

***Descurainia kenheilii* (Brassicaceae): Revised description and new records from Colorado****Steve L. O’Kane, Jr.**Department of Biology, University of Northern Iowa  
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steve.okane@uni.edu**Kenneth D. Heil**San Juan College, Farmington, New Mexico 87402  
kendelheil@gmail.com**ABSTRACT**

Until recently, the only known collection of *Descurainia kenheilii* (Brassicaceae) was the holotype, a single, depauperate specimen from Stony Pass in San Juan County, Colorado. A revised description is provided based on recently examined specimens from the San Juan Mountains of Colorado. Herbarium specimens are cited to document the distribution of the species and a key is provided to separate it from *D. incana*. Published online [www.phytologia.org](http://www.phytologia.org) *Phytologia* 104(2): 4-7 (June 21, 2022). ISSN 030319430.

**KEY WORDS:** *Descurainia kenheilii*, Brassicaceae, description, distribution.

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In the summer of 1997 Ken Heil collected a diminutive member of the Brassicaceae in the tundra at the summit of Stony Pass, San Juan County, Colorado (Fig 1A). Unable to identify it, and thinking it was a species of *Draba*, he sent it to Ihsan Al-Shehbaz, an expert in the Brassicaceae, at the Missouri Botanical Garden. Al-Shehbaz determined that the miniature specimen, less than 1.5 cm tall, belonged to a new species of *Descurainia* and named it *D. kenheilii* in honor of its discoverer (Al-Shehbaz, 2007). In the years since, careful searches of the type locality, including by us, failed to find additional specimens of the species. Scott Smith, a talented amateur botanical sleuth from Colorado took on the challenge in 2021. He did not find any diminutive plants resembling *D. kenheilii* but did find much taller specimens of a species of *Descurainia* near the type locality that botanists have been calling *D. incana* (Fisch. & C. A. Mey.) Dorn (Fig. 1B, C). Thinking these specimens needed expert identification he sent them to Al-Shehbaz who recognized, based on characters of the fruits, ovules, pedicels, and duration, that they were taller, more robust, and as it turns out, typical members of *D. kenheilii*.

Using specimens housed primarily at San Juan College (SJNM) and supplemented by high resolution images of herbarium specimens available at SEINET (<https://swbiodiversity.org>), we have determined that *D. kenheilii* is limited to high elevations in the San Juan Mountains of southwestern Colorado. Below we provide an expanded description of the species, updated habitat information, a key to separate *D. kenheilii* from *D. incana*, representative specimens, and a distribution map of known specimens.

***Descurainia kenheilii*** Al-Shehbaz, Harvard Pap. Bot. 12: 395, Fig. 1. 2007. **TYPE: USA. Colorado. San Juan County:** San Juan Mountains, San Juan National Forest, top of Stony Pass, andesite porphyry and rhyolite tuff substrate, thin soil and talus slopes, alpine tundra, S20 Center & SW 1/4 T41N R6W, 12350 ft, 13 Sept 1997. *Heil 11505* (Holotype: SJNM; isotype: CS).

**Revised description:** **Short-lived perennials** (some biennial); eglandular; glabrescent to sparsely pubescent throughout with dendritic trichomes. **Stems** several, decumbent to suberect, branched basally mainly in the lower half with green leaves beyond the first year, mostly 1.4–11 dm, but when dwarfed, as in the holotype, unbranched and as little as 0.1 dm. **Basal leaves:** petiole (0.3–)3–40 mm; blade pinnate,

oblanceolate to obovate in outline, lateral leaflets 2–5 per side, (1–)1.2–6.5 × 0.5–1.5 cm, lateral leaflet lobes 2–4, pinnatifid, rounded. **Cauline leaves** subsessile, blade smaller distally, distal lobes narrower, surfaces sparsely pubescent to glabrescent. **Racemes** moderately to strongly elongated in fruit except not elongated in dwarfed plants as in the holotype. **Fruiting pedicels** ascending to erect, not appressed to the stem, straight, 1–7 mm. **Flowers:** sepals ascending, yellowish, ovate, 1–1.4 mm, pubescent; petals light yellow, narrowly oblanceolate, 1–1.5 × 0.3–0.4 mm; median filaments 0.6–1 mm; anthers broadly ovate, ca. 0.1 mm. **Fruits** siliques, ascending to erect, linear, sometimes a few curved, 5–12 × 1–1.3 mm, somewhat torulose, short-tapered at both ends, the ends rounded-acute to acute, valves each with a distinct midvein; septum with a distinct midvein (viewed at 10× magnification); ovules 4–8(–10) per ovary; style nearly obsolete, 0.1–0.3 mm, glabrous. **Seeds** uniseriate, reddish brown, oblong, 1–1.2 × 0.5–0.6 mm.



