

***PYRROCOMA VILLOSA* (ASTERACEAE: ASTEREAE),  
BIG HORN MOUNTAINS ENDEMIC**

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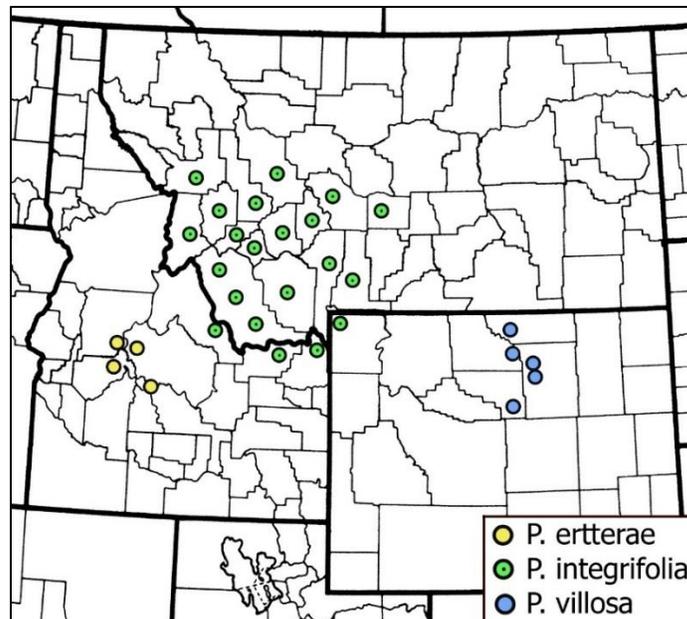
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**ABSTRACT**

Plants from the Big Horn Mountains of north-central Wyoming usually identified as *Pyrrocoma clementis* var. *villosa* are recognized here as *P. villosa* Rydb. With its lack of fibrous petiole remnants, entire to subentire leaf margins, long, loose, broadly herbaceous phyllaries, and glabrous achenes the species is hypothesized to be a close relative of *P. integrifolia*.

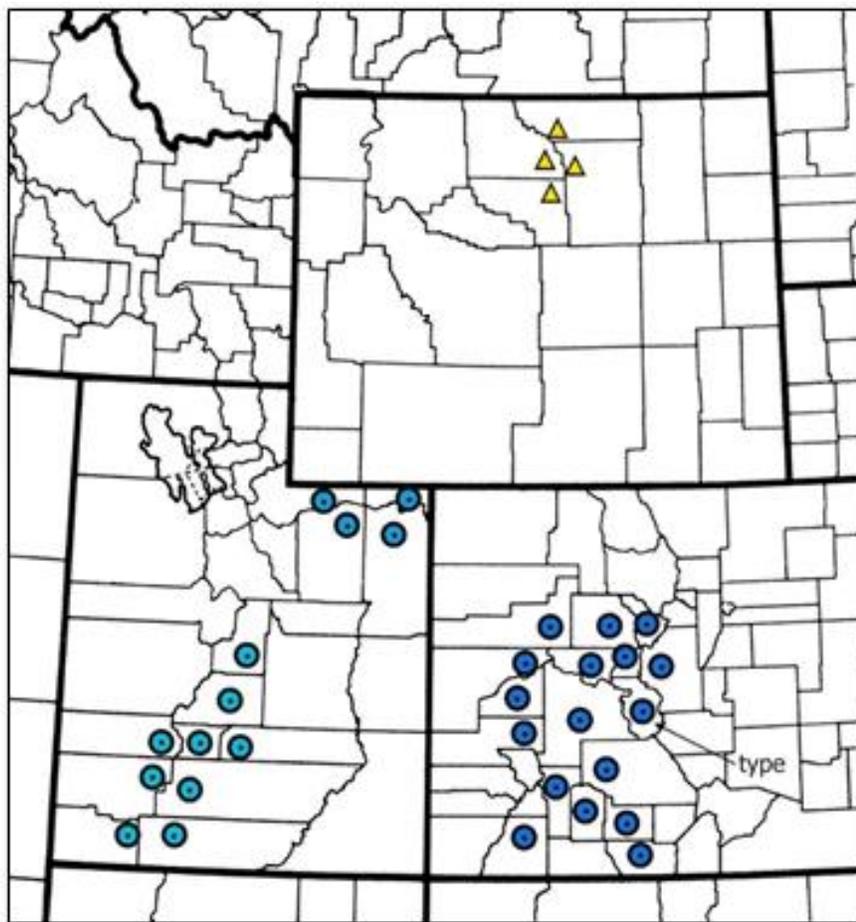
Hall (1928) cited the type of *Pyrrocoma villosa* Rydb. as well as *Tweedy 3042* and *Goodding 307* (both also from the Big Horn Mountains) as variants within [*Pyrrocoma*] *clementis*, but he noted (p. 108) that "field studies of this form may lead to its acceptance as a full species, in which case its provisional reduction to subspecific rank would only cause confusion." Mayes (1976) suggested it be recognized at varietal rank within *P. clementis*, based on difference in phyllary shape, and achene morphology, and disjunct geography, this ranking formalized by Brown and Keil (1992) and accepted by Bogler (2006) and Wyoming botanists (e.g., Dorn 2001; Ladyman 2006; Heidel 2011, 2013).

