

# LECTOTYPIFICATION OF *ARENARIA HOWELLII* (CARYOPHYLLACEAE)

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## ABSTRACT

The typification of *Arenaria howellii* (Caryophyllaceae) is discussed and a lectotype designated.

KEY WORDS: California, Caryophyllaceae, *Minuartia*, Oregon, *Sabulina*, typification

## RESUMEN

Se discute la tipificación de *Arenaria howellii* (Caryophyllaceae) y se designa un lectotipo.

In 1885, Sereno Watson described new species from the Western Territories in the Proceedings of the American Academy of Arts and Sciences (Watson 1885). Among these species *Arenaria howellii* S. Watson was described from Oregon, comparing it to the similar *A. douglasii* Fenzl ex Torr. & A. Gray. The protologue provides some valuable information about the collection: “In the Coast Mountains, near Waldo in Southwestern Oregon, Thomas Howell, June 1884” (Watson 1885). Today, Waldo is a ghost town in Josephine County, near the Oregon-California border, close to the 42nd parallel. A search for type material revealed that multiple specimens in various herbaria are considered to be types according to their annotations.

While the distinction of *A. howellii* has never been in doubt, the generic assignment has changed over time. The species was transferred to the primarily American genus *Alsinopsis* Small by Heller (1912), which also contained other American species now placed in *Sabulina* Rchb., *Geocarpon* Mack., *Arenaria* L., *Pseudocherleria* Dillenb. & Kadereit, and *Cherleria* L. Later in 1921, Mattfeld transferred the species to *Minuartia* Loeffl. in its broad circumscription (Mattfeld 1921). A molecular phylogenetic study of *Minuartia* revealed that the genus is polyphyletic. After the new circumscription of *Minuartia*, *A. howellii* is now included in *Sabulina* (Dillenberger & Kadereit 2014). It belongs to a clade of North American and circumarctic species, which is sister to the rest of Old World *Sabulina* (Alban et al. 2022).

## Typification

For the typification of *Arenaria howellii*, there are several things to consider. The protologue provides a clear locality (in the Coast Mountains, near Waldo in Southwestern Oregon), a collector (Thomas Howell) and a partial date (June 1884). The day of the gathering is not given, nor is a herbarium where the specimen is housed. In online databases, like JSTOR.org (2025) or GBIF.org (2025), we located 17 specimens collected by T. Howell in June 1884 of which some are labelled either as type, isotype, or as type with a question mark. These specimens can be sorted into three groups.

The first group consists of three specimens with hand-written labels. The first one is in GH, giving the information: *Arenaria Howellii*, Watson n.sp., Coast Mts. near Waldo, Oregon, *Tho. Howell*, June 5 1884 (GH00037595, internet image! <https://www.gbif.org/occurrence/1999147857>; Fig 1). The GH specimen has a stamp indicating type material. The second one is in BM: *Arenaria Howellii*, Watson n.sp., Coast Mts. near Waldo, Oregon, *Tho. Howell*, June 1884 (BM001024699, internet image! <https://www.gbif.org/occurrence/1057239187>). The BM specimen has no indication if it is type material. A specimen with similar information with a partly printed label is in MICH: Flora of North-West America, Oregon, *Arenaria Howellii* Watson, N.S., near Waldo, *Thomas Howell*, June 6 1884 (MICH1210647, internet image! <https://www.gbif.org/occurrence/1988888593>). The MICH specimen is annotated as “probable syntype.”



FIG. 1. Lectotype of *Arenaria howellii* S. Watson at GH.

The second group of eight specimens all have the same information, all but one on a printed label: Howell's Pacific Coast Plants, Oregon: *Arenaria Howellii* Watson. Coast Mountains, fortieth parallel. Thomas Howell. June 8th 1884 (US00103294, internet image! <https://plants.jstor.org/stable/10.5555/al.ap.specimen.us00103294>, OSC0000441, internet image! <https://plants.jstor.org/stable/10.5555/al.ap.specimen.osc0000441>, OSC0001410, internet image! <https://plants.jstor.org/stable/10.5555/al.ap.specimen.osc0001410>, OSC0000442, internet image! <https://plants.jstor.org/stable/10.5555/al.ap.specimen.osc0000442>, NY3267751, internet image! <https://www.gbif.org/occurrence/1930910604>, NY3267753, internet image! <https://www.gbif.org/occurrence/1930297423>, NY3267752, internet image! <https://www.gbif.org/occurrence/1928540137>, PH00003740, internet image! <https://www.gbif.org/occurrence/4929914215>). The 40th parallel is not in Oregon, therefore the label has an obvious error. OSC0000443 has a handwritten comment from L.A. Vorobik noting the label on that specimen with "forty-second parallel", where the Oregon-California border is, is likely the correct label for OSC0000441 and OSC0000442. The specimen at US is filed as regular specimen, the specimens at OSC are filed as isotypes and the specimens at NY have a pencilled note that they are not type material, contradicting the OSC specimens.

