

Two new combinations in *Sabulina* (Caryophyllaceae)

Markus S. DILLENBERGER

Abstract: Dillenberger, M. S. 2016: Two new combinations in *Sabulina* (Caryophyllaceae). *Schlechtendalia* **30**: 41–44.

Sabulina (Caryophyllaceae) is a northern hemisphere genus, comprising c. 65 species worldwide. The genus was recently re-established based on molecular results, after being included in the genus *Minuartia* for the past century. Two new combinations for the genus *Sabulina* are made. A key to the taxa of the German flora is provided.

Zusammenfassung: Dillenberger, M. S. 2016: Zwei neue Kombinationen in *Sabulina* (Caryophyllaceae). *Schlechtendalia* **30**: 41–44.

Sabulina (Caryophyllaceae) ist eine nord-hemisphärische Gattung, die weltweit ca. 65 Arten umfasst. Die Gattung wurde neuerdings aufgrund molekularer Ergebnisse wiedereingeführt, nachdem sie über ein Jahrhundert Teil von *Minuartia* war. Zwei neue Kombinationen für die Gattung *Sabulina* werden gemacht. Ein Schlüssel für die Taxa der deutschen Flora wird zur Verfügung gestellt.

Key words: *Minuartia*, *Sabulina tenuifolia*, *Sabulina verna*, taxonomy.

Published online 8 December 2016

Introduction

Sabulina Rchb. is a northern temperate genus in the Caryophyllaceae. The genus was first described by Reichenbach (1832), but was later included in *Minuartia* L. as section *Sabulina* (Rchb.) Graebn. (Ascherson & Graebner 1918). Molecular studies of *Minuartia* s.l. showed that *Minuartia* is highly polyphyletic, and as one consequence *Sabulina* was re-established (Dillenberger & Kadereit 2014). Now, *Sabulina* contains c. 65 species worldwide and is mainly distributed in the Northern Hemisphere, with two species in South America. *Sabulina* is highly variable in chromosome number and is morphologically defined by a combination of various characters, including leaf shape, sepal shape, sepal vein number, petal colour and seed shape (see Dillenberger & Kadereit 2014; also Mattfeld 1922 and McNeill 1962). In Germany, *Sabulina* can be distinguished from other species of *Minuartia* s.l. by a combination of linear-subulate leaves (*Facchinia* Rchb. has lanceolate to ovate leaves), petals always present and flowers petiolate (*Cherleria sedoides* L. usually lacks petals and flowers are short petiolate or sessile), and sepals that are completely green or have a narrow scarious margin (*Minuartia* s.s. has white, scarious sepals with 1–2 green lines; Jäger 2011; Dillenberger & Kadereit 2014).

In Germany, five species of *Sabulina* are typically recognized (Jäger 2011; Parolly & Rohwer 2016): *Sabulina austriaca* (Jacq.) Rchb., *S. stricta* (Sw.) Rchb., *S. verna* (L.) Rchb., *S. viscosa* (Schreb.) Rchb. and the type species *S. tenuifolia* (L.) Rchb. (= *S. hybrida* (Vill.) Fourr.). In two of these species, infraspecific taxa are often accepted. Jäger (2011) and Parolly & Rohwer (2016) recognize subspecific taxa in *S. tenuifolia* and *S. verna*. Both species have additional infraspecific taxa in other regions of their distribution range (see Dillenberger & Kadereit 2014). Dillenberger & Kadereit (2014) made most of the necessary combinations for the German flora. But, as they based their work for the central European species on *Flora Europaea* (Halliday 1993), they did not make new combinations for two taxa that are recognized in the German flora. Here, I provide a list of the German species of *Sabulina* including their subspecific taxa, and introduce the two new combinations that are necessary. Information about important synonyms, types or protologues and a key to the taxa is given.

Key to the species of *Sabulina* in the German flora

(Based in part on the key to the species of *Minuartia* in Jäger, 2011.)

