

## GEOGRAPHY OF *ERIGERON ABAJOENSIS* (ASTERACEAE)

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### ABSTRACT

*Erigeron abajoensis* occurs from southeastern Utah into northwestern New Mexico and immediately adjacent Arizona. It does not overlap in distribution with *E. caespitosus*, which reaches its southernmost extension in northern Utah and northern Colorado. A map shows the distribution of *E. abajoensis* and a series of geographically representative herbarium specimens illustrates its morphology.

*Erigeron abajoensis* Cronq. was characterized by Nesom (2006, p. 283) as a "segregate of *E. caespitosus* Nutt., separated from the latter only by its strigose (versus hirsute) stems and leaves and greater tendency for 1-nerved leaves," who also said that (p. 283) it might be considered a "regional variant" of *E. caespitosus*. The protologue (Cronquist 1947, p. 169) noted that "*E. abajoensis* is related to *E. caespitosus*, from which it differs in the appressed cauline pubescence, single-nerved leaves, and slightly longer style-appendages." Despite their similarity, the nodding buds and reflexing ray corollas of *E. abajoensis* (vs. erect buds and coiling ray corollas in *E. caespitosus*) suggest that they are not so closely related. Instead, *E. abajoensis* appears to belong with species of sect. *Stenactis* (lectotype *E. pumilus*; also including *E. clokeyi*, *E. concinnus*, *E. maguirei*, *E. vetensis*, and others), characterized as taprooted perennials with 1-nerved leaves, relatively unreduced stem leaves, 1–few heads per stem, nodding buds, and reflexing rays (Nesom 2008). Among these, *E. maguirei* Cronq., from Emery and Wayne counties, Utah, is closest in morphology to *E. abajoensis*.

*Erigeron caespitosus* has been included in the floras of Arizona and New Mexico (e.g., Cronquist 1994; Nesom 2006; Welsh et al. 2015) but it ranges from Alaska through western Canada, into Idaho, Montana, and North Dakota, reaching its southern extensions in northern Utah and northern Colorado. It does not overlap in range with *E. abajoensis*, which occurs from southeastern Utah into northwestern New Mexico and adjacent Arizona (Fig. 1). Cronquist (1994) noted an Arizona collection of *E. caespitosus* from San Francisco Mt. (Coconino Co.; probably *Jones s.n.*, POM, 6 Aug 1884, from Flagstaff, which he cited in 1947) — I have not seen this collection but it almost certainly is some other species. The only collections of *E. abajoensis* I have seen from Arizona are these: Apache Co.: N end of Tunitcha Mts. near Luka-Chukai Mountains, volcanic rock, near Roof Butte, 2800 m, 4 Jul 1936, *Goodman & Payson 2915* (NY, Fig. 11); Navajo Nation, Carrizo Mts, Teec Nos Pos Canyon, granite cliffs, permanent stream, pinyon-juniper and edge of ponderosa pine, 6668–6808 ft, 15 Sep 2001, *Reeves 10503* (NAVA); Chuska Mts, Sonsela Buttes, SW rim of east butte, E of tall rock outcrop, in cracks of basalt, ponderosa pine, gambel oak, 8480 ft, 20 Aug 1991, *Hevron 1385a* (NAVA).

Despite a consistency in morphology, the distribution of *Erigeron abajoensis* is discontinuous, particularly in New Mexico, where it occurs abundantly in both the Beautiful Mountain area of San Juan County (Figs. 8, 9) and the Mt. Taylor area of Cibola County (Figs. 12–14). Those around Mt. Taylor grow at 10,650–11,400 feet while those around Beautiful Mountain grow at 8700–9200 feet, suggesting that the two systems are physiologically differentiated. The plants in Catron County (Fig. 10) were collected at 6800 feet. In Utah, the elevational range is 6800–11,350 feet.

