

# NEW COMBINATION IN *XYLORHIZA* (ASTERACEAE: ASTEREAE)

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## ABSTRACT

*Xylorhiza glabriuscula* var. *linearifolia* is treated within *Xylorhiza* at specific rank as ***Xylorhiza linearifolia*** (T.J. Wats.) Nesom, comb. nov. *Xylorhiza linearifolia* is geographically isolated from *X. glabriuscula* sensu stricto, but it does overlap and apparently hybridize with *X. tortifolia* var. *imberbis*.

## ABSTRACT

*Xylorhiza glabriuscula* var. *linearifolia* se trata dentro *Xylorhiza* a nivel específico como ***Xylorhiza linearifolia*** (T.J. Wats.) Nesom, comb. nov. *Xylorhiza linearifolia* está aislada geográficamente de *X. glabriuscula* sensu stricto, pero se solapa y aparentemente se hibrida con *X. tortifolia* var. *imberbis*.

Watson (1977) described *Xylorhiza glabriuscula* Nutt. var. *linearifolia* T.J. Wats. from the region of Moab in east-central Utah. Cronquist (1994) observed that it "appears to form a distinctive local taxon with a range more than 60 km long" and treated it at specific rank, but he placed it within a broadly defined *Machaeranthera*. Welsh et al. (1993) followed Watson's treatment. For the treatment of Asteraceae in the developing Flora of North America, this taxon is recognized at specific rank and the following combination is required to place it within *Xylorhiza*.

***Xylorhiza linearifolia*** (T.J. Wats.) Nesom, comb. nov. BASIONYM: *Xylorhiza glabriuscula* Nutt. var. *linearifolia* T.J. Wats., Brittonia 29:215. 1977. *Machaeranthera linearifolia* (T.J. Wats.) Cronq., Intermountain Fl. 5:274. 1994. TYPE: UNITED STATES. UTAH. Grand Co.: 6 mi NW of Moab on US Hwy 160, 21 May 1971, T.J. Watson 679 (HOLOTYPE: TEX!; ISOTYPES: COLO, GH, MO!, MONTU, NY, UC).

*Xylorhiza glabriuscula*, *X. linearifolia*, and *X. venusta* (M.E. Jones) Heller are closely morphologically similar among themselves and presumably are closely interrelated. All three have diploid populations; *X. venusta* and *X. linearifolia* also have tetraploid populations (Watson 1978). Within *X. linearifolia*, the two cytotypes "grow intermixed over the small range of the taxon" (Watson 1978); four populations of diploids and four of tetraploids were found, all within Grand County, Utah. According to Stockton (1983), the diploids and tetraploids of *X. linearifolia* differ in minor ways, but the present study (following Watson) finds no variation that would require further nomenclatural differentiation.

Watson (1977, p. 215) observed that *Xylorhiza linearifolia* (as var. *linearifolia*) "overlaps morphologically" with *X. glabriuscula* (var. *glabriuscula*) but the

