Nesom, G.L. 2025. Three new species of *Pyrrocoma* (Asteraceae: Astereae) from Idaho. Phytoneuron 2025-19: 1–46.
Published 30 April 2025. ISSN 2153 733X

THREE NEW SPECIES *PYRROCOMA* (ASTERACEAE: ASTEREAE) FROM IDAHO

GUY L. NESOM
Research Associate
Academy of Natural Sciences of Drexel University
Philadelphia, Pennsylvania
guynesom@sbcglobal.net

ABSTRACT

Pyrrocoma ertterae Nesom, **sp. nov.**, is known from Valley, Custer, Blaine, and Boise counties in central Idaho. It is compared to *P. integrifolia*, which is hypothesized to be closely related. **Pyrrocoma salsa** Nesom, **sp. nov.**, is known from a single population in Caribou County — it has similarities to *P. lanceolata*. **Pyrrocoma elliptica** Nesom, **sp. nov.**, is described from populations in Caribou Co. (around Soda Springs and the eastern side of Blackfoot Reservoir) and Bonneville Co. (north end of Grays Lake) – – a multi-headed inflorescence is similar to *P. lanceolata* but its relationships are speculative. A description, map, and illustrations are provided for each of the four species.

Studies in the taxonomy of *Pyrrocoma* have brought to light previously undescribed species from Idaho. Three of them are described here — others will be reported in soon-forthcoming publications.

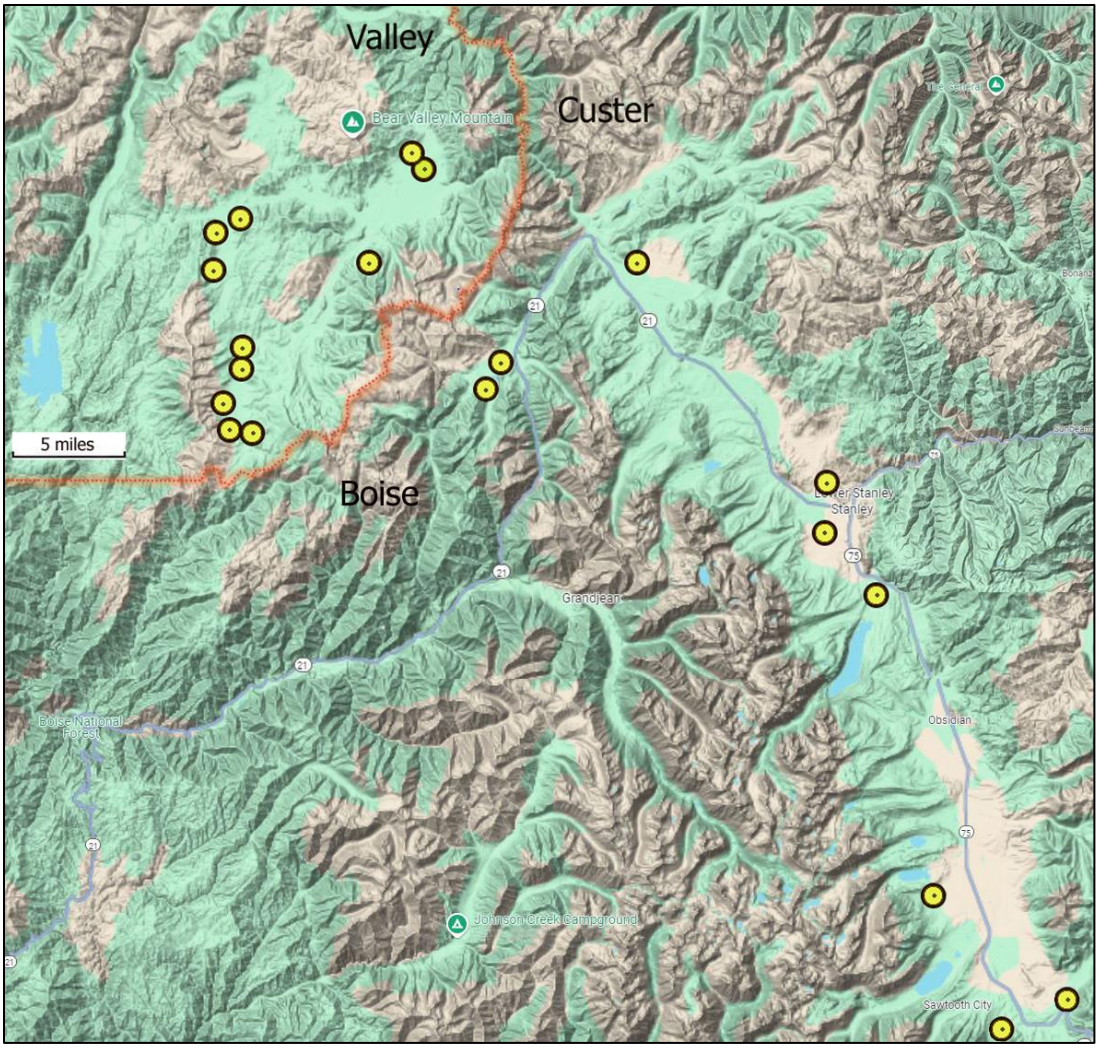
A population system in central Idaho has features in common with *Pyrrocoma integrifolia* but clearly is distinct and is described here.

PYRROCOMA ERTTERAE Nesom, **sp. nov. TYPE: Idaho.** Valley Co.: Ca. 23 air mi N of Lowman, Boise Natl Forest Rd 563 (Bearskin Creek Rd) 0.3 mi S of Rd 579, T12N R8E Sec 3 NW, ca. 6400 ft, dry open lodgepole pine flat, fine dry friable granitic soil, 18 Jul 1991, *B. Ertter 10552* (holotype: TEX; isotypes: 4 dups to be distributed).

Distinct in its ascending-erect stems, basal rosette of glabrous, thickened, mostly elliptic, entire-margined leaves, lack of persistent fibrous petiole bases, 1 or 2–5 relatively large heads, and fertile rays with prominent ligules. Different from *P. integrifolia* in its shorter stature (vs. stems 12–60 cm), shorter leaves (vs. 7–21 cm), phyllaries in fewer series and the inner shorter (vs. 4(–5) series, inner 15–33 mm long), shorter disc corollas, and strigose achenes (vs. glabrous).

Stems from a compact, often branching caudex, ascending-erect, 15–25 cm tall, purplish, very sparsely villous-strigose with fine white hairs, eglandular, unbranched or with 1–4 branches distally. **Leaves**: basal persistent in a rosette, mostly 6–10(–19) cm long, blades elliptic to elliptic-oblanceolate, 11–25(–30) mm wide, glabrous, eglandular, margins entire or with scattered, minute teeth, base attenuate to a petiolar region 2–9 cm long, without persistent fibrous petiole bases, cauline 3-6, narrowly oblong to oblanceolate, reduced in length distally. **Heads** 1 or 1–3(–5) and loosely corymboid on peduncles to 3 cm long, without subtending bracts. **Involucres** 14–25 mm wide (pressed); phyllaries narrowly oblong to oblong-lanceolate, in 2(–3) series usually of subequal length but sometimes unequal, inner 8–11 mm long, outer green on the distal 6–8 mm, inner whitish-indurate on at least the proximal 1/3-1/2, margins entire, sometimes minutely fimbriolate-ciliolate. **Ray flowers** fertile, 20–34 (–48), corollas 9–13 mm long, 1.5–2 mm wide, spreading, slightly coiling. **Disc corollas** 5–7 mm long. **Achenes** ca. 5 mm long, sparsely sericeous-strigose.

Flowering July-August. Damp or wet to swampy meadows, clay basins, dry open pine flats, dry banks at forest edge, roadsides; 6350–6900 ft. Central Idaho.

