(2525) Proposal to conserve the name *Alyssum hyperboreum* (*Draba hyperborea*) with a conserved type (*Cruciferae*)

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(2525) ***Alyssum hyperboreum*** L., Sp. Pl.: 651. 1 Mai 1753 [*Angiosp.*: *Cruc.*], nom. cons. prop.
Typus: [U.S.A., Alaska, Aleutian Range], Stepovak Bay quadr.: Shumagin Islands, Hall Island, 55°01′N, 109°29′W, on beach cliff, 25 June 1976. *Moe 12* (ALA barcode H1106235), typ. cons. prop.

The present proposal deals with the situation surrounding the name *A. hyperboreum* L. (≡ *Draba hyperborea* (L.) Desv. in J. Bot. Agric. 3: 172. 1815) which, on the one hand, was long used for a NE Asian/NW North American (N Pacific-coastal) species, "North Pacific draba", in a sense not including its type and, on the other, under the strict application of the *Code*, is likely to have priority over *Alyssum podolicum* Besser (Cat. Hort. Cremeneci: 8. 1816), a name which for over 200 years was unambiguously applied for another, eastern European, plant, usually as a basionym of *Schivereckia podolica* (Besser) Andrz. & Besser ex DC. (Syst. Nat. 2: 300. 1821). The whole situation is described well in detail by Berkutenko (in Linzer Biol. Beitr. 27: 1115–1122. 1995) and Mosyakin (in Taxon 64: 1326–1328. 2015) with some differences regarding interpretation of certain aspects and possible ways of solving the problem (Berkutenko strictly following the principle of priority and replacing *Schivereckia podolica* by *S. hyperborea* (L.) Berkut., l.c.: 1120 and Mosyakin proposing outright rejection of *A. hyperboreum*). In order to avoid redundancy, only the key issues are repeated here in brief, but some additional facts and considerations are presented.

Both authors proceed from the suggestion first proposed by Ruprecht (Fl. Bor.-Ural.: 28. 1854) that Krasheninnikov (in Novi Comment. Acad. Sci. Imp. Petrop. 1: 380–383, t. 15, fig. 1. 1747) described, as "*Lunaria foliis ellipticis incondite dentatis*", a sphinx-like plant by providing two descriptions, one by Steller and another by himself, that referred to two different species. This arose because Krasheninnikov believed that the plants he cultivated and from which he prepared specimens (including the current lectotype of *A. hyperboreum*, Herb. Linn. No. 828.6 (LINN), designated by Berkutenko, l.c.: 1116–1117, as "type"), grew from seeds collected by G.W. Steller "in America septentrionali". Both Mosyakin and Berkutenko are further agreed that the best decision for the North Pacific draba, to which Steller's description presumably refers, would be resurrection of the name *Draba grandis* Langsd. ex DC. (l.c.: 335). As shown by Mosyakin (l.c.), *D. grandis* gradually started to replace *D. hyperborea* in its traditional sense after the work of Berkutenko (l.c.) but this process is still not complete and is accompanied by confusion (e.g., the simultaneous use of both names in the same sense). However, the identity of the type of *A. hyperboreum* is treated differently in the two publications just discussed: according to Mosyakin (l.c.: 1328), its identity is "still uncertain and the plant is morphologically different from both *Schivereckia podolica* and *Draba grandis*"; Berkutenko, in agreement with the earlier suggestion of Ruprecht (l.c. 1854), found it undoubtedly conspecific with *S. podolica*.

