

## 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.

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### 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*.

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#### 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)