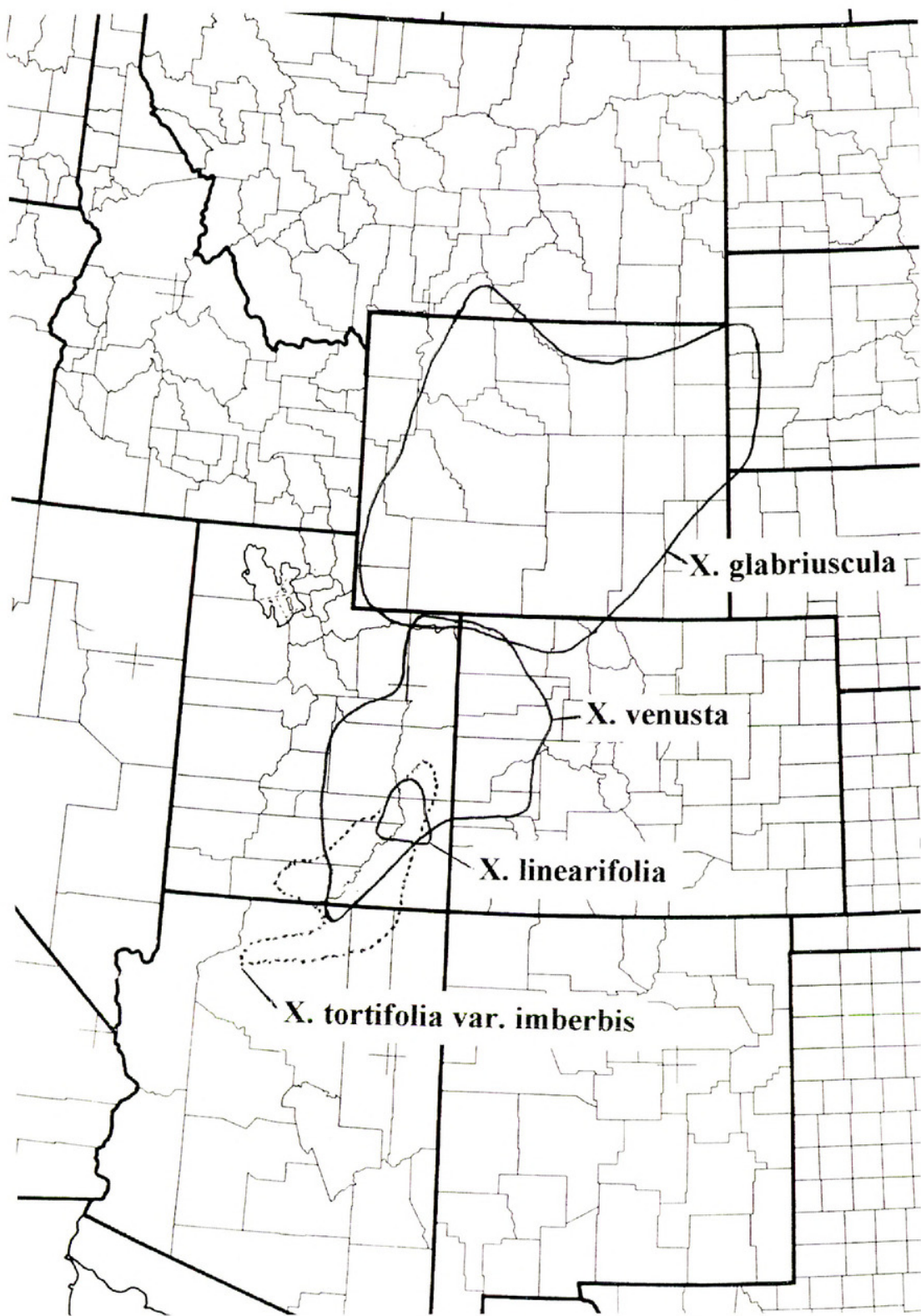


FIG. 1. Geographic distribution of *Xylorhiza linearifolia*, *X. glabriuscula*, *X. venusta*, and *X. tortifolia* var. *imberbis*. Outlines of the species ranges were derived from data from collections at BRIT-SMU, TEX-LL, MO, and published sources, primarily Watson (1977) and Albee et al. (1988). The Arizona record for *X. venusta* was not reported by Watson (1977): Coconino Co., Lee's Ferry, 6 Jun 1927, Cottam C2611 (LL!).



present study notes that *X. linearifolia* similarly overlaps with *X. venusta*. *Xylorhiza linearifolia* differs from both taxa in its leaf morphology, as outlined by the following key.

1. Leaves linear-oblong, truncate or rounded-auriculate at the base \_\_\_\_\_ ***Xylorhiza linearifolia***
1. Leaves oblanceolate to oblong-spatulate, tapering at the base.
  2. Stems leafy for more than 2/3 of their length, peduncles 2–6 cm long; leaves 2.5–8 mm wide; involucre 7–14 mm long, 12–25 mm wide \_\_\_\_\_ ***Xylorhiza glabriuscula***
  2. Stems leafy in the lower 1/2–2/3 of their length, peduncles 6–20 cm; leaves 2.5–15 mm wide; involucre 12–20 mm long, 20–35 mm wide \_\_\_\_\_ ***Xylorhiza venusta***

*Xylorhiza glabriuscula* and *X. venusta* have slightly overlapping ranges in northeastern Utah and northwestern Colorado (Fig. 1) and intermediates, presumably of hybrid origin, occur in that region (Watson 1977). The range of *X. linearifolia* is essentially imbedded within that of *X. venusta*, but no evidence of hybridization between these two taxa has been reported. *Xylorhiza linearifolia* apparently is reproductively isolated from both of its close relatives.

In contrast to the isolation of *Xylorhiza linearifolia* from *X. glabriuscula* and *X. venusta*, the range of *X. tortifolia* var. *imberbis* (Cronq.) T.J. Wats. contacts that of *X. linearifolia* from the south and these two taxa grow intermixed within a few localities. "In these zones of contact, intermediates (suggesting hybridization) are found" (Watson 1977, p. 215).

Stockton (1983) noted that *Xylorhiza linearifolia* is intermediate in morphology and habitat between *X. glabriuscula* sensu stricto and *X. tortifolia* var. *imberbis* and suggested that *X. linearifolia* may be "a stabilized hybrid derivative" between them, presumably from an earlier time when the putatively parental species were sympatric. Further evidence that would test this hypothesis is lacking.

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