

A NEW *RANUNCULUS* (RANUNCULACEAE) FROM NEVADA, U.S.A.

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ABSTRACT

A new species of *Ranunculus* from Elko County, Nevada, **R. legerae**, is described and illustrated. It is related to *R. triternatus*, *R. glaberrimus*, and *R. adoneus*. The earliest known collection was made in 1937. Poor label information prevented rediscovery, which did not happen until 2017. The second author discovered a large population in 2022 which led to this study and article.

RESUMEN

Se describe e ilustra una nueva especie de *Ranunculus* del condado de Elko, Nevada, **R. legerae**. Está emparentada con *R. triternatus*, *R. glaberrimus* y *R. adoneus*. La primera recolección conocida data de 1937. La escasa información de las etiquetas impidió su redescubrimiento, que no se produjo hasta 2017. El segundo autor descubrió una gran población en 2022 que dio lugar a este estudio y artículo.

INTRODUCTION

In Benson's (1948) monograph of North American *Ranunculus*, under *Ranunculus glaberrimus* var. *reconditus* (A. Nelson & J.F. Macbr.) L.D. Benson [with *R. triternatus* A. Gray in synonymy] he says on page 170 in reference to a specimen: "The following plant approaches this variety, but the leaves are somewhat less divided." The specimen in question was collected 18 miles northwest of Elko, summit of Round Mountain cut-off, 5,660 ft, 13 May 1937, N.E. Nichols & L. Lund 8 (USNA; now NA). Whittemore's (1997) *Flora of North America* treatment lists *Ranunculus triternatus* as occurring in Idaho, Nevada, Oregon, and Washington. In *Intermountain Flora*, Holmgren and Holmgren (2012, p. 121) say: "*Ranunculus triternatus* is reported by Whittemore (1997) from our area in southeastern Idaho and northeastern Nevada, but no vouchers for these state records have been located ... We doubt that *R. triternatus* occurs in either Idaho or Nevada". In *Flora of the Pacific Northwest, 2nd edition*, Legler (2018) lists *R. triternatus* as being endemic to Klickitat County, Washington and Wasco and Hood River counties, Oregon. Apparently Benson is the only person to have examined Nichols & Lund 8 (NA).

The Nevada Division of Natural Heritage [NDNH] has *Ranunculus triternatus* on its tracking list based on the citation in Benson (1948) (J. McClinton, pers. comm., 2024). Due to this watch list citation, *Ranunculus triternatus* is on the Bureau of Land Management's [BLM] Sensitive Plant list for Nevada. Since early 2021, Jacqueline Lucero and Ali Helmig of the Great Basin Institute, as well as Steph Frederick of the Elko BLM office, have looked for *R. triternatus* using the rather large potential distribution polygon NDNH has on its website.

The biggest impediment to re-finding the plant was the data on the original collection. Nichols and Lund were collectors on the Indian Medicine Project which was a cooperative endeavor between the University of Nevada, Reno and the Bureau of Plant Industry of the USDA (Archer Papers, Hunt Institute; see Tiehm 1996). Field work was conducted from 1937 to 1940 with most of the work being done in the first two years. Nichols and Lund were students at the University of Nevada, Reno and only collected plants for the project during the 1937 field season. The Elko County location of "18 miles northwest of Elko, summit of Round Mountain cut-off" was the first collecting site of their brief collecting careers. This location is not transferable to modern maps as the exact location of "Round Mountain" is unknown. Their number 11, collected on 15 May 1937, has a label location of "cut off road, 6 miles NW of Elko." There are discrepancies in their labels as number 12 was

collected on 12 May 1937. Ignoring the non-sequential dates, the location on their #11 specimen is the general area where we now know that plants Benson (1948) compared with *Ranunculus triternatus* occur. Interestingly, Frederick collected plants resembling *R. triternatus* on 21 Apr 2017 but misidentified her specimens as *R. glaberrimus* Hook. In 2021, upon reviewing this collection, the second author used the location to begin searching the Adobe Range for *R. triternatus*.