The third group of six specimens has similar labels to the second group, the only difference is a correct latitude: Howell's Pacific Coast Plants, Oregon: *Arenaria Howellii*, Watson. Coast Mountains, forty-second parallel. Thomas Howell. June 8th 1884 (HPSU10153, internet image! <https://www.pnwherberaria.org/images/jpeg.php?Image=HPSU012863.jpg>, BR00000845520, internet image! <https://www.gbif.org/occurrence/4072469077>, OSC0000443, internet image! <https://plants.jstor.org/stable/10.5555/al.ap.specimen.osc0000443>, PH00003738, internet image! <https://www.gbif.org/occurrence/4929893739>, US03616197, internet image! <https://www.gbif.org/occurrence/2452242300>, WS115462, internet image! <https://www.gbif.org/occurrence/4069816003>). The specimen at WS is filed as an isotype while all other specimens of this group have no associated type information.

All 17 specimens were collected within a few days in June 1884 by Thomas Howell in the correct region (assuming "fortieth parallel" is an error). A US specimen (US00103294) was given as "Holotype" in Dillenberger and Kadereit (2014) from an online source, but without additional details. The first collected potential type is the GH specimen, which was collected on June 5, 1884 and has a handwritten label by Thomas Howell. Sereno Watson (1826–1892) was at the time an assistant at the Gray Herbarium (Stafleu & Cowan 1988), suggesting that original material is most likely at GH (Art. 9.4; Turland et al. 2018). The information on the label of the specimen at GH is identical to the protologue, except that an exact day is provided on the label; we have confirmed that this is the only specimen of *A. howellii* at GH (A. Brach, pers. comm.). Although Stafleu and Cowan (1988) list US as holding Watson type specimens, these are from his earlier work with King's expedition of 1867–1868. The two specimens at US have the printed "Howell's Pacific Coast Plants" labels and different information on the label than the protologue, although they probably describe a similar, but less specific locality. Therefore, we think the specimen at GH is the best choice as the lectotype for *Arenaria howellii* (Fig. 1). The specimen at BM has the same handwritten label, just without an exact day. It is likely the same gathering as the GH specimen and can be considered as an isolectotype. The MICH specimen is the only other specimen mentioning "near Waldo" and, although the date is different (June 6), it seems likely it could be a syntype.

While we can only speculate on Howell's collecting activities, we believe that all other specimens differ too much in their label information from the BM and GH specimens to be treated as isolectotypes. The 14 specimens with the printed "Howell's Pacific Coast Plants" are part of the exsiccata set distributed by Howell between 1877 and 1912 (Sayre 1975; Triebel & Scholz 2001–2025). As was the practice of many 19th century botanists, Howell sent out printed lists soliciting botanists to purchase sets or individual specimens of his collections; examples from 1885–1896 are at the Missouri Botanical Garden library (<https://www.biodiversitylibrary.org/page/53337781>). While three of the four specimens at OSC were likely part of Howell's herbarium (formerly at ORE; Stafleu & Cowan 1979), the remaining sheets were likely distributed later as botanists ordered them from Howell.

**Sabulina howellii** (S. Watson) Dillenb. & Kadereit, *Taxon* 63(1):86. 2014. *Arenaria howellii* S. Watson, *Proc. Amer. Acad. Arts* 20:354. 1885. *Alsinoopsis howellii* (S. Watson) A. Heller, *Muhlenbergia* 8:96. 1912. *Minuartia howellii* (S. Watson) Mattf., *Bot. Jahrb. Syst.* 57(2, Beibl. 126):27. 1921. TYPE: [USA], Oregon: Coast Mts. near Waldo, *T. Howell s.n.*, 5 Jun 1884 (**LECTOTYPE, designated here**: GH00037595, internet image! <https://www.gbif.org/occurrence/1999147857>; **ISOLECTOTYPE**: BM001024699, internet image! <https://www.gbif.org/occurrence/1057239187>).

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