Figure 1. **A.** Diminutive specimen from the holotype. *Heil 11505* (SJNM). Photo Heil. **B.** One of two specimens collected from near the type locality. *Smith 0641* (MO). Photo Smith. **C.** Large basal leaf from second specimen. *Smith 0652* (MO). Photo Smith.

As noted by Al-Shehbaz (2007), interspecific hybridization and the ability to be weedy in disturbed situations makes the genus *Descurainia* taxonomically difficult. The specimens cited below appear to us to not involve hybridization. Several other specimens, however, seem to be intermediate between *D. kenheilii* and *D. incana*, in which case the two species may be difficult or impossible to distinguish.

Flowering Jul–Sep. Alpine tundra, talus slopes, and rock outcrops, in both undisturbed and disturbed areas; plants are taller and more robust where well-watered and with little competition; when found on species-rich, environmentally stressed tundra, plants may be dwarfed; 3150–3856 m (10330–12650 ft); San Juan Mountains of southwestern Colorado. *Descurainia kenheilii* is likely endemic to the San Juan Mountains of Colorado (Fig. 2), where it seems to replace *D. incana* at the highest elevations. The two species can be distinguished by the following key.

1. Plants short-lived perennials; branched from the base and nearly throughout; stems single or often several from the base, decumbent to erect; leaves green basally; elevations above 3150 m (10330 ft); ovules 4–8(–10) per ovary (examine several fruits and count funicles, not seeds); fruits somewhat torulose; fruiting pedicels divergent to ascending; fruits ascending to erect, not at all appressed to the stems.....*D. kenheilii*

1'. Plants biennial; mainly branched in the distal half of the stem; stems single, erect; leaves withered and deciduous basally; growing from low to high elevations; ovules (4–)6–22 per ovary; fruits nearly smooth

to torulose; fruiting pedicels ascending to erect; fruits erect, often nearly appressed to the stems, at least apically ..... *D. incana*

**Representative specimens. COLORADO. Conejos Co.:** End of Alamosa Can., below Treasure Falls, 37°22'N 106°40'W, 11200 ft. 28 June 2984. *Dixon 3947* (ALAM). **Hinsdale Co.:** Weminuche Wilderness. Ca. 2 miles downstream of Weminuche Pass, along Los Pinos River, spruce-fir forest, growing in moss on north side of a large granite boulder, 37.6508333°N 107.3313889°W, 10450 ft., 3 Aug 2003. 3 Aug 2003. *O'Kane & Jamieson 7473* (SJNM). **Mineral Co.:** San Juan National Forest, Pagosa Ranger District, Site 3, 37.43°N 107.08°W, 10350 ft. 24 Aug 1998. *Brinton 36* (SJNM). **Rio Grande Co.:** Ca. 1 mile west of Summitville, 37°26'N 106°37'W, 11500 ft. *Dixon 1916* (ALAM); ~7 miles NW of Platoro, vicinity of Elwood Pass & Cabin, 37.40414°N 106.63875°W, 11550 ft. 28 June 2013. *Sharples 321* (COLO); Elwood Pass, 106°38'N 106°38'W, 11600 ft. 16 July 1981. *Dixon 2943* (ALAM). **San Juan Co.:** BLM. West-facing slope of Sheep Mountain, ca 1.12 air miles south/southeast of Stony Pass and County Road 3, Alpine Tundra Community, 37.7843°N 107.5349°W, 12300 ft. 20 July 2021. *Heil 37139* (FLD, SJNM); Plants on crushed volcanic rock-based soils, on road cuts east of Stony Pass, 37.789002°N 107.539076°W, 12300 ft. 23 July 2021. *Smith 0641* and *Smith 0642* (MO); San Juan National Forest/BLM ghost town, collections from around old homes, disturbed site with *Salix*, *Epilobium*, *Trisetum* and stinging nettles, 37.9311111°N 107.5708333°W, 22 Aug 2003. 22 Aug 2003. *Heil & Mietty 22725* (SJNM); San Juan National Forest & BLM, ca. 3.5 air miles south/southeast of Howardsville on County Road 3, near Stony Pass summit, base of Canby Mountain, alpine community, roadside along drainage, talus of igneous and metamorphic rocks, 37.79824°N 107.551149°W, 12500 ft. 15 July 2014. *Heil 36413* (SJNM).