- 1 Sepals longer than petals 2
 – Sepals equalling or shorter than petals 4
 2 Sepals narrowly lanceolate, 2–2.5 mm long, equalling the capsule or longer *S. viscosa*
 – Sepals usually ovate-lanceolate, 3–4 mm long, slightly shorter than the capsule (*S. tenuifolia*)

- 3
- 3 Plant glabrous; sepals ovate-lanceolate with lateral veins curved; capsule ovate-cylindrical
..... *S. tenuifolia* subsp. *tenuifolia*
- Plant glandular pubescent especially in the inflorescence; sepals linear-lanceolate with lateral
veins parallel; capsule narrowly cylindrical *S. tenuifolia* subsp. *hybrida*
- 4 Leaves veinless or with 1 vein..... *S. stricta*
- Leaves at least at the base on the abaxial surface with 3 veins 5
- 5 Petals and capsule almost twice as long as the sepals; stems usually with 2 flowers
..... *S. austriaca*
- Petals and capsule equalling the sepals or slightly longer; stems often with more than 3
flowers (*S. verna*) 6
- 6 Inflorescence axis and pedicels glabrous; petals usually longer than the sepals
..... *S. verna* subsp. *gerardii*
- Inflorescence axis and pedicels glandular pubescent; petals equalling, rarely longer than, the
sepals 7
- 7 Plant caespitose; up to 15 cm tall; not woody at the base *S. verna* subsp. *verna*
- Plant pulvinate; 5–10 cm tall; woody at the base; on heavy metal-influenced gravelled areas
..... *S. verna* subsp. *hercynica*

Taxonomic treatment

Sabulina austriaca (Jacq.) Rchb., Fl. Germ. Excurs. 2: 787. 1832

≡ *Arenaria austriaca* Jacq., Fl. Austriac. 3: 39. 1775.

≡ *Alsine austriaca* (Jacq.) Wahlenb., Fl. Lapp. (Wahlenberg): 129. 1812.

≡ *Minuartia austriaca* (Jacq.) Hayek, Fl. Steiermark 1: 274. 1908.

Protologue: “Crescit in alpibus frequens“

Sabulina stricta (Sw.) Rchb., Fl. Germ. Excurs. 2: 789. 1832

≡ *Spergula stricta* Sw., Kongl. Vetensk. Acad. Nya Handl., ser. 2, 20: 235. 1799.

≡ *Alsine stricta* (Sw.) Wahlenb., Fl. Lapp. (Wahlenberg): 127. 1812.

≡ *Minuartia stricta* (Sw.) Hiern, J. Bot. 37: 320. 1899.

Non *Arenaria stricta* Michx. 1932, non *Sabulina stricta* (Michx.) Small ex Rydb. 1932.

Holotype: Swartz *s.n.* (S no. S10-26111).

Sabulina tenuifolia (L.) Rchb., Fl. Germ. Excurs. 2: 785. 1832

≡ *Arenaria tenuifolia* L., Sp. Pl. 1(1): 424. 1753.

≡ *Alsine tenuifolia* (L.) Crantz, Inst. Rei Herb. 2: 407. 1766.

≡ *Minuartia tenuifolia* (L.) Hiern, J. Bot. 37: 321. 1899, nom. illeg., non Nees ex Mart. 1814.

≡ *Minuartia hybrida* subsp. *tenuifolia* (L.) Kerguélen, Index Synonym. Fl. France (Coll. Patrim. Nat., 8): XIV. 1993.

Lectotype (designated by Iamónico 2014: 238): EUROPE, Habitat in Helvetia, Gallia, Anglia, Italia (LINN 585.36, see <http://linnean-online.org/6136/>).

Sabulina tenuifolia (L.) Rchb. subsp. *tenuifolia*

Sabulina tenuifolia subsp. *hybrida* (Vill.) Dillenb., **comb. nov.**

Basionym: *Arenaria hybrida* Vill., Prosp. Hist. Pl. Dauphiné: 48. 1779.

≡ *Alsine hybrida* (Vill.) Jord., Mém. Acad. Natl. Sci. Lyon, Cl. Sci. 1: 33. 1852.

≡ *Sabulina hybrida* (Vill.) Fourr., Ann. Soc. Linn. Lyon, sér. 2, 16: 347. 1868.

≡ *Minuartia hybrida* (Vill.) Schischk., Fl. URSS 6: 488. 1936.