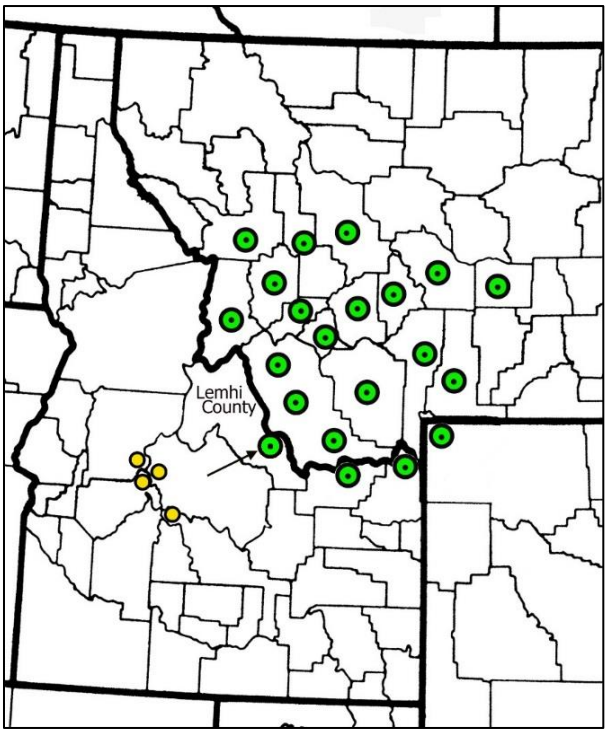


Map 1. Distribution of *Pyrrocoma ertterae*. Valley, Custer, Boise, and Blaine cos., Idaho.

The epithet recognizes Dr. Barbara Ertter, a resident of Boise, a specialist in Rosaceae taxonomy who has made significant contributions to a knowledge of the Idaho and California floras (e.g., Ertter & Moseley 1992; Ertter & Bowerman 2002; Ertter & Reveal 2007; Ertter & Nosratinia 2016; Vorobik 2018; Mosyakin, Ertter, & Shiyan 2020) and who made several collections of the newly recognized species.

Additional collections. **Idaho**. Blaine Co.: Northern base of Galena Summit, E of Salmon River Road, 43.8929° N, 114.7385° W, SW of small pond-marsh, 7430 ft, *Artemisia cana*/*Festuca idahoensis* community, surrounded by big sage-bunchgrass, 200+ plants, 29 Jul 1998, *Blackburn 138* (SRP); Vat Creek study area in Sawtooth NRA, T7N R14E S6 SWNE [43.96 N, 114.86 W], shade under conifers at edge of meadow, 25 Jul, 1974, *Ertter ST-211* (CIC); Smoky Mountains, upper Salmon River, ca 2 mi SW Galena Summit, UTM Zone 11T, 680140 E, 4856000 N, vicinity of intermittent river channel, 7600 ft, with *Artemisia ludoviciana*, *Potentilla gracilis*, *Aster integrifolius*, *Mertensia* sp, locally common, 25 Jul 2013, *Mancuso 4010* (SRP). Boise Co.: 35 mi W of Stanley, near marsh below Bull Trout Lake, gravelly flat, seemingly alkaline, 6800 ft, 7 Aug 1941, *Cronquist 3664* (IDS, MO). Custer Co.: Sawtooth Mountains, Stanley Basin, edge of Little Redfish Lake, 44.158235° N, 114.91093° W, moist grassy meadow, 21 Jul 1953, *Baker 10559* (ID, NY, WTU-2 sheets); Dry Creek, 13 mi N of Stanley, 44.357406°, 115.11981°, in gravelly bed, 15 Jul 1946, *Christ 15787* (ID, NY); Challis Natl Forest, S side of Bull Trout Lake Road just W of jct with Hwy 21m Site ID: BSL-1021, 44.322512° N, 115.235207° W, dry, gravelly, riparian meadow,

2092 m, with *Sedum lanceolatum*, *Castilleja*, *Haplopappus*, and *Wyethia*, common in dry gravelly soil, 26 Jul 2014, *Legler 13133* (WTU); 1 mile West of Chilly, 15 Jul 1934, *Maguire 5673* (MO, MONT); Stanley Creek Study Site, T11N R13E S29, dry meadow, 6400 ft, Jun 28 1990, *Saab VS90-11* (BOIS); Sawtooth Mountains, Challis Natl Forest, near Stanley Lake, 44.21139°, 114.945°, open meadow, 6500 ft, 25 Jul 1937, *Thompson 13956* (MO, US, WTU). Valley Co.: Elk Creek, T13N, R8E, wet meadow, 10 Jul 1940, *Davis 2733* (IDS, TEX); Bear Valley, 44.42832° N, 115.32284° W, open meadow, 10 Jul 1940, *Davis 2742* (IDS-2 sheets, TEX); Boise Natl Forest, Bear Valley Meadow, above confluence of Bear Valley Creek and unnamed creek along FS Rd 582, 1.1 road mi from triangle jct with FS Rd 579, 44.38323° N, 115.37775° W, swampy meadow with dried gullets on gentle slope, 6475 ft, common on side of road but rarely in bloom, 7 Jul 2017, [10th Annual Idaho Botanical Foray] *DiNicola & Ertter 746* (ID, SRP); 8 mi W of Bear Valley Camp Ground, wet meadow near Bearskin Creek, T12N R8E S4 [44.40198 N, 115.50844 W], damp grass and forb meadow, well-grazed, 6400 ft, 1 Aug 1978, *Ertter 2466* (CIC, MO, US); ca 21 air mi N of Lowman, Boise Natl Forest Rd 563 (Bearskin Creek Rd) 2.0 mi S of Rd 579, T12N R8E Sec 16 NE, S end of large meadow, ca. 6600 ft, 18 Jul 1991, *Ertter 10586* (TEX + 5 duplicates); ca. 18 air mi NNE of Lowman, along Boise Natl Forest Rd 582, 0.4 mi S of jct FR 563, meadow at head of Bear Valley Creek, E of Whitehawk Mtn, E of road, T11N R8E Sec 2, dry bank at edge of forest, granitic substrate, ca 6500 ft, 18 Jul 1991, *Ertter 10614* (TEX + 2 duplicates); Boise Natl Forest, Ayers Meadows along road to Dagger Falls (Forest Service Rd 568), 44.44841° N, 115.32193° W, organic loam soil, 6372 ft, 7 Jul 2017 [10th Annual Idaho Botanical Foray] *Mansfield & Corbin 17148* (CIC, SRP); Boise Natl Forest, Big Meadows on Forest Rd 582, 44.3105° N, 115.47553° W, large treeless meadow with streamlets, standing water, sphagnum, *Salix*, *Caltha*, *Carex*, transitioning to drier areas with *Artemisia tridentata* and *Pinus contorta* forest, 2021 m, 15 Jul 2016, *Smith 13669* (ID, SRP); Boise Natl Forest, Big Meadows on Forest Rd 582 12.8 mi from jct with Forest Rd 579, 44.27772° N, 115.48088° W, wet meadow not burned in Pioneer Fire of 2016, surrounded by heavily burned forest, with *Caltha*, *Ligusticum*, *Veratrum*, *Dodecatheon*, *Aconitum*, 2041 m, 8 Jul 2017, [10th Annual Idaho Botanical Foray] *Smith 14664* (SRP); Bear Valley Mining Area, dry meadow downstream from the bridge, near a former breach, T11N R8E S15, 6640 ft, 12 Jul 1985, *Smithman & Smithman LS-1653* (CIC); Bear Valley Mining Area, T11N R8E S22, clay basin W of wetland area, 6640 ft, 16 Aug 1985, *Smithman & Packard LS-1740* (CIC).



