripen fruits (LE), apparently represent later collections where Martini’s distribution is updated by that of Pallas who’s collections from Irtysch annotated by him as “*L. ascendens* Pall.” (nom. nud.) are also stored in LE.

Surprisingly enough, no specimens of *L. cartilagineum* and other Siberian Cruciferae collected by Gmelin and Martini were found in STU where Martini’s collection is deposited.

Comparison of the original material and other Siberian gatherings of *L. cartilagineum* with authentic specimens of *L. crassifolium* Waldst. et Kit. (B!, MW!, PR!) confirms their apparent conspecificity.

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