In the spring of 2022, the second author independently discovered plants resembling *Ranunculus triternatus* in the same general area as the Nichols and Lund collection. For guidance, she showed the specimens to the first author in March of 2022. He knew of the Nichols and Lund collection and was pleased to see new material from Nevada. As per his advice she made another collection when the plants were in fruit so he could see ripe achenes. She gave him all of these specimens in early June of 2022. On close examination her specimens certainly resembled *R. triternatus* but he only had one specimen from Washington to compare it with. On 22 August 2022 the two of us visited the herbarium at Oregon State University (OSC) to examine their holdings. They had 8 specimens of *R. triternatus* and unfortunately none were in fruit. In comparing the Nevada specimens to Oregon and Washington specimens several differences were apparent. The leaves of the Oregon and Washington specimens had deeper dissections and fewer, narrower lobes. They also had longer petals and shorter sepals. When we spread out all of the specimens and put the Nevada ones next to them it was apparent that they were not the same.

The winter of 2022–2023 was noteworthy for the large amount of snow deposited in the Great Basin. This pushed back flowering times for spring and summer flowering plants and delayed a planned trip to see the Nevada *Ranunculus* on site. On 12 May 2023, Steph Frederick and Ali Helmig took Jan Nachlinger and Arnold Tiehm to the Elko Snobowl where they found a large population. The plants nearer the snow banks were in bud and flower while the ones farther away were in mature fruit. The plants were reminiscent of *R. glaberrimus* var. *ellipticus* (Greene) Greene but the basal leaves were all lobed. The next day Tiehm and Nachlinger found another population to the southwest on the west side of highway 225. A close examination of all Nevada collections identified as *R. triternatus* has confirmed the conclusion that we came to at OSC. The Nevada plants are not *R. triternatus* and do not match any known *Ranunculus* species. It is herein described as a new species, *R. legerae*.

***Ranunculus legerae* Tiehm & Lucero, sp. nov. (Figs. 1–4).** TYPE. NEVADA. ELKO CO.: Adobe Range, ridge just N of Elko Snobowl, 1.5 air mi NNE of Adobe Summit on Hwy 225 to Mountain City, T35N R54E sec 23, 40.9098°N, 115.86024°W, NAD83, 12 May 2023, A. Tiehm 19335, with J. Nachlinger, S. Frederick, and A. Helmig (HOLOTYPE: RENO; ISOTYPES: ARIZ, ASC, ASU, BM, BRIT, BRY, CAS, COLO, DES, GH, ID, IDS, K, KANU, MO, MONTU, NY, OSC, RM, RSA, TEX, UNLV, UCR, US, UTC, WS, WTU).

Diagnosis.—In Whittemore (1997) and Holmgren & Holmgren (2012), *Ranunculus legerae* keys to *R. adoneus* A. Gray. *Ranunculus adoneus* differs from *R. legerae* in having leaves 2–3 times dissected into linear segments and petals 8–18 mm long versus leaves that are once divided into broader segments and petals 7.2–10.2 mm long.

Perennial herb, 5–10(12) cm tall, erect when in flower, declined in fruit; roots fibrous; herbage glabrous; stems to 8 per plant, some branched above, not rooting at the nodes; basal leaves 1–4 per stem, petioles 3.5–5.2 cm long, blades 1.5–3.2 cm long, obdeltoide in outline, cuneate at base, ternate, outer leaflets shallowly to deeply (1)2–4-lobed, lobes 1.2–2.4 cm long, 1.8–4.6 mm wide, central leaflet unlobed to deeply cleft; cauline leaf entire to deeply cleft in age, 5.6 mm wide, 9–14 mm long; inflorescence 1–5-flowered, pedicels 2.9–7.1 cm long, erect in flower, arched to curving downward in fruit; sepals 5, green suffused with yellow, ovate, 2–6-nerved, 3.3–5.0 mm wide, 4.2–7.1 mm long; petals 5(–12), yellow aging white, shiny, (2.5)4.1–6.9 mm wide, (7.2)8.5–10.2 mm long, multi-veined; nectary scale cleft, 1.0–1.4 mm long, glabrous, forming a pocket; stamens 25–35, anthers 0.7–1.0 mm long, ovaries numerous; aggregate fruit 5.9–8.5 mm wide, 4.2–6.7 mm tall, depressed-globose; achenes plump, sparsely hairy with erect hairs, ventrally keeled when mature, 1.0–1.2 mm wide, 1.4–1.6 mm high; beak lateral, erect, 0.6–1.0 mm long.

