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PYRROCOMA PLANTAGINEA GREENE (ASTERACEAE: ASTEREAE), FROM YELLOWSTONE NATIONAL PARK

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ABSTRACT

All or most plants of *Pyrrocoma* around hot springs and geysers in Yellowstone National Park (Teton Co., Wyoming) are justifiably identified as *P. plantaginea* Greene (synonyms = *P. hololeuca* Greene and *P. crepidinea* Green). They are variable in vestiture but otherwise consistent in morphology. The type of *P. crepidinea* was collected in Teton County but south of the park.

Small-statured plants of *Pyrrocoma* around hot springs and geysers in Yellowstone National Park have been been identified as *P. lanceolata* and *P. uniflora*, but they are neither of those. E.L. Greene named three species from the park and close vicinity — the type of one is essentially glabrous (*P. plantaginea*, here taken as the name for the species, the most common vestiture in the population system), the other two villous-tomentose with a gray vestiture. Stems may be branched (whence IDs as *P. lanceolata*) or unbranched (IDs as *P. uniflora*).

PYRROCOMA PLANTAGINEA Greene, Leafl. Bot. Observ. Crit. 2: 13. 1909. **TYPE**: **Wyoming**. Yellowstone National Park, Lone Star Geyser Basin, 7000 ft, 7 Aug 1897, *P.A. Rydberg* & *E.A. Bessey 5051* (holotype: US, fragment-UC; isotypes: F, NDG, NEB, NY). Figures 1-3.

Pyrrocoma hololeuca Greene Leafl. Bot. Observ. Crit. 2: 10. 1909. **TYPE**: **Wyoming.** Teton Co.: Yellowstone National Park, 10 Aug 1902, *E.A. Mearns 3188* (holotype: US; isotype: UC). Figure 4.

The label specifies only Yellowstone National Park, but other Yellowstone collections (mostly at US) by Mearns on 10 August 1902 were made at these localities: (a) Wylie Camp, Gibbon River; (b) Soda Spring, Gibbon River; (c) near Fountain Geyser; (d) Norris Geyser Basin; (e) Swan Lake. These all are northwest of Yellowstone Lake, mostly along present-day Hwys 89 and 191. Swan Lake and Norris Geyser Basin are in Park County; Fountain Geyser and the localities along the Gibbon River are in Teton County. *Mearns 3191a* was from near Fountain Geyser.