Map 2. Distribution of *Pyrrocoma ertterae* (gold) and *P. integrifolia* (green). The arrow points to a population system in Lemhi County, mapped in detail below (Maps 3 and 4).

2. PYRROCOMA INTEGRIFOLIA (Porter ex A. Gray) Greene, Erythea 2: 69. 1894. *Haplopappus integrifolius* Porter ex A. Gray, Synopt. Fl. N. Amer. 1(2): 128. 1884. *Aster canybi* Kuntze, Rev. Gen. 1: 315. 1891 [nom. nov., not *Aster integrifolius* Nutt. 1840]. **LECTOTYPE** (designated here): **Idaho**. Fremont Co.: Henry's Fork of the Snake River, 1872, *J.M. Coulter s.n.* (GH; isolectotype: US). The label on the US sheet says only "Idaho, Hayden Exped. 1872."

In the 1884 protologue, Gray cited collections by Burke, Canby, Coulter, and Watson. In a "nom. inval." slightly earlier (Gray, Proc. Amer. Acad. Arts 16: 79. 1881), he had noted that "APLOPAPPUS INTEGRIFOLIS T.C. Porter, is taken up from an unpublished name of a plant collected in Wyoming by J.M. Coulter and also by Burke, a species between *A. lanceolatus* or *paniculatus* and *A. uniflorus*." A single GH sheet holds both the Burke and Coulter collections. Mayes (1978) cited the Coulter collection as the holotype.

Pyrrocoma integrifolia var. *pumila* Rydb., Bull. Torrey Bot. Club 27: 626. 1900. *Haplopappus integrifolius* var. *pumilus* (Rydb.) Blank., Sci. Stud. Montana Coll. Agric., Bot. 1: 100. 1905. **TYPE**: **Montana**. Silver Bow Co.: Butte, 31 Jul 1895, *P.A. Rydberg 2808* (holotype: NY; isotype: NY). See comments with Figure 14.

Stems 12–55 cm, decumbent-ascending to ascending-erect or erect, glabrous to sparsely puberulent distally, eglandular, often red-tinged. **Leaves**: basal oblanceolate to elliptic-oblanceolate or spatulate with an elliptic to oblanceolate-obovate blade, 7–21 cm long, blade 1.2–3.5 cm wide, old petiole bases not persistently fibrous, margins entire or rarely sparsely dentate, cauline 5–8, narrowly oblong to narrowly lanceolate or oblanceolate to linear-lanceolate, sometimes slightly subclasping, gradually reduced in length distally, faces glabrous but margins weakly ciliate, eglandular. **Heads** 1 or commonly 2–5(–6) on peduncles 0.5–4 cm long (maturity) and loosely racemoid, ebracteate or sometimes with 1–3 elongate, phyllary-like bracts immediately or closely subtending. **Involucres** 18–30 mm wide (pressed). **Phyllaries** in 2–3(–4) series, mostly narrowly lanceolate-triangular to oblong-lanceolate and apically triangular-acute, distal 1/2–3/4 green-herbaceous, stramineous and slightly indurate below that, glabrous, equal to subequal in length, rarely unequal, inner series 12–15 mm long, margins entire with a narrow, pale, hyaline-scarious rim, often minutely white-ciliate, outer and outermost similar to the inner. **Ray florets** 18–45, fertile, ligules spreading, oblong, 10–20 mm long, coiling at maturity. **Disc corollas** 7–10 mm long. **Achenes** 5–7 mm long, glabrous.

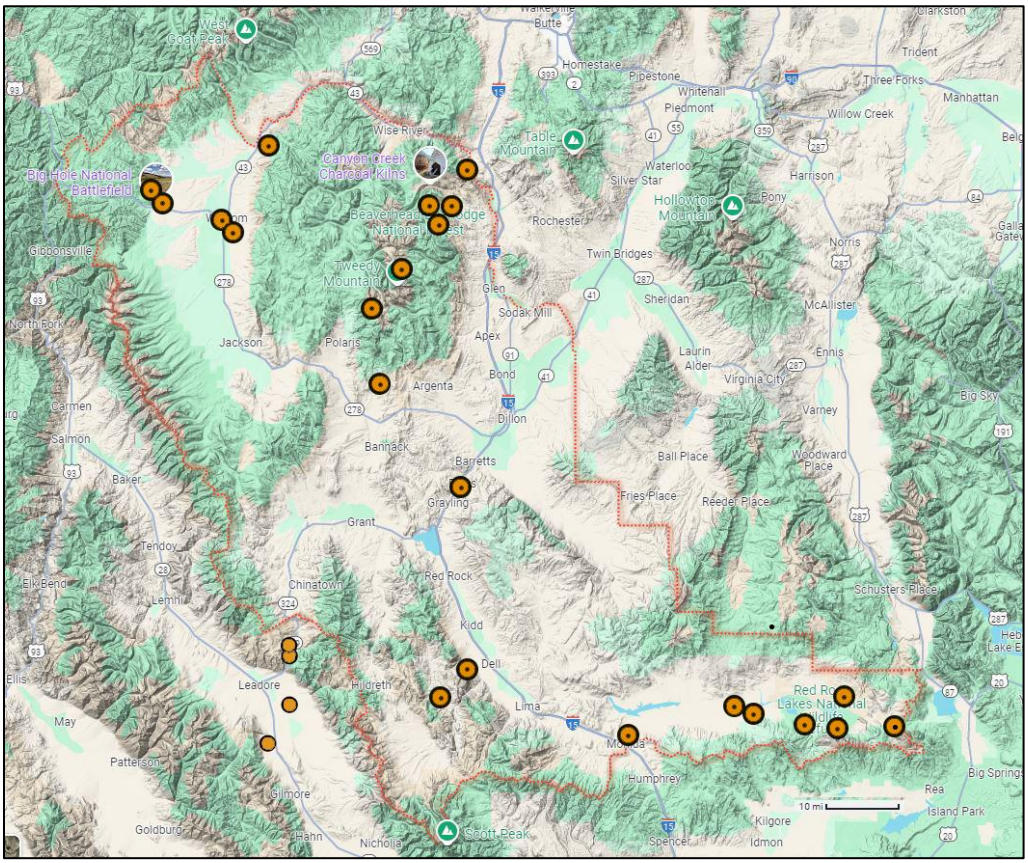
Diploid chromosome counts (n = 12) were made for *Pyrrocoma integrifolia* from Beaverhead, Deer Lodge, Granite, and Powell cos., Montana, and Lemhi Co., Idaho (Mayes 1976). The species was the subject of a conservation assessment by Ladyman (2006).

