

## NOTES ON *ERYTHRANTHE AMPLIATA* (PHRYMACEAE) AND THE FIRST REPORT FOR CANADA

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### ABSTRACT

*Erythranthe ampliata* is reported for the first time in Canada based on collections from Waterton Lakes National Park, Alberta. Difficulties in distinguishing this species from *Erythranthe patula* are discussed.

*Erythranthe ampliata* (A.L. Grant) Nesom (Phrymaceae) is a species of sect. *Mimulosma* of restricted range in northern Idaho and western Montana (Nesom 2019). First published as *Mimulus ampliatus*, it was noted by Grant (1924) from only Nez Perce Co, Idaho — Lake Waha (holotype) and near Lewiston. Grant cited a paratype from Whitman Co., Washington, but the cited specimen, *Elmer* 752, appears to be *E. patula* with a single corolla about 10.5 mm long and two corollas about 8 mm — Robert Meinke annotated this specimen as *Mimulus patulus* subsp. *patulus* in 1987. Nonetheless, *E. ampliata* is accepted as occurring in Washington based on another specimen, *Baker* 5999 (WTU), from Asotin County in 1949 (Washington Flora Checklist 2025). It is ranked as extirpated in the state by the Washington Natural Heritage Program (2024). *Baker* 5999 has corollas 9–11 mm long, and it is unclear to me if it is correctly identified.

Nesom (2012) reported *Erythranthe ampliata* from Idaho (Nez Perce and Idaho counties). After this publication, collections of this species increased and it became better understood. Nesom and Fraga (2019) reported *E. ampliata* from Clearwater, Lewis, and Nez Perce counties in Idaho and six western counties in Montana. Specimens viewed online from Missoula, Ravalli, Sanders, Glacier, Park, and Beaverhead counties all appear to be correctly identified as *E. ampliata*. The Glacier County collection, *Brant* 33 (WTU), is just 22 kilometers south of the Canadian border.

*Erythranthe ampliata* is often difficult to distinguish from two similar species — *E. floribunda* and *E. patula*. *Erythranthe floribunda* possesses shorter leaf stalks and a villous-glandular vestiture in contrast to the long petioles and stipitate-glandular vestiture of *E. ampliata*. *Erythranthe patula* is more similar to *E. ampliata* and is best distinguished by its smaller, narrower flowers. Nesom and Fraga (2019) described *E. patula* with flowers as regular or weakly bilabiate with a tube-throat 7–8 mm long compared to *E. ampliata*, with strongly bilabiate flowers with tube-throats 8–12 (–14) mm long. This distinction is not always evident on herbarium specimens. Often, the plants are small in size and the corollas few. Some *E. ampliata* flowers can be less than 9 mm long with tube-throats under 7 mm long, as in *Lomer* 13844 (UBC, Fig. 6), and other specimens, such as *Odegard* 260 (MONTU) with all corollas less than 9 mm, and *Kirkwood* 1762 (MONT), with some corollas 8 mm. At the extremes, the regular vs. bilabiate nature of the corollas of the two species is evident, but numerous plants identified as either *E. patula* or *E. ampliata* have corollas that are not clearly bilabiate and the flaring mouth is variable, as noted on many plant images posted on iNaturalist.

The most reliable way to identify *Erythranthe ampliata* is to observe live plants en masse. It becomes more evident that the largest flowers present on the most robust plants easily surpass 10 mm and can exceed 15 mm in some populations, e.g., *Sondenaa* 667 (ID) and *Lomer* 13869 (UBC, Fig. 7). The corolla is also strongly flared at the mouth, a feature that does not always show on pressed flowers. Plants in the field present themselves as a yellow mass of flowers when growing close together, as they often do (Figure 1). This is strikingly different from a dense population of *E. patula*, which appears as



Figure 1. *Erythranthe ampliata* from Waterton Lakes National Park. Catrina Duffy photo iNaturalist 83329481.



Figure 2. *Erythranthe patula* from Asotin Co., Washington. @Paul Slichter, courtesy of OregonFlora.

a mass of leafy plants with numerous small yellow flowers scattered throughout (Figure 2) — these are smaller plants with smaller flowers. It appears that *E. ampliata* encompasses some variability across its range and in Nez Perce Co., Idaho, has the largest plants with the largest flowers, fitting the description of the species as delineated by Grant, whereas to the east in Montana the plants are generally smaller with smaller flowers. In contrast, *E. patula* plants are smaller still with smaller flowers, perhaps less adapted to pollinators and outbreeding. Ben Legler (pers. comm.) has collected plants along the Clearwater River, Idaho (for example, *Legler 15670, 15682, 15704, 15861, 16016*, all at ID) with a range of corolla sizes (6 mm to 14 mm) spanning the boundary between *E. ampliata* and *E. patula*, and the degree to which the corolla lobes pointed forward or spread out is roughly correlated with corolla size.

In early 2024, *Erythranthe* photos were observed on iNaturalist from Waterton Lakes National Park in Alberta, that appeared to have large flowers and fit the description of *E. ampliata*. A collection permit was obtained and samples were gathered from Rowe Creek, Lineham Creek, and Red Rock Canyon. The largest corollas were 15 mm long and 10 mm wide at the expanded mouth, which was flared outward with three lobes directed downward and two upper lobes upward. These plants fit the description of *E. ampliata*. Plants were abundant in small patches in an ephemeral stream flowing into Rowe Creek. Plants also were common on a hillside seep flowing into Lineham Creek and very abundant in crumbling red argillite along a stream draining into Red Rock Canyon.