With the perspective of recent study, however, the closest relationship of *Pyrrocoma villosa* is with *P. integrifolia* (Porter ex A. Gray) Greene (see Nesom 2025b for a full description, distribution map, and illustrations). The distinctive vestiture, smaller heads (involucres 14–18 mm wide/vs 18–30, inner phyllaries 9–10 mm long/vs. 12–15 mm), and geography of *P. villosa* are the main features separating it from *P. integrifolia*. *Pyrrocoma integrifolia*, with *P. ertterae* Nesom and *P. villosa* (Map 1), constitute a distinct group in the genus in their combination of (a) absence of fibrous petiole remnants, (b) entire to subentire leaf margins, (c) long, ascending to loosely appressed and broadly herbaceous phyllaries, and (d) long, glabrous achenes.



Map 1. Distribution of *Pyrrocoma integrifolia*, *P. ertterae*, and *P. villosa*.

*Pyrocoma clementis* has a broad geographical range, divided into three disjunct segments (Map 2; Nesom 2025a). The Big Horn plants might be regarded as another disjunct segment but the similarity is superficial and morphology indicates a close relationship to *P. integrifolia*.



Map 2. Distribution of *Pyrocoma clementis* (blue circles) and *P. villosa* (triangles).

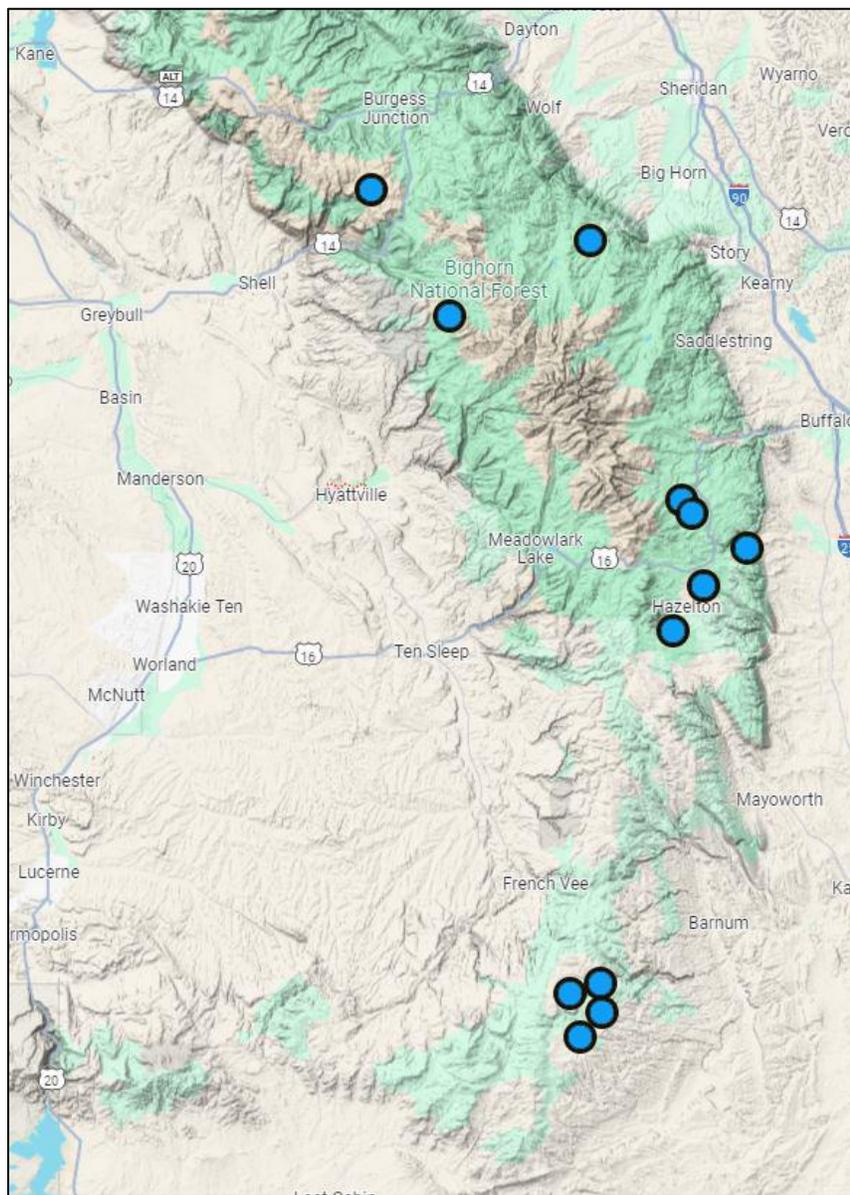
**1. PYRROCOMA VILLOSA** Rydb., Bull. Torrey Bot. Club 27: 625. 1900. *Pyrocoma clementis* var. *villosa* (Rydb.) Mayes ex Brown & Keil, Phytologia 73: 57. 1992. **TYPE: Wyoming.** Sheridan Co.: Big Horn Mountains, Willow Creek, meadows, ca. 8860 ft, Aug 1899, *F. Tweedy* 2063 (holotype: NY).