Pyrrocoma integrifolia is remarkably variable:
- stems glabrous to sparsely cottony
- cauline leaves sessile to subclasping to subauriculate-clasping
- heads solitary to racemoid or loosely corymboid or paniculate
- involucres 15–35 mm wide
- phyllaries oblong to linear, flexuous and extending past the inner
- ray florets 20–45

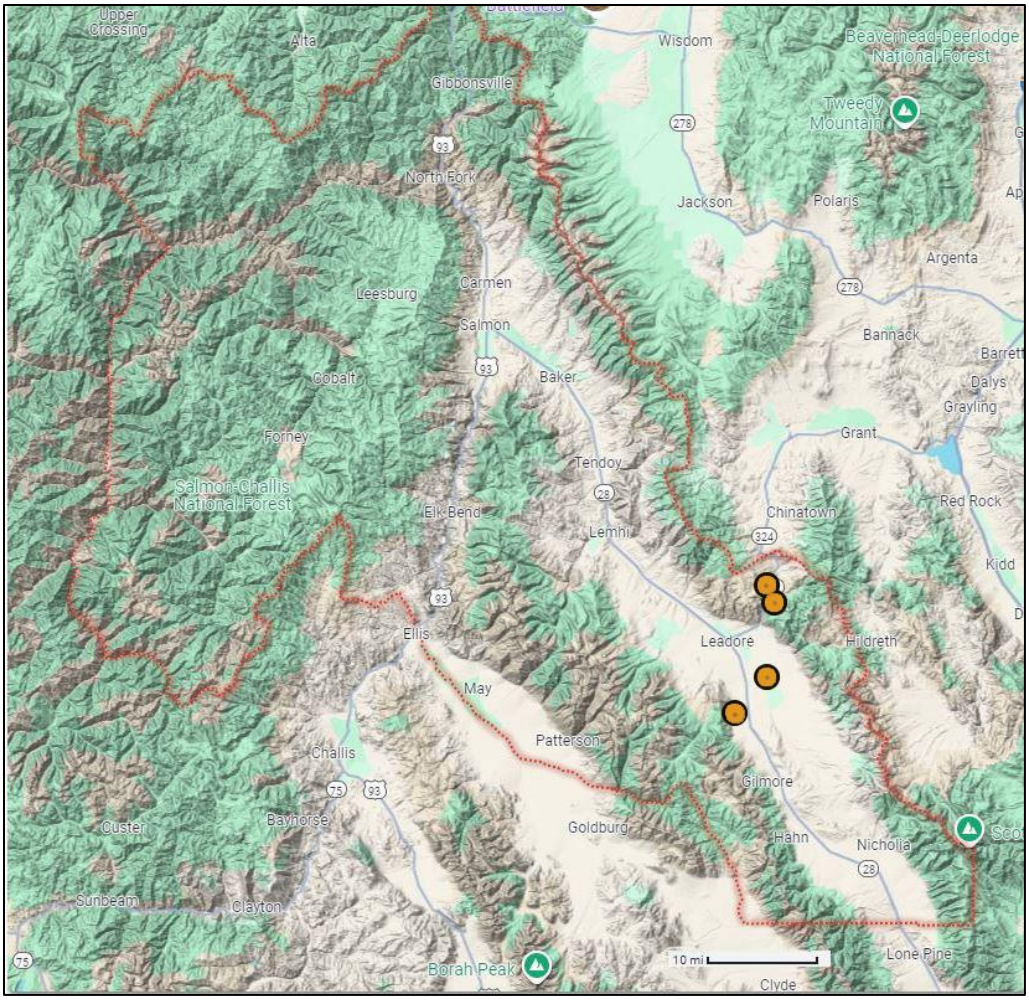
Plants with large heads and linear, flexuous phyllaries are abundant in Beaverhead County (as are plants with subauriculate leaves) but they also have been collected in Powell County and in Yellowstone National Park. There is intergradation in phyllary morphology and the occurrence of linear phyllaries does not appear to be strongly correlated with other morphological features.

In Idaho, *Pyrrocoma integrifolia* is documented from Clark, Fremont, and Lemhi counties, close to the Montana border. Populations in Lemhi County (collections cited here) are seemingly separated from the main range in Montana by the Beaverhead Mountains (Maps 3 and 4), but there is little morphological distinction.

***Pyrrocoma integrifolia* sensu stricto in Idaho**. Clark Co.: Spencer, Little Dry Creek Canyon, 14 Jan 1934, *Christ 2899* (ID, NY); 1.5 mi S of Monida, Mont., meadows high divide, Idaho side of Continental Divide, 20 Jul 1946, *Christ 15526* (ID-2 sheets, NY); ca 25 mi NW of Dubois, Irving Creek, ca 4 mi upstream from its confluence with Medicine Lodge Creek, bench above creek bottom; with *Artemisia tridentata vaseyana*, 6900 ft, uncommon, 14 Jul 2005, *Mancuso 2763* (ID); ca 16 air mi N of Dubois, Targhee National Forest, Centennial Mountains, E of Beaver Creek along Dairy Creek, mostly *Artemisia* with many forbs and grasses, 6000-6200 ft, 25 Jun 1992, *Markow 8238* (RM); Targhee National Forest, Clark Centennial Range; left Fork Creek ca. 100 ft above confluence with Dairy Creek, ca. 5 mi N of Spencer, grass/forb community with *Phleum pratense*, *Castilleja miniata*, *Geranium viscosissimum*, and *Dactylis glomerata*, ca. 6000 ft, 19 Jul 1995, *Markow 11,176* (ID, RM). Fremont Co.: Targhee National Forest, near head of Duck Creek, black, rather sticky, somewhat gravelly soil, with roll-leaf festuca, *Koeleria* spp., and *Potentilla* spp., 6800 ft, 9 Aug 1911, *Aldous 206* (RM fide Ladyman 2006, not seen); ca. 16 air mi NW of West Yellowstone, Montana, Targhee Ntl Forest, Henrys Lake Mtns, ca 3.5 air mi NW of Henrys Lake, above Raynolds Pass, mostly forbs and grasses, a few scattered *Pinus flexilis*, 7000-7400 ft, 7 Jun 1992, *Markow 7167* (RM); Henrys Lake, wet bottomlands, 1 Sep 1899, *Nelson 6797* (MO, NEB, NY, RM); near Little Dry Creek, grassy places, 18 Jul 1918, *Rust 798* (ID, NY, US). Lemhi Co.: Beaverhead Mts, meadow along Canyon Creek, adjacent to jct of Hwy 29 and the Cruikshank Creek Rd (FR 130), T17N R27E S32, [44.759921° N, 113.26337° W], moist, alkaline (calcareously derived) soil, 20 Jul 2002, *Bjork 6525* (ID); 8.5 air mi S of Leadore, Lemhi Range, valley floor 0.4 mi NE of Purcell Spring, T14N R26E S10 [44.55788° N, 113.34782° W], dominant population in xeric soil within woody riparian vegetation, 6457 ft, 31 Jul 2012, *Irwin 8869* (RM, not seen); ca 5 mi SE of Leadore, ca 0.3 mi W of Eighteenmile Creek, T15N R27E S19 SE, [44.6162° N, 113.2865° W], calcareous soil dry at the surface, with *Distichlis spicata*, *Poa secunda juncifolia*, 6250 ft, common, 16 Aug 2009, *Mancuso 3532* (ID-2); 7 mi E of Leadore on Hwy 29, 1974, *Mayes 153* (TEX).



Map 3. Distribution of *Pyrrocoma integrifolia* along the Montana/Idaho border — Beaverhead Co, Montana (red outline) and Lemhi Co., Idaho.