≡ *Minuartia hybrida* (Vill.) Schischk. subsp. *hybrida*.

≡ *Minuartia tenuifolia* subsp. *hybrida* (Vill.) Mattf., Repert. Spec. Nov. Regni Veg. Beih. 15: 40. 1922.

Lectotype (designated by Iamónico 2014: 238): [Icon] Pl XLVII, *Arenaria hybrida* (Villars, 1789: plant on the top right, see

<http://bibdigital.rjb.csic.es/ing/Libro.php?Libro=1542&Hojas=>)

Sabulina verna (L.) Rchb., Fl. Germ. Excurs. 2: 788. 1832

≡ *Arenaria verna* L., Mant. Pl.: 72. 1767.

≡ *Alsine verna* (L.) Wahlenb., Fl. Lapp. (Wahlenberg): 129. 1812.

≡ *Minuartia verna* (L.) Hiern, J. Bot. 37: 320. 1899.

Lectotype (designated by Halliday 1964: 12): Herb. Linn. No. 585.30 (LINN).

Sabulina verna (L.) Rchb. subsp. *verna*

Sabulina verna subsp. *gerardii* (Willd.) Dillenb., **comb. nov.**

Basionym: *Arenaria gerardii* Willd., Sp. Pl. 2(1): 729. 1799.

≡ *Alsine gerardii* (Willd.) Wahlenb., Fl. Carpat. Princ.: 132. 1814.

≡ *Sabulina gerardii* (Willd.) Rchb., Fl. Germ. Excurs. 2: 788. 1832.

≡ *Minuartia gerardii* (Willd.) Hayek, Fl. Steiermark 1: 272. 1908.

≡ *Minuartia verna* subsp. *gerardii* (Willd.) Graebn. in Ascherson & Graebner, Syn. Mitteleur. Fl. 5(1): 747. 1918.

Protologue: “Habitat in Austriae et Galliae alpibus.”

Sabulina verna subsp. *hercynica* (Willk.) Dillenb. & Kadereit, Taxon 63(1): 88. 2014

≡ *Alsine verna* var. *hercynica* Willk., Führer Deut. Pfl. 1(2): 590. 1863.

≡ *Minuartia verna* subsp. *hercynica* (Willk.) O.Schwarz, Mitt. Thüring. Bot. Ges. 1(1): 98. 1949.

Protologue: “Auf Sand- u. Kies im Bett der vom Harz herabkommenden Bäche u. Flüsse, auf Schlackenhaufen u. Halden der Harz-Bergwerke.”

Sabulina viscosa (Schreb.) Rchb., Fl. Germ. Excurs. 2: 786. 1832

≡ *Alsine viscosa* Schreb., Spic. Fl. Lips.: 30. 1771.

≡ *Arenaria viscosa* (Schreb.) Fr., Novit. Fl. Suec. Alt.: 120. 1828.

≡ *Minuartia viscosa* (Schreb.) Schinz & Thell., Bull. Herb. Boissier, ser. 2, 7: 404. 1907.

Protologue: “In colle ad templum S. Theclae”

Discussion

The recognition of infraspecific taxa in *S. tenuifolia* and *S. verna* has a long tradition (Mattfeld 1922; McNeill 1967; Halliday 1993). These taxa have repeatedly changed their status, ranging from varieties to independent species in different treatments.

There is not much doubt about the distinctiveness of *S. verna* subsp. *gerardii*. It is accepted as subspecies or species by a variety of recent treatments (e.g., Hejný & Slavík 1990; Buttler & Hand 2008; Fischer et al. 2008; Jäger 2011; Parolly & Rohwer 2016; Ewald et al. 2016). In the morphologically difficult *S. verna* group, the correct rank is uncertain for many different taxa (e.g., *S. attica* (Boiss. & Sprun.) Dillenb. & Kadereit, *S. glaucina* (Dvořáková) Dillenb. & Kadereit). In accordance with recent floras of Germany (Jäger 2011; Parolly & Rohwer 2016), *Sabulina verna* subsp. *gerardii* is here recognized as subspecies.