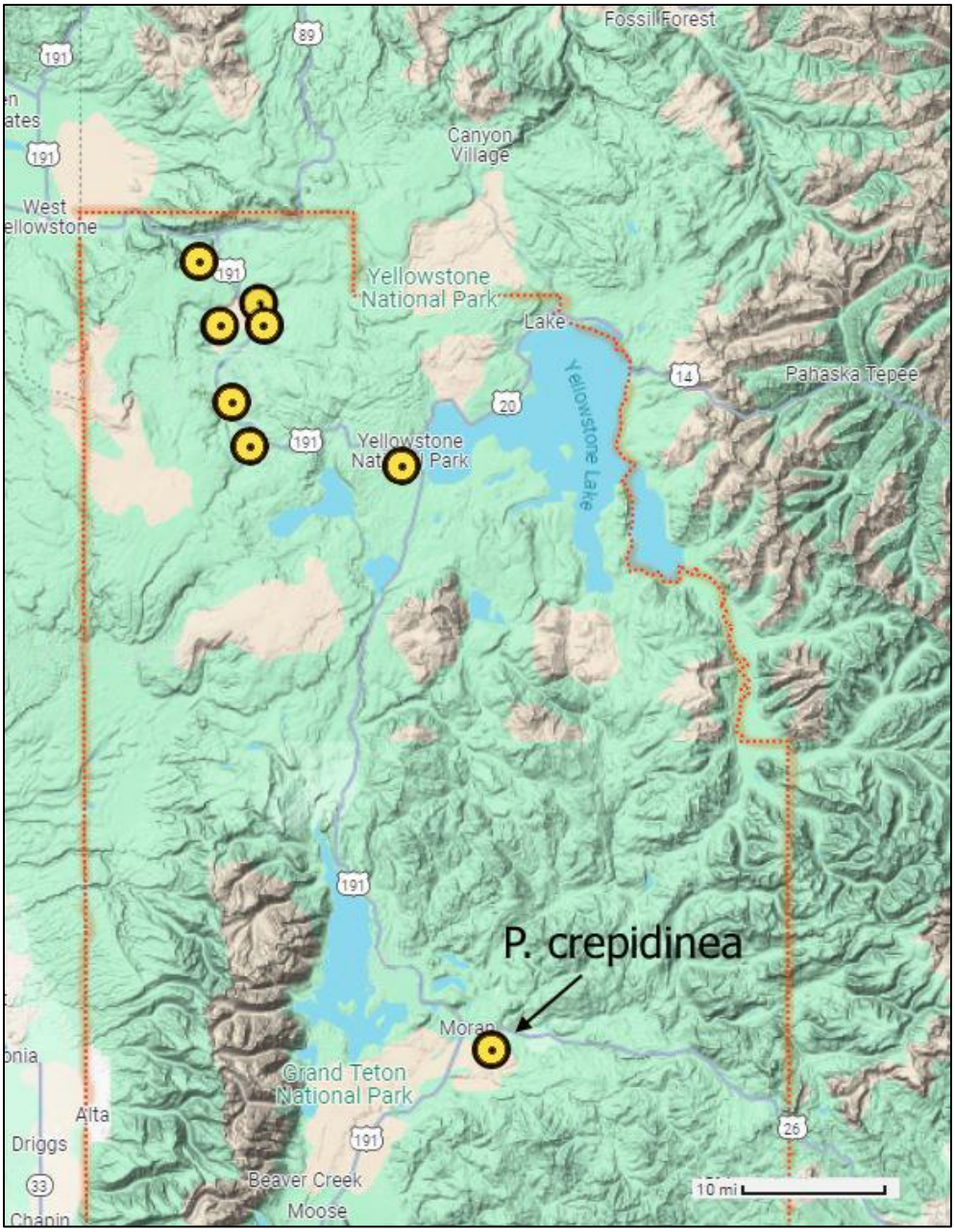
Pyrrocoma crepidinea Greene Leafl. Bot. Observ. Crit. 2: 12. 1909. **TYPE**: **Wyoming**. [Teton Co.:] Buffalo River, near an alkali spring, 5 Aug 1901, *E.D. Merrill* and *E.N. Wilcox 1137* (holotype: US, fragment-UC; isotypes: NY, RM). Figures 5, 6.

On August 5, Merrill and Wilcox were collecting along the Buffalo River at the "Government Bridge" — presumably this is the bridge 3.5 mi east of Moran, where the present Hwy 287/26 crosses the Buffalo Fork (ca. 6850 ft elevation). On RM sheet, someone has penciled the locality of "T45N R113 W Sec 31", which is near the confluence of Lava Creek with Buffalo Fork, between Moran and the bridge. On August 4, Merrill and Wilcox made collections around Jackson Lake and on August 6 in the "mountains north of Government Bridge."

Stems erect to ascending-erect, 4–25 cm, glabrous to very sparsely puberulent with fine, crinkled hairs, eglandular. **Leaves**: basal oblanceolate to lanceolate, 4–11 cm long, often with a petiolar region in the proximaly 1/3, blades 4–10 mm wide, thickened, glabrous or glabrate to sparsely or moderately puberulent, eglandular, margins usually with a narrow, callous rim, entire or sometimes with 1–3 pairs of shallow upturned or patent teeth to spinulose denticles, fibrous remnants of petioles persistent, cauline 3–6, oblong to lanceolate, reduced in size from the basal, larger often subclasping to

clasping. **Heads** 1 or commonly 2–4 on leafless, ebracteate peduncles mostly 3–6 cm long, without immediately subtending bracts. **Involucres** 10–12(–15) mm wide (pressed); phyllaries narrowly oblong, to narrowly oblanceolate, in 2–3 series of subequal (to unequal) length, inner 4–6 mm long. **Ray florets** 15–25, fertile, corollas ca. 6–7 mm long, 1–1.5 mm wide. **Disc corollas** 4–5 mm long. **Achenes** 4–4.5 mm long, sericeous-strigose.