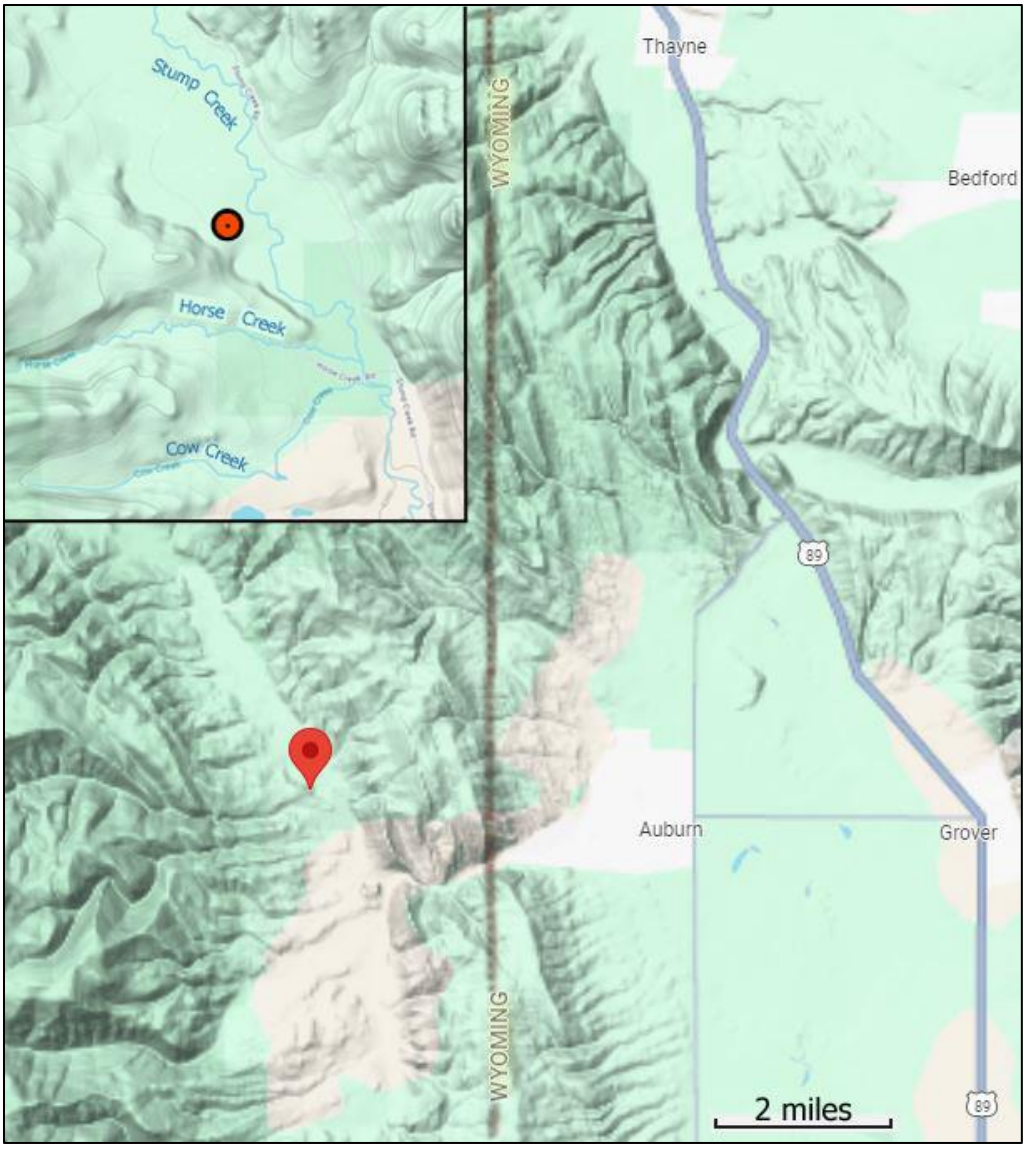
Maps 4. Distribution of *Pyrrocoma integrifolia* along the Montana/Idaho border. Lemhi Co, Idaho (red outline).

In Wyoming, the only collections of *Pyrrocoma integrifolia* I have seen are these:

Teton Co. – Yellowstone National Park: Near Mammoth Hot Springs, meadows, 7200 ft, 2 Aug 1894, *Burglehaus s.n.* (MIN, WTU-2 sheets); Swan Lake Flats, 29 Jul 1902, *Mearns 299* E.C.S. (US); Swan Lake, 12 Aug 1902, *Mearns 2442* (MIN, US); no specific locality, 5 Aug 1902, *Mearns 2587* (US); no specific locality, 12 Aug 1902, *Mearns 3260* (US); Mammoth Hot Springs, Jul-Aug 1927, *Stork 3249* (BUT, MIN). Ladyman (2006) cited several collections from the YELLO herbarium.

Plants identified as P. *integrifolia* from elsewhere in Wyoming (Big Horn, Fremont, Teton, Washakie counties) are a different species. The label of *Oleson 115a* (RM) says "plants of Yellowstone Park etc," but the locality is Fountain, which is in Teton County. A collection from Yellowstone Park was made in Gardiner, Montana, 9 Aug 1922, *Hawkins 659* (MONT-2 sheets).

Hall (1928) treated *Pyrrocoma scaberula*, *P. liatriformis*, and *P. insecticris* as varieties within *P. integrifolia*, emphasizing their relatively short style appendages, large involucres, and apically acute phyllaries and further hypothesizing a close relationship to *P. clementis* and *P. crocea*. The geography of Hall's "integrifolia group" and their shared lack of persistent fibrous remnants of the basal leaf petioles supports his hypothesis. *Pyrrocoma ertterae* appears to belong with this group, as does the recently described *P. wyethiana* Goodrich (2024).



Map 5. Distribution of *Pyrrocoma salsa*. Caribou Co., Idaho. Known only from the type locality.

0. PYRROCOMA SALSA Nesom, **sp. nov. TYPE**: **Idaho**. Caribou Co.: Along Stump Creek which flows into Salt River near Afton, Wyoming, T7S R46E S21 [42.79904° N, 111.08421° W], upper *Artemisa* grassland zone, alkali flat, heavy salt crystals on the soil surface; 6158 ft, 20 Aug 1985, *R. Rosentreter 3704* (holotype: CIC; isotypes: BBLM, NY).

Similar to *Pyrrocoma lanceolata* in its clasping to subclasping cauline leaves and paniculate-corymboid inflorescence, distinct in its shorter, decumbent-ascending stems, smaller leaves, smaller heads with fewer rays, and narrowly oblong, sparsely pubescent phyllaries with a linear, green midline and restricted terminal green patch.

Stems decumbent-ascending, 3.5–11 cm, sparsely tomentose, eglandular. **Leaves**: basal oblong-lanceolate to oblong-oblanceolate, 2–6 cm long, attenuate to a petiolar region 1/4–1/5 the leaf length, tufts of cottony, white hairs at the petiole insertions, fibrous remnants of petiole bases persistent, blades thickened, 2–5 mm wide, margins entire or with a few minute teeth, cauline narrowly oblong-lanceolate, clasping to subclasping, reduced to linear bracts in the inflorescence. **Heads** 2–8 in a loosely paniculate-corymboid inflorescence, not immediately subtended by a bract. **Involucres** 7–9 mm wide

(pressed); phyllaries narrowly oblong to oblong-lanceolate with a abruptly deltate apex, in 3 series of unequal length, sparsely pubescent, eglandular, inner 5.5–7 mm long, green patch mostly within the deltate apex, white-indurate proximally with a green midline. **Ray florets** 8–10, fertile, corollas 8–10 mm long, 1–1.5 mm wide, coiling. **Disc corollas** ca. 5 mm long. **Achenes** not seen.

Pyrrocoma salsa is known only from the type collection, between Stump Creek and Horse Creek in Caribou County, about 2 miles west of the Wyoming border. The epithet alludes to the salty habitat described in the locality information. It is similar to *P. lanceolata* (as with the previous identifications) and perhaps closely related to it, and the Stump Creek locality is within the geographical range of it, but *P. salsa* is outside its morphological bounds. The taxonomy of *P. lanceolata* and other species possibly related to it is discussed in a separate manuscript (Nesom in prep.).

0. PYRROCOMA ELLIPTICA Nesom, sp. nov. TYPE: **Idaho**. Caribou Co.: Hooper Springs, 2.5 mi NW of Soda Springs, alkaline meadow, sagebrush grass zone, 20 Jul 1952, *W.H. Baker 9417* (holotype: WTU; isotypes: ID, NY-2 sheets).