Regarding the latter aspect, I agree with Berkutenko (l.c.): despite having profoundly and acutely dentate (vs. usually shallowly toothed to partly entire-margined) leaves, the plant is still within the range of variation of *S. podolica*. Such morphology is not very typical for the species, but it is not an exception and, based on the study of a limited number of specimens, it seems to be more often observed in cultivated plants, which is just the case of the lectotype of *A. hyperboreum*. Peculiarities of the life form and branching pattern mentioned by Mosyakin (l.c.) are apparently also related to the artificial conditions of growing. In any case, a combination of *Draba*-looking habit, dentate stem leaves with clearly subamplexicaul bases, and toothed stamens excludes any other possibility but *S. podolica* s.l. Hence, *A. hyperboreum* indeed has precedence over *A. podolicum* and any combinations based on it, including *Draba podolica* (Besser) Rupr. (in Mém. Acad. Imp. Sci. Saint Pétersbourg, sér. 7, 15(2): 291. 1869), the name reflecting the current taxonomic concept of *Draba* L., at least when the species is treated in a wide sense, as nearly universally accepted (see Mosyakin, l.c. for references). On the other hand, due to the uncertainty of the geographic origin of the seeds from which Krasheninnikov obtained his plants and which were evidently not from Steller, the name is potentially threatening to any of the four species segregated from *S. podolica* by M.I. Alexeenko, namely *S. berteroides* Fisch. ex M.I. Alex. (in Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk S.S.S.R. 9: 218. 1946), *S. kusnezovii* M.I. Alex. (l.c. 1946: 227), *S. monticola* M.I. Alex. (l.c. 1946: 220), and *S. mutabilis* (M.I. Alex.) M.I. Alex. (in Trudy Nauchno-Issl. Inst. Bot. 13: 95. 1950). Mosyakin (l.c.) logically assumed that the seeds might have been collected by Krasheninnikov himself, e.g., in the Urals, where the eastern limit of the range of *S. podolica* s.l. is situated, while crossing this mountain system on the way to or from Kamchatka (in fact, only the latter possibility exists because on the way eastwards the expedition in which Krasheninnikov participated crossed the Urals in late December 1733: J.G. Gmelin, Reise Sib. 1: 110–112. 1751). There are, however, more options: in 1742 the expedition not only crossed the Urals but spent most of the vegetation season in that region (Litvinov, Bibliogr. Fl. Sib.: 55–56. 1909) and visited G.A. Demidov's botanical garden in Solikamsk where numerous local and introduced plants were cultivated at that period. Besides, St. Petersburg Botanical Garden obtained seeds collected by T. Gerber, J.G. Heinzelmann, J.J. Lerche in various localities ranging from the Don basin to the Urals (Litvinov, l.c.: 57). Noteworthy, one of the polynomials (*Salvia foliis cordatis* ...) listed by Krasheninnikov (l.c.: 378) and published in the same paper with his "*Lunaria* ...", was based on plants grown from seeds collected by Gerber. Having this in mind, all Alexeenko's segregates described from the central and eastern range of *S. podolica* s.l. are potentially jeopardized by *A. hyperboreum*. Although I think

it unlikely that microspecies of *Schivereckia* will be accepted in the future, this information illustrates the additional complexity of the situation and further argues, in agreement with the well-justified suggestion of Mosyakin (l.c.), to preclude application of the name *A. hyperboreum* to *Schivereckia podolica* s.l.