Flowering June–August (–September). Alkaline meadows, along warm creeks, on geyserite around hot springs, pools, and geysers; 6000-7420 feet.



Map 1. Distribution of *Pyrrocoma plantaginea*. The Teton County boundary is outlined in red. The type locality of *P. crepidinea* is near Moran, south of Yellowstone National Park.

Additional collections. **Wyoming**. Teton Co. [Yellowstone Natl Park]: Old Fairthful Geyser Basin, Geyser Hill, geyserite, 26 Jun 1935, *Baggley s.n.* (LL); Midway Geyser Basin, wet bare geyserite, ca. 7300

ft, 6 Sep 1927, *Blake 10440* (LL, US); Upper Geyser Basin, alkaline meadow and on geyserite, ca. 7300 ft, 6-7 Sep 1927, *Blake 10450* (US); Upper Geyser Basin, 24 Jul 1919, *Bright s.n.* (TEX); "Thumb," 2 Jul 1930, *Churchill 798* (MO); Lower Geyser Basin, 18 Jun 1924, *Conard 1058* (RM); Black Sand Basin, Old Faithful, near pools, 23 Jun 1948, *Davis 4777* (IDS); ca 5 mi S of Madison Junction, along N side of Sentinel Meadows, seasonally wet meadow on sinter, 7200 ft, with *Juncus balticus*, *Deschampsia cespitosa*, and *Triglochin maritimum*, 6 Jul 2002, *Evert 39319* (RM); ca. 8 mi SSE of Madison Junction, thermal area 1/4 mi S of Nez Perce Creek and 1 mi E of the Old Faithful-Madison Road, 44.5711° N, 110.7952° W, wet sinter, 7420 ft, with *Triglochin maritima*, *Crepis runcinata*, and *Eleocharis palustris*, 14 Jul 2002, *Evert 39455* (RM); Fairy Springs, ca. 6 mi S of Madison Junction, 44.543° N, 110.8616° W, seasonally wet sinter around hot springs, 7280 ft, with *Triglochin maritimum*, *Eleocharis palustris*, and *Spartina gracilis*, 26 Jul 2002, *Evert 39600* (RM); ca 4 mi SSE of Old Faithful, 1/4 mi W of Lone Star Geyser, just W of Howard Eaton Trail, dry-moist sinter in thermal area with *Rumex acetosella*, *Ivesia gordonii*, and *Panicum acuminatum*, 7630 ft, 2 Aug 2003, *Evert 40601* (RM); Upper Geyser Basin, 1872, *Hayden Expedition s.n.* (US); YS Park, 3 Aug 1885, *Letterman 29* (MO); National Park, 4 Aug 1885m, *Letterman s.n.* (MO); 1 mi E of Old Faithful hwy [ca. 1.2 mi E of Old Faithful Geyser], Nez Perce Creek, 44.459653° N, 110.81214° W, riparian (streamside) along thermally warmed stream, meadow, 7180 ft, with *Deschampsia cespitosa*, *Juncus* sp., 7 Jul 1979, *Mattson 128* (ID); Middle Yellowstone, 19 Sep 1945, *Milner 9093* (UT); Excelsior Geyser, on geyserite, 15 Sep 1888, *Moyer s.n.* (MINN); Norris [Geyser Basin], 25 Jul 1899, *Nelson 6146a* (MO); West Thumb, hot mud-pot formations, 7 Aug 1924, *Nelson 10137* (MO, RM); West Thumb, dry soil near hot springs, 25 Aug 1922, *Payson 3090* (MO, RM); Lower Geyser Basin, arid flat, 30 Jul 1951, *Sargent s.n.* (BRY, NCSC); Lower Geyser Basin, 6000 ft, common, 13 Aug 1937 *Thompson 14161* (LL, WTU); Yellowstone Lake, hot spring formation, Aug 1884, *Tweedy s.n.* (US).