Specimens examined: **All Elko Co., NEVADA, U.S.A.**—18 mi NW of Elko, summit of Round Mountain cut-off, 5,660 ft, 13 May 1937, N.E. Nichols & L. Lund 8 (NA) [image examined]; Adobe Range, Adobe fire of 2016, ca. 0.4 mi N of Barrel Springs, 40.882085°N, 115.882068°W, 21 Apr 2017, S. Frederick 243 (ELKOBLM); on E side of Hwy 225 ca. 10 km N of jct with I-80, 40.880232°N, 115.884224°W, NAD83, 28 Mar 2022, J. Lucero 2, with S. Frederick & R. Hollis (ELKOBLM, RENO, UNLV); Elko Snobowl ca. 10 km N on 5th St. from downtown Elko,



FIG. 1. *Ranunculus legerae* in flower. Photo by Jan Nachlinger.



FIG. 2. *Ranunculus legerae* in early and mature fruit. Photo by Jan Nachlinger.



FIG. 3. *Ranunculus legerae* showing habitat. Photo by Jan Nachlinger.

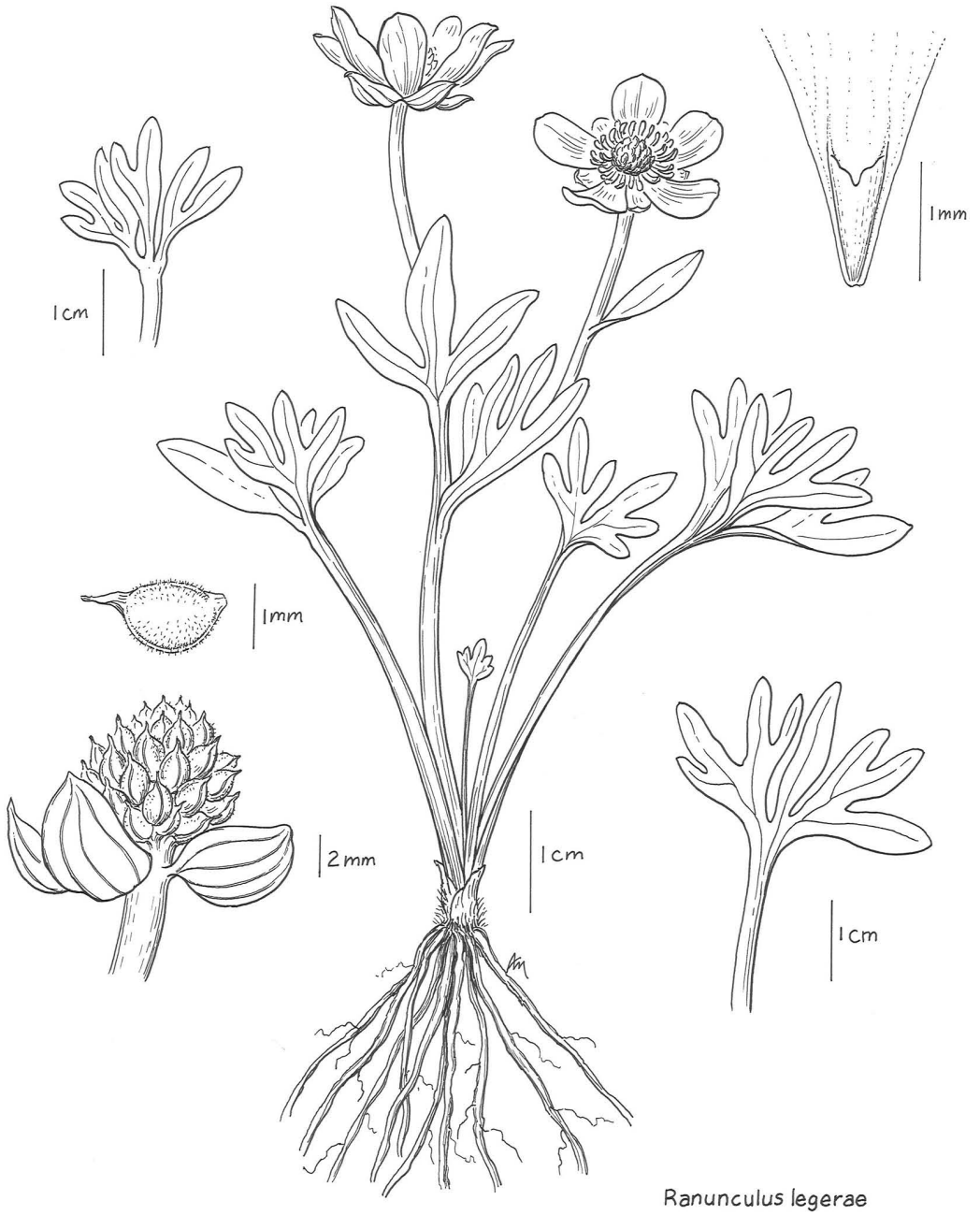


FIG. 4. *Ranunculus legerae* illustration prepared by Annaliese Miller. Drawn from Tiehm 19335.