In the case of *S. tenuifolia*, the two subspecies *tenuifolia* and *hybrida* were often treated as synonyms (e.g., Iamónico 2014). But they are distinguishable morphologically and are recognized as independent taxa in several recent treatments (e.g., Buttler & Hand 2008; Jäger 2011; Tison & de Foucault 2014; Parolly & Rohwer 2016; Ewald et al. 2016). Molecular phylogenetic information is not available at this point, so it seems reasonable to follow the treatments of Jäger (2011) and Parolly & Rohwer (2016) and keep these two taxa as subspecies of *S. tenuifolia*.

Literature

Ascherson, P. & Graebner, P. 1918: Synopsis der Mitteleuropäischen Flora. Vol. 5(1). Leipzig.

Buttler, K. P. & Hand, R. 2008: Liste der Gefäßpflanzen Deutschlands. *Kochia*, Beiheft 1: 1–107.

Dillenberger, M. S. & Kadereit, J. W. 2014: Maximum polyphyly: Multiple origins and delimitation with plesiomorphic characters require a new circumscription of *Minuartia* (Caryophyllaceae). *Taxon* 63: 64–88. <https://doi.org/10.12705/631.5>

Ewald, J., Meierott, L., Poschlod, P., Zahlheimer, W., Langensiepen, I. & Raab B. 2016: Checkliste der Gefäßpflanzen Bayerns. http://daten.bayernflora.de/de/checklist_pflanzen.php, accessed 01 Nov 2016.

- Fischer, M. A., Oswald, K. & Adler, W. 2008: Exkursionsflora für Österreich, Liechtenstein und Südtirol, ed. 3. Linz.
- Halliday, G. 1964: Studies in the *Minuartia verna* complex, I. Feddes Repertorium **69**: 8–14.
- Halliday, G. 1993: *Minuartia*. Pp. 152–160 in: Tutin, T. G., Burges, N. A., Chater, A. O., Edmondson, J. R., Heywood, V. H., Moore, D. M., Valentine, D. H., Walters, S. M. & Webb, D. A. (eds.), *Flora Europaea*, 2nd ed. Vol. 1. Cambridge.
- Hejny, S. & Slavik, B. 1990: Květena České republiky (Flora of the Czech Republic). Vol. 2. Praha.
- Iamónico, D. 2014: *Arenaria tenuifolia* versus *Arenaria hybrida* (Caryophyllaceae): Nomenclatural study and taxonomic implications. *Phytotaxa* **173**: 235–240. <http://dx.doi.org/10.11646/phytotaxa.173.3.6>
- Jäger, E. J. 2011: Exkursionsflora von Deutschland. Gefäßpflanzen: Grundband, ed. 20. Heidelberg.
- Mattfeld, M. 1922: Geographisch-genetische Untersuchungen über die Gattung *Minuartia* (L.) Hiern. *Repertorium specierum novarum regni vegetabilis*. Beiheft **15**.
- McNeill, J. 1962: Taxonomic studies in the *Alsinoideae*: I. Generic and infra-generic groups. *Notes of the Royal Botanic Garden Edinburgh* **24**: 79–155.
- McNeill, J. 1967: *Minuartia*. Pp. 38–67 in: Davis, P. H., Mill, R. R. & Kit Tan (eds.), *Flora of Turkey and the East Aegean Islands*. Vol. 2. Edinburgh.
- Parolly, G. & Rohwer, J. G. 2016: Schmeil-Fitschen: Die Flora Deutschlands und angrenzender Länder, ed. 96. Wiebelsheim.
- Reichenbach, H. G. L. 1832: *Flora Germanica Excursoria*. Vol. 1(1). Leipzig.
- Tison, J.-M. & de Foucault, B. 2014: *Flora Gallica: Flore de France*. Mèze.

Address of the author

Dr. Markus S. Dillenberger, Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, USA.
(E-mail: Markus.Dillenberger@oregonstate.edu)

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Schlechtendalia](#)

Jahr/Year: 2016

Band/Volume: [30](#)

Autor(en)/Author(s): Dillenberger Markus S.

Artikel/Article: [Two new combinations in Sabulina \(Caryophyllaceae\) 41-44](#)