E.A. Mearns made a number of collections of *Pyrrocoma plantaginea* from YNP in 1902, all at US unless otherwise noted, none at US with locality data other than "Yellowstone National Park."

10 Aug 1902
3186, 3190, 3191 (+MIN), 3191a (+MIN) —— 3191a (MIN) has "near Fountain Geyser"

16 Sep 1902
4098, 4104 (NY), 4150 —— 4104 (NY) has "Upper Geyser Basin, near the Beehive"

17 Sep 1902
4187 (+NY), 4210 —— 4187 (NY) has "Spring Creek Canyon"

Most of the Yellowstone collections (probably including the type of *Pyrrocoma hololeuca*) are from within or close by the Lower Geyser Basin. *Davis 4777* is from the Upper Basin, about 5 miles south of the Lower Basin. The type of *P. crepidinea* is from about 35 miles farther south (Map 1), and saline sites are less common in the area between it and Yellowstone.

Pyrrocoma plantaginea is consistent in morphology and habit and endemic to thermal areas (with the exception of the type of *P. crepidinea*). The restricted geography and specialized habitat are further rationale for its recognition at specific rank. Heads vary from 1 to several (often on the same plant), and the collections have been identified as *P. uniflora* and *P. lanceolata*, and *P. tenuicaulis*. Hall (1928), followed by Mayes (1976), placed all three names as synonyms of *P. uniflora*.

These plants are similar to *Pyrrocoma lanceolata* in aspect (serrate leaves, branching stems) but different in their lower stature, smaller heads with short rays, and narrower phyllaries with a more elongate green area. Plants with solitary heads are similar in aspect to *P. uniflora* but different in involucral morphology.

Some plants of *Pyrrocoma plantaginea*, like the type, are glabrous or glabrate to sparsely puberulent (see puberulent involucres of the type, Fig. 4), while the types of *P. hololeuca* and *P. crepidenia* are conspicuously villous-tomentose (hence the epithets) — *Mearns 3190*, *3191*, and *3191a* also are pubescent and presumably (from the numbering and date) were collected in close proximity. Intermediates in vestiture are common.

The densely villous-tomentose plants are interpreted here as populational variants — introgression is unlikely by the apparent absence of species that might influence vestiture. Plants of typical *P. lanceolata* and *P. uniflora* occur within the park and elsewhere in Park and Teton counties, but neither has been observed on a geyserite habitat. These two also are sympatric in western Wyoming and eastern Idaho and putative hybrids have not been encountered.

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LITERATURE CITED

Hall, H.M. 1928. The Genus *Haplopappus*. A Phylogenetic Study in the Compositae. Publ. Carnegie Inst. Washington 389: 1–391.

Mayes, R.A. 1976. A cytotaxonomic and chemosystematic study of the genus *Pyrrocoma* (Asteraceae: Astereae). Ph.D. dissertation, Univ. of Texas, Austin.

Figure 1. *Pyrrocoma plantaginea*. *Rydberg & Bessey 5051*, holotype (US).

Figure 2. *Pyrrocoma plantaginea*. *Rydberg & Bessey 5051*, isotype (F).

Figure 3. *Pyrrocoma plantaginea*. *Rydberg & Bessey 5051*, isotype (NY).

Figure 4. *Pyrrocoma plantaginea*. Heads from the type collection, F and NY (*Rydberg & Bessey 5051*).

Figure 5. *Pyrrocoma plantaginea*. *Mearns 3188*, holotype of *Pyrrocoma hololeuca* (US).

Figure 6. *Pyrrocoma plantaginea*. *Merrill & Wilcox 1137*, holotype of *Pyrrocoma crepidinea* (US).

Figure 7. *Pyrrocoma plantaginea*. *Merrill & Wilcox 1137*, isotype of *Pyrrocoma crepidinea* (NY).

Figure 8. *Pyrrocoma plantaginea*. *Davis 4777* (IDS).

Figure 9. *Pyrrocoma plantaginea*. *Mearns 3191a* (MINN).

Figure 10. *Pyrrocoma plantaginea*. *Evert 39600* (RM).