As for the North Pacific species, it is worthy to compare the history of application of the names *Draba hyperborea* and *D. grandis* and estimate possible benefits and shortcomings in order to decide whether retention of the prior name or a final switch to the latter would best serve nomenclatural stability. Early authors of relevant floras (Pursh, Fl. Amer. Sept., ed. 2: 434. 1816; Hooker, Fl. Bor.-Amer. 1: 49. 1830; Torrey & Gray, Fl. N. Amer. 1: 103. 1838; Ledebour, Fl. Ross. 1: 139. 1841) did not apply the name *Alyssum hyperboreum* in the sense of the North Pacific species. Most of them expressed uncertainty regarding either its identity or the correctness of the distribution data (Hooker, l.c.; Torrey & Gray, l.c.); Ledebour (l.c.) was probably the first to suspect that it was in fact referable to *Schivereckia*. In 1821 three names became simultaneously available for the North Pacific draba: *Cochlearia siliquosa* Schltdl. ex DC. (l.c.: 369), *C. spathulata* Schltdl. ex DC. (l.c.: 369), and *D. grandis*. Soon the latter two were merged (Chamisso & Schlechtendal in Linnaea 1: 27. 1826) under the name *C. spathulata*, and this viewpoint was followed by the above mentioned authors (Hooker, l.c.: 57; Torrey & Gray, l.c.: 110; Ledebour, l.c.: 158). In 1878, Watson (Bibl. Index N. Amer. Bot.: 60. 1878) united these three binominals under the name *Draba hyperborea* and this approach became generally accepted, with a few exceptions noted below, for the subsequent 120 or so years (see Berkutenko, l.c. and Mosyakin, l.c. for references; many more could be added); the name can still be found as used in this sense, in particular, in some databases and in horticulture (Mosyakin, l.c.). This practice is quite in contrast with *D. grandis*, which, during the history of its application, was predominantly treated as a synonym of either *Cochlearia spathulata* (over which, however, it has priority in *Draba* on account of an earlier homonym) or of *D. hyperborea* and until recently only occasionally as an accepted name (e.g., Durand in Rep. Superintendent U.S. Coast Surv. 1867: 322. 1867; Rothrock in Rep. (Annual) Board Regents Smithsonian Inst. 1867: 443. 1870 & in Turner, Contr. Nat. Hist. Alaska: 82. 1886; Busch, Fl. Sib. Orient. Extrem. 3: 300. 1919; Pohle in Repert. Spec. Nov. Regni Veg. Beih. 32: 24. 1925) or as a basionym for *Nesodraba grandis* (Langsd. ex DC.) Greene (in Pittonia 3(17C): 252–254. 1897; Macoun in Jordan, Fur Seals 3: 563. 1899; Anderson in Proc. Iowa Acad. Sci. 25: 439. 1918). Hence, the main disadvantage of restoring *D. hyperborea* in its traditional sense is related to the recent confusion caused by the action of Berkutenko (l.c.) made, as emphasized by Mosyakin (l.c.), in conflict with Art. 57.1 of *ICN* (McNeill & al. in Regnum Veg. 154. 2012). This is certainly a problem, but it is outweighed by the long history of unambiguous, though nomenclaturally incorrect, application of this binominal combined with the fact that it is a Linnaean name. Having this in mind and agreeing in general with the conclusion of Mosyakin (l.c.: 1328) that "(2) the name *D. hyperborea* based on *A. hyperboreum* was widely and persistently used for (misapplied to) *D. grandis*, a taxon not including its type, and (3) the preservation of the epithet of *A. podolicum* (basionym of *S. podolica*) is desirable" but noting that the current type of *A. hyperboreum* is a specimen of *S. podolica* s.l., I consider the better solution of this problem might be reached by applying Art. 14.1 instead of 56.1 of *ICN* (McNeill & al., l.c.). Therefore, conservation of the name *A. hyperboreum* with a conserved type is proposed here.

The specimen *R. Allen Moe 12* (ALA) (http://web.corral.tacc.utexas.edu/UAF/ala/2010_05_18/jpegs/H1106235.jpg) is proposed as conserved type for this name for the following reason. Steller collected seeds (and maybe specimens) of presumably North Pacific draba on 7 Sept. 1741 on the Bird Island of the Shumagin group (Hultén in Bot. Not. 1940: 295. 1940, Fl. Alaska & Yukon 5: 856. 1945) and it seems historically justified that the conserved type be from the same area. Among only two collections from the Shumagin group that I could find in databases (the other was *M.W. Harrington s.n.*, 1871–72: US No. 5126 [barcode 01210049]) the specimen of R. Allen Moe is much more recent, better preserved and supplied, unlike the other one, with an indication of the precise island upon which it was collected (situated within 30 km of the one visited by Steller). Although the specimen has only very young fruits that do not show clearly the shape at maturity, variation in which was one of the main reasons why several names were introduced, this should not be a problem as it is generally agreed nowadays that all those names are applicable to just one species (e.g., Rollins, Crucif. Cont. N. Amer.: 421. 1993; Berkutenko, l.c. and references therein; Al-Shehbaz & al. in Fl. N. Amer. 7: 310. 2010) even though cytological variability is observed: $2n = 14–16$ (Probatova & al., Nat. Hist. Res. 7: 21–38. 2000); $2n = 32$ (Probatova & al., Biodiv. Biogeogr. Kurile Isles & Sakhalin 1: 15–23. 2004); $2n = 36$ (Mulligan in Canad. J. Bot. 44: 309–319). The precise collection locality of the proposed type and its good condition will allow unambiguous nomenclature even if infraspecific recognition is accepted in the future.

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