40.908989°N, 115.856882°W, NAD83, 28 Mar 2022, *J. Lucero 3*, with *S. Frederick & R. Hollis* (CAS, ELKOBLM, NY, RENO); Elko Snobowl ca. 10 km N on 5th St. from downtown Elko, 40.909145°N, 115.857188°W, NAD83, 26 Apr 2022, *J. Lucero 6* (CAS, ELKOBLM, RENO); Adobe Range, ridge line 0.75 air mi SW of Adobe Summit on Hwy 225 to Mountain City, 40.890°N, 115.89349°W, NAD83, 13 May 2023, *A. Tiehm 19336*, with *J. Nachlinger* (ASC, CAS, MO, NY, OSC, RENO, RSA, UCR, UNLV).

Other similar looking western North American *Ranunculus* are *R. jovis* A. Nelson, *R. glaberrimus* var. *ellipticus*, and *R. triternatus*. *Ranunculus jovis* differs in having tuberous roots 2.5–4 mm thick versus fibrous roots in *R. legerae*. *Ranunculus glaberrimus* var. *ellipticus* differs in having the basal leaves entire versus basal leaves three lobed and sometimes farther divided in *R. legerae*. *Ranunculus triternatus* differs in having leaves 2–3 times ternate and petals 6–15 mm long versus leaves that are once ternate into broader segments and petals 7.2–10.2 mm long.

Ranunculus legerae has the growth aspect of *R. alismaefolius* Geyer ex. Benth, but *R. alismaefolius* has entire leaves.

It is interesting that *Ranunculus legerae* remained uncollected for 80 years. It is now known from Elko Snobowl, west of Adobe Summit on highway 225 northwest of Elko and some of the immediate surrounding areas. Both areas are within six miles of Elko and easily accessible. The first author admits to having driven highway 225 over Adobe Summit on numerous occasions. The area never looked interesting enough for him to stop and botanize. *Ranunculus legerae* does flower just after snow melt so muddy conditions would likely be encountered and this could also have deterred collectors.

Etymology.—This plant is named in honor of Elizabeth Anne (Beth) Leger (b. 1974), a dynamic intellectual, excellent mentor, extraordinary professor, and plant lover. Beth received a Ph.D. from the University of California, Davis in 2004. After a postdoctoral position at Stony Brook University in Stony Brook, New York she arrived at the University of Nevada, Reno in 2006 where she is now a Foundation Professor in the Biology Department. She has injected vitality into all the studies, projects, colleagues, and students she has been associated with. Among her lineage of students is the Nevada state botanist for the U.S. Fish & Wildlife Service and the director of the Nevada Division of Natural Heritage.

Beth is a cofounder and director of the Museum of Natural History at the University of Nevada, Reno. The museum includes the herbarium, vertebrate collection, and entomology collection. It is a joint endeavor between the College of Agriculture, Biotechnology & Natural Resources (herbarium) and the College of Science (vertebrate and entomology collections). This two-college support system has provided the collections with a strong backing system that should preserve them for posterity.

Conservation status.—*Ranunculus legerae* is geographically limited. At present there does not appear to be a threat to its existence. We recommend it be placed in the International Union for Conservation of Nature and Natural Resources' Vulnerable category. We also recommend that it be placed on Watch Lists for the Nevada Native Plant Society and the BLM, and on the Nevada Division of Natural Heritage's tract list.

Common name.—An appropriate common name is Elko Buttercup.

ACKNOWLEDGMENTS

We are grateful to Harlan Svoboda who provided an image of *Nichols and Lund 8* housed at NA and to Jamey McClinton, Nevada Division of Natural Heritage, who provided information about the status of *R. triternatus*. We are also grateful to Steph Frederick and Ali Helmig who have provided specimens and/or guided Arnold Tiehm to the Snobowl population of *R. legerae*. Noel and Pat Holmgren, Jan Nachlinger, and Jim Morefield kindly reviewed this article. Subsequent talks with Jim improved the article even more. The illustration was prepared by Annaliese Miller. The photos were taken by Jan Nachlinger.

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