Similar to *Pyrrocoma lanceolata* in its eglandular vestiture, persistent fibrous remnants of the basal leaf petioles, subclasping cauline leaves, and multi-headed inflorescence. Distinct in its tendency for persistent floccose vestiture, thicker, more broadly elliptic and more abruptly petiolate leaves with more regularly toothed margins, a more markedly racemoid inflorescence, larger heads, equal-length phyllaries, and more rays.

Stems erect to ascending-erect, 4–15(–22) cm, glabrous to persistently floccose. **Leaves**: basal spatulate to subspatulate, 4–21 cm long, attenuate (often abruptly so) to a petiolar region 1/5–1/2 the leaf length, blades broadly to narrowly elliptic, 10–30 mm wide, glabrous to floccose, margins nearly entire to regularly serrulate or denticulate, cauline strongly reduced from the basal, narrowly lanceolate to oblanceolate, usually clasping to subclasping but not auriculate. **Heads** 1 or 2–6(–9) in a loosely racemoid inflorescence, on peduncles 0.5–2(–3.5) cm long, without immediately subtending bracts. **Involucres** 9–12 mm wide (pressed); phyllaries oblong-lanceolate with a triangular, sometimes acuminate apex, in 3(–4) series of subequal length, inner 7–10 mm long, green patch in distal 1/3–1/2, eglandular, indurate proximally with a green midline, margins with a white rim. **Ray florets** 14–18(–30 at Grays Lake), corollas 10–12 mm long, 1.5–2 mm wide, coiling. **Disc corollas** 5 mm long. **Achenes** sericeous-strigose, mature size not seen. **Chromosome number**, 2n = 36 (Anderson et al. 1974).

Flowering (June) July-August. Marsh and marshy lake edges, moist meadows and meadow openings in pine, alkali flats, sometimes flooded; 5700–6400 feet.

Vouchers for the hexploid chromosome number report (as cited: *Anderson 3614*, *Anderson 3615*, KSC) cannot be located at KSC or elsewhere. Anderson evidently made Idaho collections in 1965, with vouchers for other species (e.g., from Camas and Elmore cos.). The only locality given is "Caribou Co." — the plants were identified in the publication as *Haplopappus lanceolatus*, but there is no record of typical *Pyrrocoma lanceolata* in Caribou County. It seems highly probable that he reached Soda Springs and collected his material from there.

Pyrrocoma elliptica is recognized by its persistent basal rosette of numerous, thickened, spatulate leaves with an elliptic blade and serrulate or denticulate margins, often persistent, floccose vestiture, and few heads in a loose raceme. The epithet alludes to the prominently elliptic blades of the basal leaves. The two distal points of the distribution (Soda Springs and Grays Lake) are separated by about 30 miles.

Vestiture varies from persistently floccose on the leaves, stems, and involucres to glabrate or glabrous. This perhaps reflects introgression from *Pyrrocoma uniflora*, which occurs in the vicinity both of Soda Springs and Grays Lake, but the morphology of some plants shows no other features that

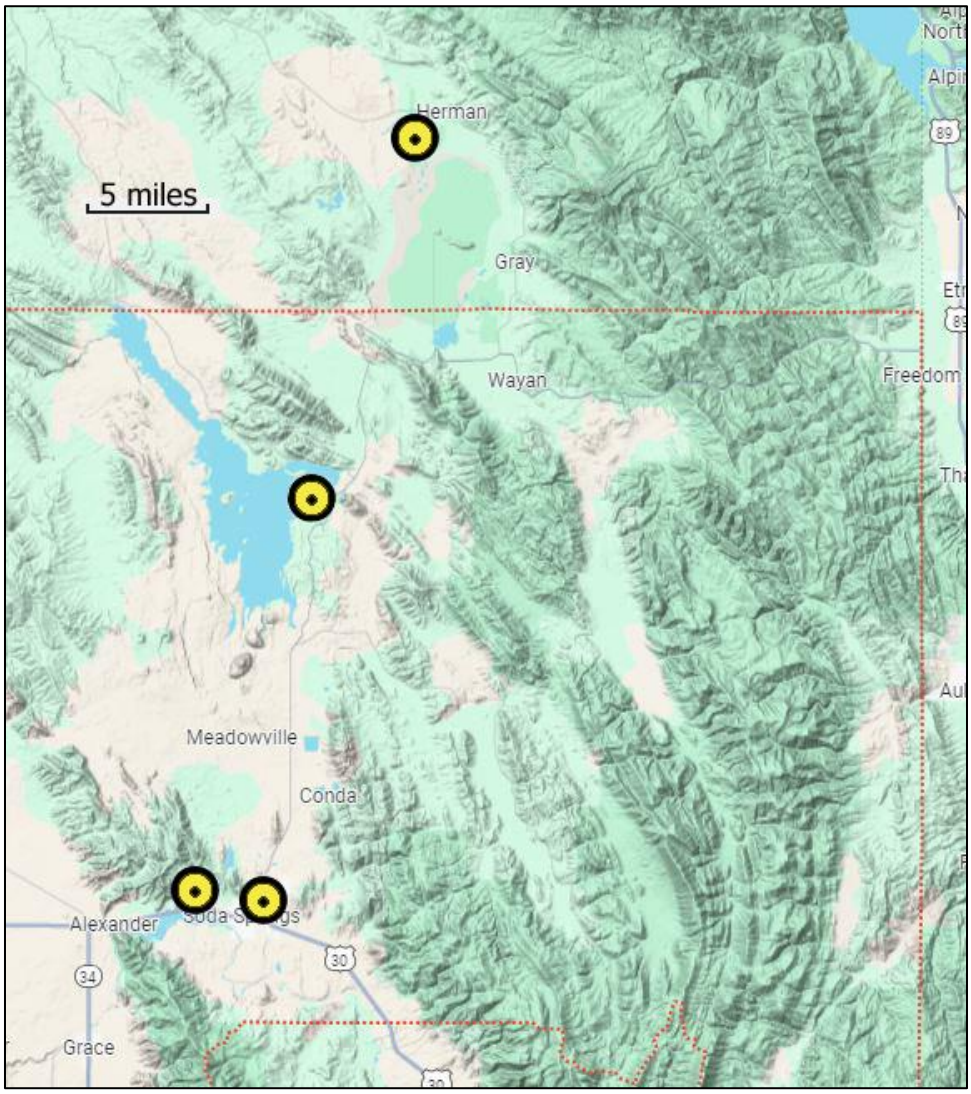
might be attributable to gene flow, thus it is likely that vestiture differences in *P. elliptica* reflect populational variation. Label data of *Legler 15755* notes the occurrence of populational variation in vestiture. *Christ 16113* (tomentose) and *Christ 16116* (glabrous), from 1 Aug 1946, evidently were collected in close proximity.