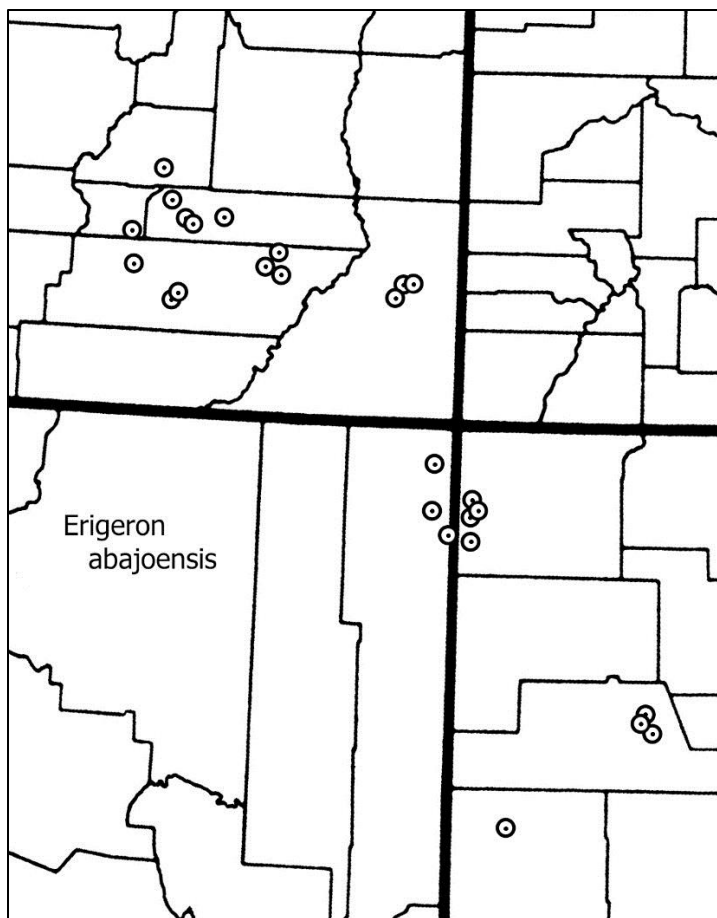


Figure 1. Distribution of *Erigeron abajoensis*.

- Erigeron abajoensis*** Cronq., Brittonia 6: 168. 1947. **TYPE: Utah.** San Juan Co.: Abajo Mts (eastern range), 3000–3300 m, 17 Aug 1911, *P.A. Rydberg & A.O. Garrett* 9755 (holotype: NY!, image). Figure 2.
- Erigeron caespitosus* var. *laccoliticus* M.E. Jones, Proc. Calif. Acad. Sci. 2, 5: 696. 1895. **TYPE: Utah.** San Juan Co.: Henry Mts., Marvine Laccolite, gravel, 6000 ft, 23 Jul 1894, *M.E. Jones* 5661 (holotype: RSA image; isotypes: MSC image, NY image, US-2 sheets images, Fig. 3).
- Erigeron awapensis* S.L. Welsh, Great Basin Naturalist 43: 365. 1983. **TYPE: Utah.** Garfield Co.: Milepost 26.5 S of Antimony, igneous, bouldery slope in canyon, *Artemisia* community, 7000 ft, 4 Sep 1969, *S.L. & S.L. Welsh* 9388 (holotype: BRY!, image). Figure 4.

#### ACKNOWLEDGEMENTS

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Figure 2. *Erigeron abajoensis*. San Juan Co., Utah. Rydberg & Garrett 9755 (NY, holotype).



Figure 3. *Erigeron abajoensis*. San Juan Co., Utah. Jones 5661 (US, isotype of *E. caespitosus* var. *laccoliticus*).



Figure 4. *Erigeron abajoensis*. Garfield Co., Utah. Welsh 9388 (BRY, holotype of *E. awapensis*).



Figure 5. *Erigeron abajoensis*. Garfield Co., Utah. Licher 5100 (ASC).



Figure 6. *Erigeron abajoensis*. San Juan Co., Utah. Atwood 7055 (BRY).



Figure 7. *Erigeron abajoensis*. Wayne Co., Utah. Welsh & Atwood 26274 (BRY).





Figure 8. *Erigeron abajoensis*. San Juan Co., New Mexico. Rink 9840 (ASC).





Figure 10. *Erigeron abajoensis*. Catron Co., New Mexico. McIntosh 1400 (NY).



Figure 11. *Erigeron abajoensis*. Apache Co., Arizona. Goodman & Payson 2915 (NY).



Figure 12. *Erigeron abajoensis*. Cibola Co., New Mexico. Castetter 7887 (UNM).



Figure 13. *Erigeron abajoensis*. Cibola Co., New Mexico. Ivey *s.n.* (UNM).