Tweedy apparently was working out of the town of Dayton (Sheridan County) in August 1899, as his collections 2042, 2044, 2045, 2072, 2076, 2079, and 2080 were made in "Dayton." There is a Willow Creek about 20 miles south of Dayton that flows into Grange Reservoir (east of Park Reservoir), but his 2061 was made at 9300 ft, 2062 on "alpine slopes, 10,200 ft," and 2063 at 9200 ft (fide the *P. villosa* type label), elevations well above those in the Willow Creek area. The protologue, however, says that the plants were "in meadows at an altitude of about 2700 m" (8860 ft, but that still is above the Willow Creek elevations). The *P. villosa* type locality is not unambiguously established — symbols on Maps 1 and 2 are in Sheridan County but not precisely placed.

**Stems** 3–15(–30) cm long, decumbent-ascending to ascending-erect, sparsely but persistently tomentose to villous-tomentose, eglandular. **Leaves:** basal oblanceolate to oblong-elliptic, 7–12 cm long, gradually attenuate to a poorly defined petiolar region, fibrous remnants of petiole bases not persistent, blades 10–20 mm wide, margins entire or sometimes shallowly serrate proximally, minutely ciliate, surfaces sparsely tomentose, glabrescent, eglandular, cauline mostly 4–5, distalmost bracteate,

proximal and medial abruptly rounded at the base and subclasping. **Heads** 1 or less commonly 2–4 from distal branches. **Involucres** 14–18 mm wide (pressed); phyllaries in 3–4 series of subequal length, loosely appressed to spreading, inner 9–10 mm long, lanceolate to narrowly oblong-lanceolate, green area in the distal 1/2–2/3 or the outer phyllaries completely green, sparsely tomentose, eglandular, margins fimbriate-ciliate. **Ray florets** 18–26, fertile, corollas 12–16 mm long, 2–3 mm wide, coiling. **Disc corollas** 6–8 mm long. **Achenes** 4–6 mm long, glabrous.

Flowering (June) July–August (September). Grassland, sagebrush, flats and slopes, creek edges, limestone outcrops; 7300–9400 feet. Map 3.



Map 3. Distribution of *Pyrocoma villosa*. Big Horn Mountains, Wyoming.

**Additional collections. Wyoming. Big Horn Co.:** Cedar Creek, 44.6599° N, 107.5317° W, grassland, 10% southwest slope, 9000 ft, 4 Aug 1955, *Gierisch 1780* (CS, RM-2 sheets); ca. 30 air mi E of Greybull, Crooked Creek Hill, 44.5086304° N, 107.4560325° W, gravelly grassland, with *Festuca idahoensis*, *Elymus spicatus*, *Geum triflorum*, *Eremogone congesta*, 9400 ft, 29 Aug 2010, *Heidel 3514*