Pyrrocoma elliptica is at southwestern edge of the range of typical *P. lanceolata* (Nesom in prep.). and both species are hexaploid, suggesting common ancestry. But as noted in the diagnosis, distinctions between the two species are conspicuous and consistent. Additional contrasts are here.

a. Involucres 9–12 mm wide, inner phyllaries 7–10 mm long; ray florets 14–18(–30) ..... **Pyrrocoma elliptica**

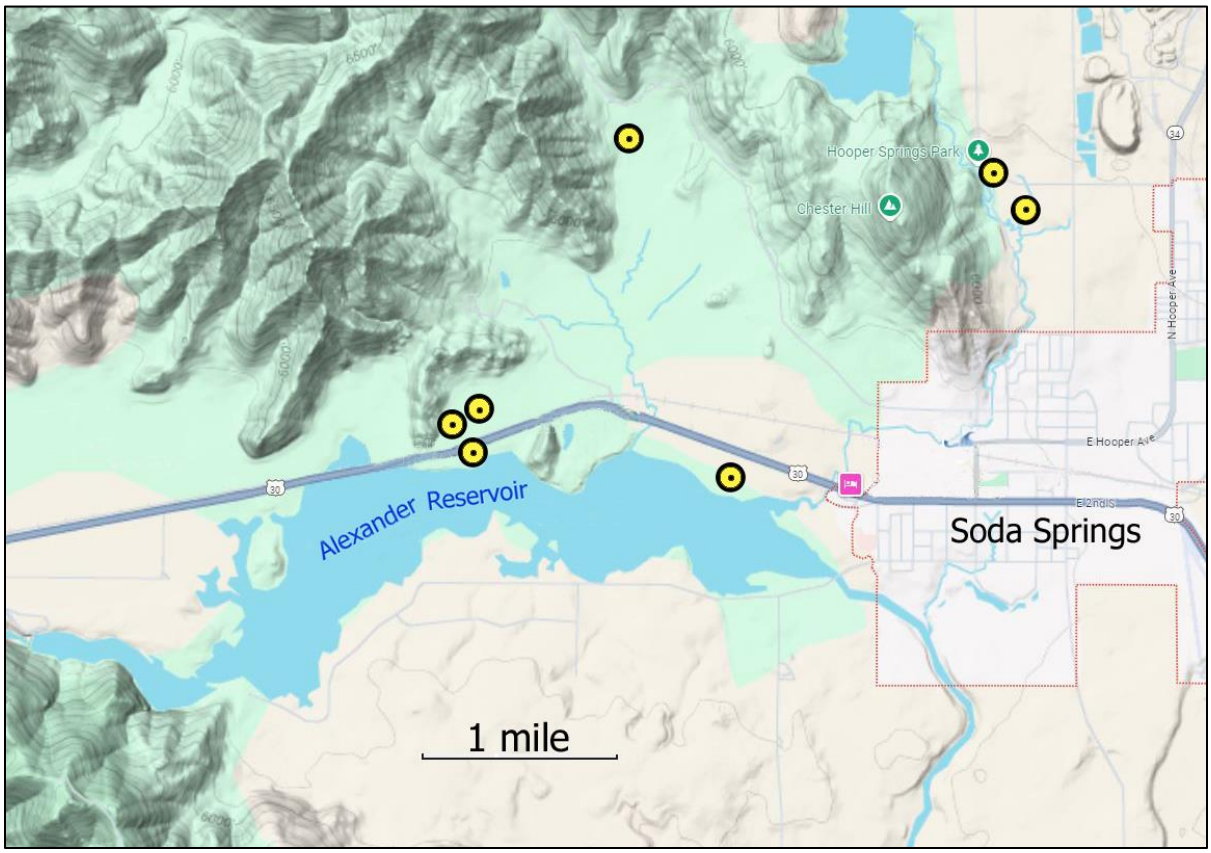
a. Involucres 5–8(–9) wide, inner phyllaries (4–)5 mm long; ray florets 10–15(–20) ..... **Pyrrocoma lanceolata**

From Grays Lake, *Christ 18961* (Fig. 35) has branched stems, denticulate leaf margins, and subclasping cauline leaves, but the phyllaries are linear with an elongate green patch, and ray florets are 50+, suggesting influence from *P. uniflora*.

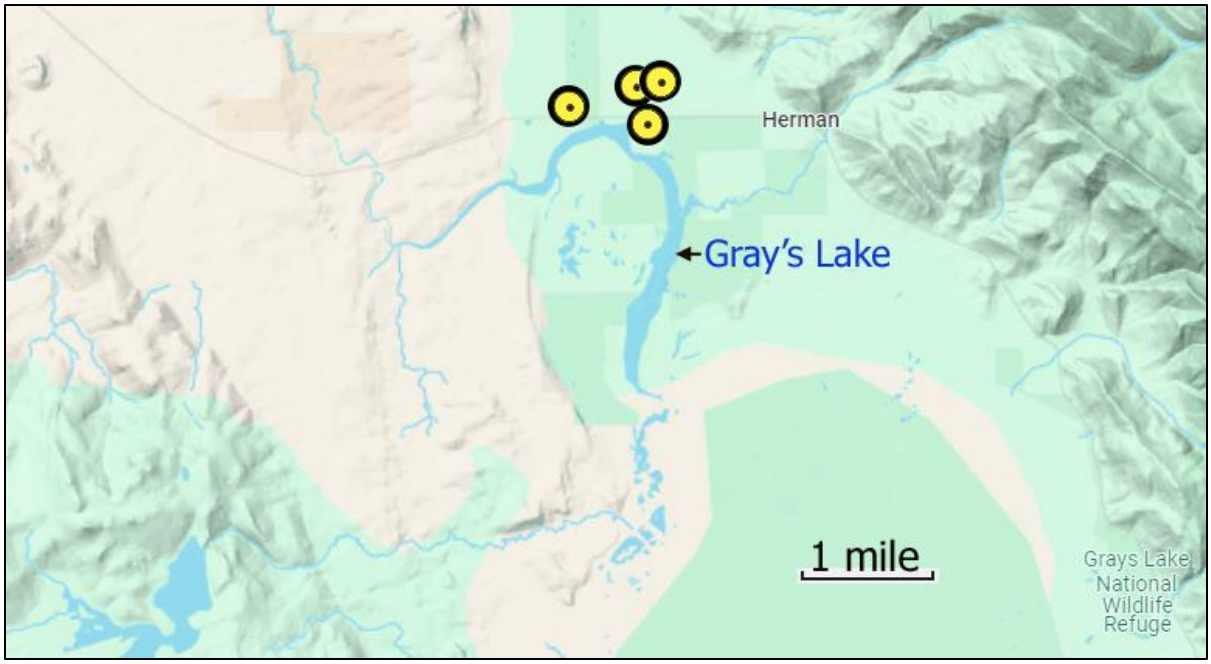


Map 8. Distribution of *Pyrrocoma elliptica*. Caribou and Bonneville cos., Idaho. The Caribou County boundary is outlined in red. See Maps 6 and 7 for details.

Additional collections. **Idaho**. Bonneville Co.: Grays Lake, marsh at N end of lake area, 19 Jul 1945, *Christ 14991* (ID, NY, WS); 2 mi W of Herman, marshy edge of Grays Lake, 14 Jul 1949, *Christ 18961* (NY); 2 mi W of Herman, Grays Lake, marshy edge of lake, 14 Jul 1949, *Christ 19060* (ID); 2 miles W of Herman, around Gray's Lake outlet, wet meadow, 16 Jul 1976, *Ertter 76-272* (SRP); 2.7 air km W of Herman, Grays Lake NW Refuge, S side of Grays Lake Road adjacent to Grays Lake Outlet, 43.139792° N, 111.463635° W, open, lush, moist meadow on edge of marsh, 6300 ft, with *Juncus balticus*, *Poa pratensis*, *Potentilla anserina*, *Valeriana edulis*, foliage varying from glabrate to loosely grayish-tomentose, plants common, 26 Jun 2020, *Legler 15755* (IDS); Grays Lake NWR and vicinity, South Cinder Knoll field, 43.1156° N, 111.4419° W, temporarily ponded alkali flat, 6388 ft, with other salt tolerant forbs, 28 Aug 1997, *Pyle 97-136* (IDS); Grays Lake, 10 Jul 1950, *Steele s.n.* (ID). Caribou Co.: 3 mi W of Soda Springs, salt flats above reservoir, 1 Aug 1946, *Christ 16113* (NY) and *Christ 16116* (NY); 1.5 mi N of Soda Springs, flats along Bear River, particularly on raw areas recently subject to thermal activity, 6 Sep 1937, *Christ 8980* (NY tomentose); Oregon Trail Park near Hwy 30 along Alexander Reservoir, ca. 2 mi W of the town of Soda Springs, 42.65716° N, 111.65444° W, alkaline clay-loam soil, at least seasonally moist, 5720 ft, with *Elymus trachycaulus*, *Solidago nana*, *Plantago eriopoda*, frequent in a localized area, 11 Aug 2022, *Corbin 2393* (CIC); Soda Springs Scenic Area near Hwy 30 along Alexander Reservoir, less than 1 mi W of the town of Soda Springs, 42.655587° N, 111.62739° W, moist, clay-loam alkaline soil, openings within wet meadow, 5723 ft, with *Plantago eriopoda*, *Juniperus scopulorum*, *Dasiphora fruticosa*, and grasses, localized, 11 Aug 2022, *Corbin 2396* (CIC); 1 mi W of Soda Springs, marsh area, limber pine meadow, 5800 ft, 11 Sep 1963, *Cottam 17712* (UT); 1.2 km NW of Henry (E side of Blackfoot Reservoir], 42° 55' 02" N, 111° 32' 25" W, calcareous soil in a *Potentilla fruticulosa-Agrostis stolonifera* community, 1875 m, 27 Jul 2004, *Hordijk et al. ID075-059* (ID, IDS, SRP, US); Soda Springs, 22 Jun 1892, *Mulford s.n.* (MO); Soda Point Reservoir, alkaline flats, 8 Aug 1982, *Neese 12080* (BRY, NY); Soda Springs, moist saline meadows, 5700 ft, 18 Jun 1920, *Payson 1711* (MO).