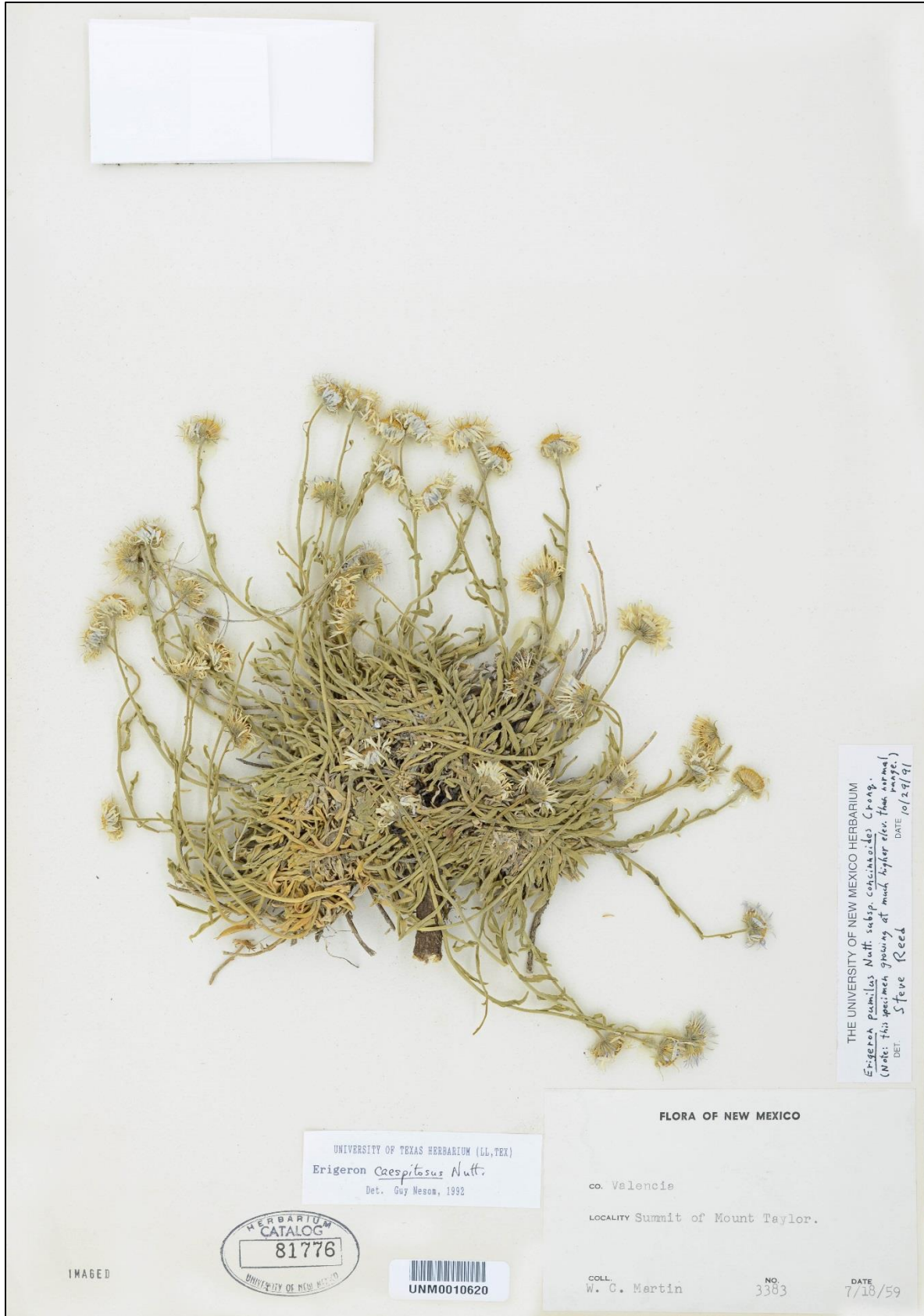


Figure 14. *Erigeron abajoensis*. Cibola Co., New Mexico. Martin 3383 (UNM).



Figure 15. *Erigeron abajoensis*. Knoll above Robertson Pasture Trail, Abajo Mountains, 10,600 ft, 20 July 2016. Photo by Al Schneider, Southwest Colorado Wildflowers. Nodding buds are prominent.





Figure 16. *Erigeron abajoensis*. Knoll above Robertson Pasture Trail, Abajo Mountains, 10,600 ft, 8 July 2020. Photo by Al Schneider. Nodding buds, reflexing ray ligules.



Figure 17. *Erigeron abajoensis*. Prairie Dog Knoll, Abajo Mountains, 9800 ft, 17 August 2009. Photo by Al Schneider, Southwest Colorado Wildflowers. Ligules of ray corollas sharply reflexing at fruit maturity — this behavior shows on herbarium specimens as well.