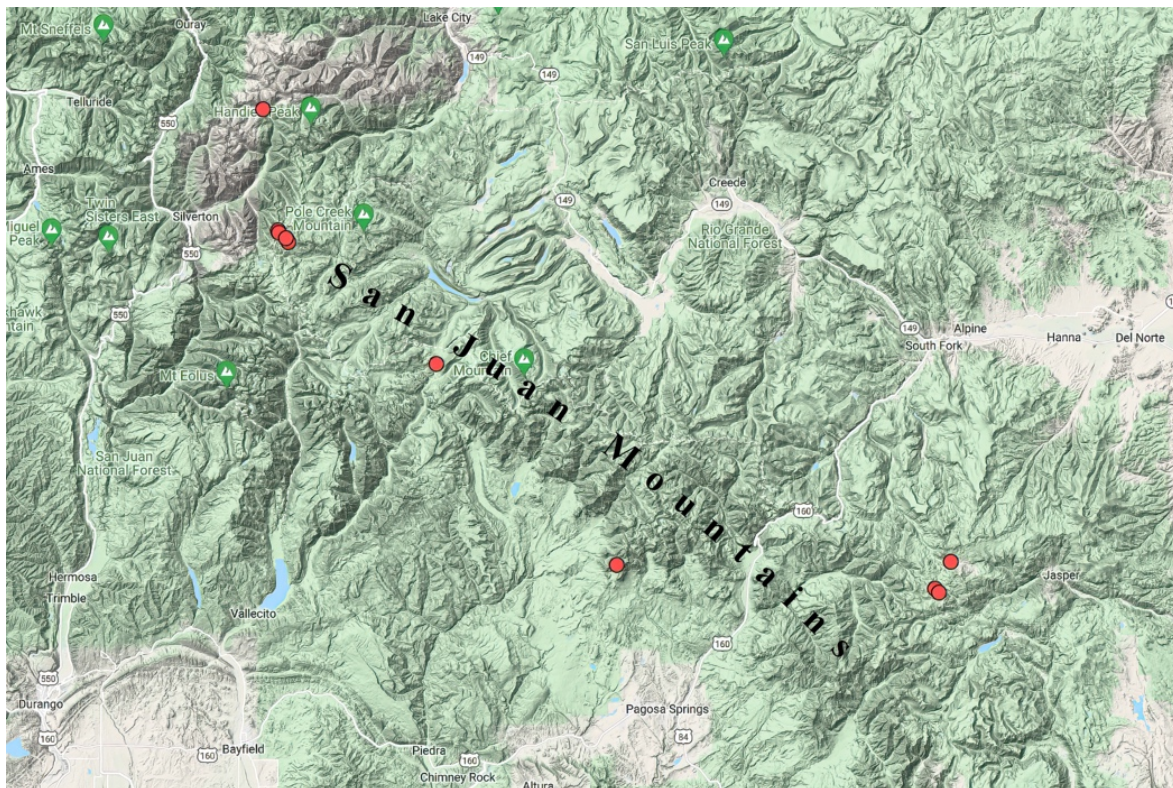


Figure 2. Distribution of *Descurainia kenheilii* in the San Juan Mountains of southwestern Colorado. Map generated using Google Maps.

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### **LITERATURE CITED**

Al-Shehbaz, I. A. 2007. *Descurainia kenheili* (Brassicaceae), a new species from the San Juan Mountains, Colorado. *Harvard Papers in Botany* 12: 395–396.