Map 6. Distribution of *Pyrrocoma elliptica* in the Soda Springs area, Caribou Co., Idaho.



Map 7. Distribution of *Pyrrocoma elliptica* on the north side of Grays Lake, Bonneville Co., Idaho.

ACKNOWLEDGEMENTS

Thanks to Barbara Ertter for detailed observations on *Pyrrocoma ertterae* in Idaho herbaria. to Mark Mayfield (KSC) for searching for chromosome vouchers.

LITERATURE CITED

Anderson, L.C., D.W. Kyhos, T. Mosquin, A.M. Powell, and P.H. Raven. 1974. Chromosome numbers in Compositae. IX. *Haplopapus* and other Astereae. Amer. J. Bot. 61: 665–671.

Ertter, B. and B. Moseley. 1992. Floristic regions of Idaho. J. Idaho Acad Sci. 28: 57–70. <https://ucjeps.berkeley.edu/people/ertter/ErtterBM1992a.pdf>

Ertter, B. and M.L. Bowerman. 2002. Flowering Plants and Ferns of Mount Diablo, California, California Native Plant Society Press.

Ertter, B. and J.L. Reveal. 2007. New sections, combinations, and varieties in Rosaceae, Potentilleae. Novon: 17: 315–325.

Ertter, B. and S. Nosratinia. 2016. A new variety of *Abronia mellifera* (Nyctaginaceae) of conservation concern in southwestern Idaho. Phytoneuron 2016-20: 1–4.

Goodrich, S. 2024. *Pyrrocoma wyethiana* (Asteraceae): A new species from Strawberry Valley, Utah. Western N. Amer. Nat. 84: 411–418.

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

Ladyman, J.A.R. 2006. *Pyrrocoma integrifolia* (many-stemmed goldenrod): A technical conservation assessment. USDA Forest Service, Rocky Mountain Region. <https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5206886.pdf>

Mosyakin, S., B. Ertter, and N.M. Shiyan. 2020. New combinations in *Potentilla* for taxa originally validated or treated in *Ivesia*, *Horkelia*, and *Horkeliella* (Rosaceae: Potentilleae). Phytotaxa 474: 261–271.

Vorobik, L.A. 2018. Dedication to Barbara Ertter. Madroño 65: 1–3.

Figure 1. *Pyrrocoma ertterae*. Valley County. *Mansfield 17148* (IDS).

Figure 2. *Pyrrocoma ertterae*. Custer County. *Baker 100559* (WTU).

Figure 3. *Pyrrocoma ertterae*. Custer County. *Christ 15787* (NY).

Figure 4. *Pyrrocoma ertterae*. Blaine County. *Ertter ST-211* (CIC).

Figure 5. *Pyrrocoma ertterae*. Custer County. *Legler 13133* (WTU).

Figure 6. *Pyrrocoma ertterae*. Boise County. *Cronquist 3664* (IDS). The unequal phyllaries are atypical.

Figure 7. *Pyrrocoma integrifolia*. Beaverhead Co., Montana. *Vanderhorst 5241* (MONT).

Figure 8. *Pyrrocoma integrifolia*. Park Co., Wyoming. *Mearns 3260* (US).

Figure 9. *Pyrrocoma integrifolia*. Beaverhead Co., Montana. *Cory 1556* (MONT).

Figure 10. *Pyrrocoma integrifolia*. Beaverhead Co., Montana. *Lesica 51589* (MONT).

Figure 11. *Pyrrocoma integrifolia*. Beaverhead Co., Montana. *Lesica 5196* (MONT).

Figure 12. *Pyrrocoma integrifolia*. Beaverhead Co., Montana. *Albert 640* (MONT).

Figure 13. *Pyrrocoma integrifolia*. Park Co., Montana. *Suksdorf 753* (MONT).

Figure 14. *Pyrrocoma integrifolia*. Silver Bow Co., Montana. *Shear 3518* (NY). Habit similar to the type of *Pyrrocoma integrifolia* var. *pumila*, which also is from Silver Bow County. *Doyle 397* (MONT, MONTU) is similar. The short stems, small leaves, and small heads are unusual — further study is warranted. Typical *P. integrifolia* also occurs in Silver Bow County.

Figure 15. *Pyrrocoma integrifolia*. Beaverhead Co., Montana. *Lesica 2696* (MONT).

Figure 16. *Pyrrocoma integrifolia*. Beaverhead Co., Montana. *Pierce 869* (MONT).

Figure 17. *Pyrrocoma integrifolia*. Lemhi Co., Idaho. *Mancuso 3532* (ID).

Figure 18. *Pyrrocoma integrifolia*. Lemhi Co., Idaho. *Smith 20-9* (CIC).

Figure 19. *Pyrrocoma integrifolia*. Lemhi Co., Idaho. *Smith 20-9* (SRP). The persistent fibers are atypical.

Figure 20. *Pyrrocoma salsa*. Holotype, *Rosentreter 3704* (CIC)

Figure 21. *Pyrrocoma salsa*. Isotype, *Rosentreter 3704* (NY)

Figure 22. *Pyrrocoma salsa*. Details from NY isotype.

Figure 23. *Pyrrocoma salsa*. Isotype, *Rosentreter 3704* (BBLM).

Figure 24. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Baker 9417* (NY).

Figure 25. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Baker 9417* (WTU).

Figure 26. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Corbin 2396* (CIC).

Figure 27. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Christ 8980* (NY).

Figure 28. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Christ 16113* (NY).

Figure 29. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Corbin 2393* (CIC).

Figure 30. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Neese 12080* (BRY)

Figure 31. *Pyrrocoma elliptica*. Caribou Co., Idaho – Soda Springs. *Christ 16166* (NY).

Figure 32. *Pyrrocoma elliptica*. Bonneville Co., Idaho – NW of Henry. *Hordijk et al. ID075-059* (IDS).

Figure 33. *Pyrrocoma elliptica*. Bonneville Co., Idaho – Grays Lake. *Pyle 97-136* (IDS).

Figure 34. *Pyrrocoma elliptica*. Bonneville Co., Idaho – Grays Lake. *Christ 14991* (NY).

Figure 35. *Pyrrocoma elliptica*. Bonneville Co., Idaho – Grays Lake. *Christ 18961* (NY).