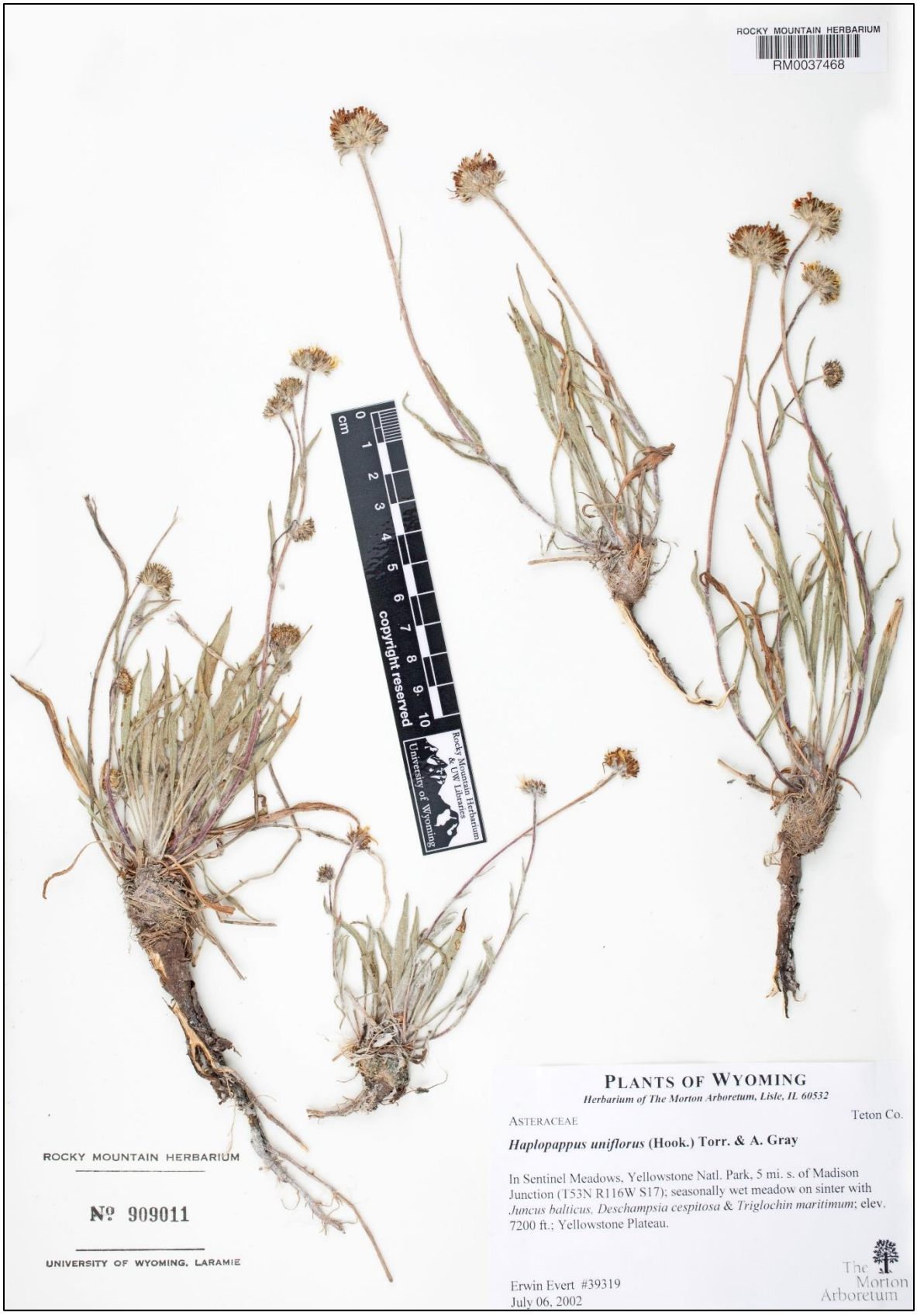

Figure 11. *Pyrrocoma plantaginea*. *Evert 39319* (RM).

Figure 12. *Pyrrocoma plantaginea*. *Evert 39455* (RM).