(RM). Johnson Co.: N side of Pole Creek, from US Hwy 16 and W for 1 mi, 44.2015135° N, 106.9519579° W, dry fescue meadow on gentle, S-facing toe slopes of silt loam, above broad bottomland and below forest, 8160-8240 ft, with *Festuca idahoensis*, *Antennaria microphylla*, *Eremogone congesta*, *Astragalus alpinus*, *Cerastium arvense*, *Erigeron ochroleucus*, 5 Jul 2017, *Heidel 4373* (RM); ca. 17 air mi SW of Buffalo, Dry Fork Creek, 2 mi SE of US Hwy 16, 44.1292111° N, 106.8984443° W, gravelly creek crossing, saturated at edge of flowing water, 7720 ft, with *Deschampsia cespitosa*, *Hordeum brachyantherum*, *Allium geyeri*, *Juncus balticus*, 6 Jul 2017, *Heidel 4377* (RM); ca. 2 mi S of Hazelton, E side of Doyle Creek, ca. 2 mi SE of Hazelton Peak, 44.0716937° N, 107.0007405° W, dry to moist fescue meadow, on silt loam, lower gentle slopes in broad valley, W aspect, 8200-8240 ft, with *Festuca idahoensis*, *Antennaria microphylla*, *Eremogone congesta*, *Astragalus alpinus*, *Cerastium arvense*, *Potentilla gracilis*, *Lupinus argenteus*, 7 Jul 2017, *Heidel 4380* (RM); headwaters of Clear Creek and Crazy Woman River, 44.2172° N, 106.952° W, 7000-9000 ft, 20 Jul-15 Aug 1900, *Tweedy 3042* (RM). Washakie Co.: Head of Middle Fork Powder River, mountain sides, 19 Jul 1901, *Goodding 307* (NEB, NY, US); ca. 17 air mi SSW of Big Trails, 43.54889° N, 107.13917° W, limestone outcrops on western exposure, 8000 ft, 1 Aug 1979, *Hartman 10549* (RM); ca. 53 air mi ESE of Thermopolis, 43.5205° N, 107.1821° W, sagebrush with isolated lodgepole pine. 8250 ft, 2 Jul 2001, *Lum 467* (RM); N of the Middle Fork Powder River, ca. 35 air mi SSE of Ten Sleep, 43.5638° N, 107.1821° W, sagebrush with grasses, 8100-8160 ft, 13 Jul 2001, *Lum 735* (BRY-left plant, RM, UNM); along Middle Fork Powder River, ca 17 air mi SE of Big Trails, ca. 28 air mi SE of Ten Sleep, 43.58028° N, 107.1425° W, grassy sagebrush slope with scattered limber pine, 7300 ft. 15 Jul 1981, *Nelson 8159* (RM, NY, WS).

#### LITERATURE CITED

- Bogler, D.J. 2006. *Pyrrocoma*. Pp. 413–424, in *Flora of North America North of Mexico*, Vol. 20. Oxford Univ. Press, New York.
- Brown, G.K. and D.J. Keil. 1992. New combinations in *Pyrrocoma* (Asteraceae: Asteraceae). *Phytologia* 73: 57–58.
- Dorn, R.D. 2001. *Vascular Plants of Wyoming*, 3rd Edition. Mountain West Publishing, Cheyenne, Wyoming.
- Hall, H.M. 1928. The Genus *Haplopappus*. A Phylogenetic Study in the Compositae. Publ. Carnegie Inst. Washington 389: 1–391.
- Heidel, B. 2011. Status of *Pyrrocoma clementis* var. *villosa* (hairy tranquil goldenweed), Bighorn Mountains, north-central Wyoming. Unpublished report prepared for the Bighorn National Forest, USDA Forest Service. Wyoming Natural Diversity Database, Laramie.
- Heidel, B. 2013. Sensitive plant survey in the Dickinson Park area, Shoshone National Forest. Prepared for Shoshone National Forest. Wyoming Natural Diversity Database. Laramie
- Ladyman, J.A.R. 2006. *Pyrrocoma clementis* var. *villosa* (Rydb.) Mayes ex G.K. Brown & D.J. Keil (tranquil goldenweed): A Technical Conservation Assessment. Prepared for the USDA Forest Service, Rocky Mountain Region, Species Conservation Project.
- Mayes, R.A. 1976. A cytotaxonomic and chemosystematic study of the genus *Pyrrocoma* (Asteraceae: Astereae). Ph.D. dissertation, Univ. of Texas, Austin.
- Nesom, G.L. 2025a. *Pyrrocoma* (Asteraceae: Astereae) in Colorado and New Mexico. *Phytoneuron* 2024-11: 1–59.
- Nesom, G.L. 2025b. Three new species of *Pyrrocoma* (Asteraceae: Astereae) from Idaho. *Phytoneuron* 2025-19: 1–47.



Figure 1. *Pyrrocoma villosa*. Sheridan Co., Big Horn Mts., Willow Creek, Tweedy 2063 (NY), holotype.



Figure 2. *Pyrrocomma villosa*. Head from the holotype.



Figure 3. *Pyrocoma villosa*. Head from the holotype.



Figure 4. *Pyrocoma villosa*. Big Horn Co., Gierisch 1780 (USFS).



Figure 5. *Pyrocoma villosa*. Big Horn Co., Goodding 307 (NY).



Figure 6. *Pyrrcoma villosa*. Big Horn Co., Heidelberg 3514 (RM).



Figure 7. *Pyrocoma uniflora*. Big Horn Co., Spring Creek, ca. 4200 ft, *Goodding 355* (NY). This species occurs in the same region as *P. villosa* but at lower elevations — although superficially similar, it is distinct in its serrate leaf margins, narrower and strictly erect phyllaries, hairy achenes, and persistent fibrous remnants of the petiole bases.