Although this is the first report of *Erythranthe ampliata* from Canada, the vouchers cited here are not likely the first collections of this species in Canada. Previous collections perhaps have been misidentified. Job Kuijt reported *Mimulus floribundus* as the only annual yellow monkeyflower in Waterton Lakes National Park (1982), but the drawing is not of *E. floribunda* because the petioles are longer than the leaf blades. The small flowers suggest *E. patula* rather than *E. ampliata*. The *E. floribunda* report was based in part on *Kuijt 4390* (LEA), gathered from Red Rock Canyon. These plants appear to have the flared corolla of *E. ampliata* but the small corolla cannot be measured in the image. I observed a population in Red Rock Canyon on July 3, 2024, with corollas 12 mm long and 8 mm wide at the bilabiate mouth (*Lomer 13867*, CAN). Another collection, *Armstrong 3908* (LEA), from west of the warden's cabin at Red Rock Canyon in 1970, comprises very small plants, all but two of which have only produced a single flower, one of which is larger than the entire rest of the plant, but apparently well under 10 mm long. The now disassembled cabin was at 49.1312 -114.0276 and the elevation places the collection at about 49.1358 -114.03144. In this area of red argillite drainage *E. ampliata* is abundant throughout the drainage streams and was collected at about the same site or within 200 m, on July 3, 2024, *Lomer 13869* (UBC). These plants have corollas frequently to 15 mm long. Thus, it appears that *E. ampliata* has been collected more than 50 years ago in Red Rock Canyon, but identifications of these specimens seem less than convincing, based on the flowers. I suspect they are in fact this species based on observations and collections of the single *Erythranthe* species seen in this area in a 5-hour search on July 3, 2024.

It remains uncertain whether *Erythranthe patula* occurs in Alberta. The Flora of the Pacific Northwest (Legler 2018) notes that *E. patula* has been reported in error from Montana and that reports from Alberta may be erroneous as well. I could find no *E. patula* plants in Waterton Lakes National Park during a 3-day search but *E. ampliata* was locally abundant. *E. patula* was collected in British Columbia within 4 km of the western border of Waterton Lakes National Park, *Lomer 3859* (UBC), and it would be expected to occur in Alberta.

The following specimens document the occurrence of *Erythranthe ampliata* in Alberta, Canada.

**Alberta.** Waterton Lakes Natl Park, Rowe Creek, 350 m WNW of Lower Rowe Lake trailhead, red argillite sedimentary outcrop, partially shaded seep, with *Suksdorfia violacea*, *Erigeron compositus*, *Primula pauciflora*, *Arabis nuttallii*, 1638 m, 29 Jun 2024, *Lomer 13840* (UBC); Waterton Lakes Natl Park, Lineham

Creek, 140 m below trail, 770 m due W of Lineham Falls Trailhead, sedimentary rock seepage in creek canyon, with *Suksdorfia violacea*, *Anaphalis margaritacea*, *Campanula rotundifolia*, *Heracleum maximum*, *Symphyotrichum foliaceum*, *Cryptogramma stelleri*, 1620 m, 29 Jun 2024, *Lomer 13843* (CAN); Waterton Lakes Natl Park, Lineham Creek, 130 m N of, 740 m due W of Lineham Falls Trailhead, intermittent streambed, disturbed dirt margin, with *Woodsia oregana*, *Aphyllon purpureum*, *Collinsia parviflora*, *Primula pauciflora*, 1650 m, 29 Jun 2024, *Lomer 13844* (UBC); Waterton Lakes Natl Park, Lineham Creek, 40 m above trail, 770 m due WNW of Lineham Falls Trailhead, intermittent streambed, now flowing, at bare dirt margin, with moss, *Erythronium grandiflorum*, *Suksdorfia ranunculifolia*, *Polygonum minimum*, *Collinsia parviflora*, 1678 m, 29 Jun 2024, *Lomer 13846* (CAN); Waterton Lakes Natl Park, Red Rock Canyon, W side, 50 m N of footbridge at upper parking lot, shaded streamside, in fractured argillite, in algae mat seepage, with *Myosotis micrantha*, 1498 m, 3 Jul 2024, *Lomer 13867* (CAN); Waterton Lakes Natl Park, Red Rock Canyon, 630 m NNW of upper parking lot, stream margin, crumbling red argillite channel, in bare moist soil with *Suksdorfia ranunculifolia*, *Montia linearis*, *Polygonum minimum*, 1620 m, 3 Jul 2024, *Lomer 13869* (UBC); Waterton Lakes Natl Park, Red Rock Canyon, 870 m NNW of upper parking lot, stream margin, in sandy red argillite, with *Suksdorfia ranunculifolia*, *Polygonum minimum*, *Erythranthe breweri*, 1680 m, 3 Jul 2024, *Lomer 13870* (UBC).

### ACKNOWLEDGEMENTS

Thanks to Linda Jennings and Amanda Leslie, who helped expedite the accession of the Lomer herbarium vouchers imaged, and to Robert Sissons, Parks Canada, Waterton Lakes National Park ecologist, who expedited the plant collection permit. Many thanks to the people who reviewed the manuscript: David Giblin, Ben Legler, Peter Lesica, and Guy Nesom.

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Figure 3. *Mimulus ampliatus*. Heller 3330 (MO), holotype of from Lake Waha, Idaho.



Figure 4. *Erythranthe ampliata*. Lineham Creek, Alberta. Catrina Duffy photo, iNaturalist 83329481.



Figure 5. *Erythranthe ampliata*. Rowe Creek, Alberta. Lomer 13840 (UBC).



Figure 6. *Erythranthe ampliata*. Lineham Creek, Alberta. Lomer 13844 (UBC).



Figure 7. *Erythranthe ampliata*. Red Rock Canyon, Alberta. Lomer 13869 (UBC).



Figure 8. *Erythranthe ampliata*. Red Rock Canyon, Alberta. Lomer 13870 (UBC).