

TAXONOMY OF *PYRROCOMA LANCEOLATA* (ASTERACEAE: ASTEREAEE)

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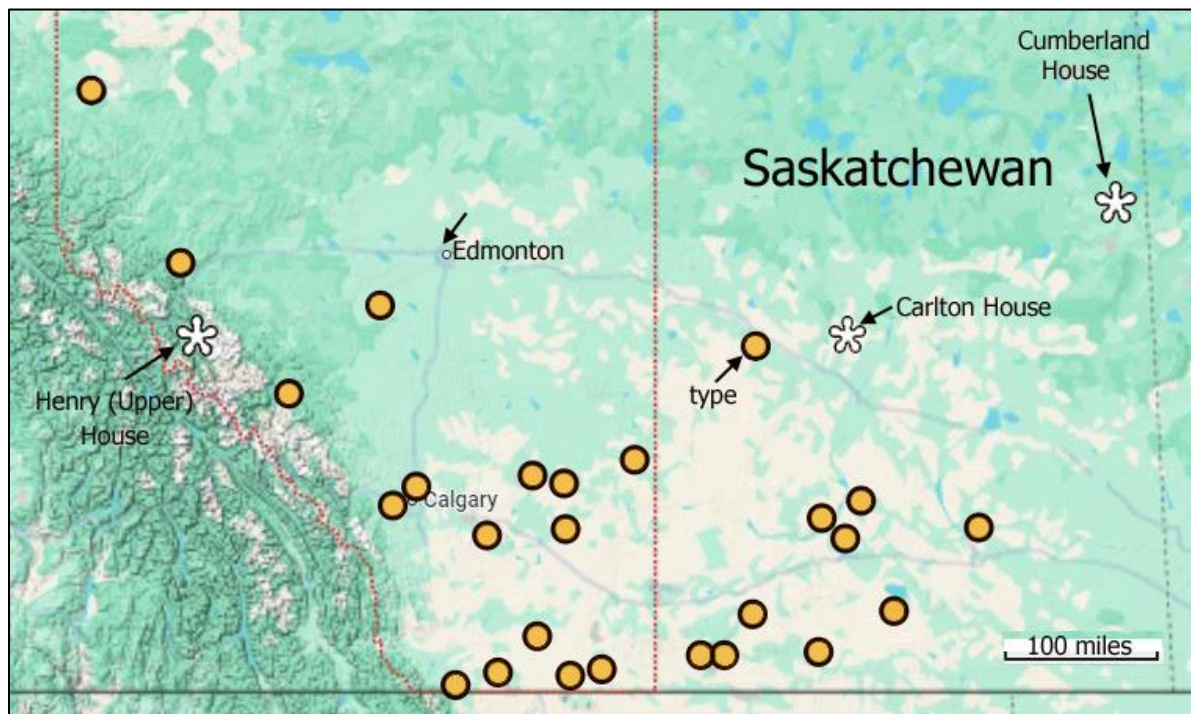
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ABSTRACT

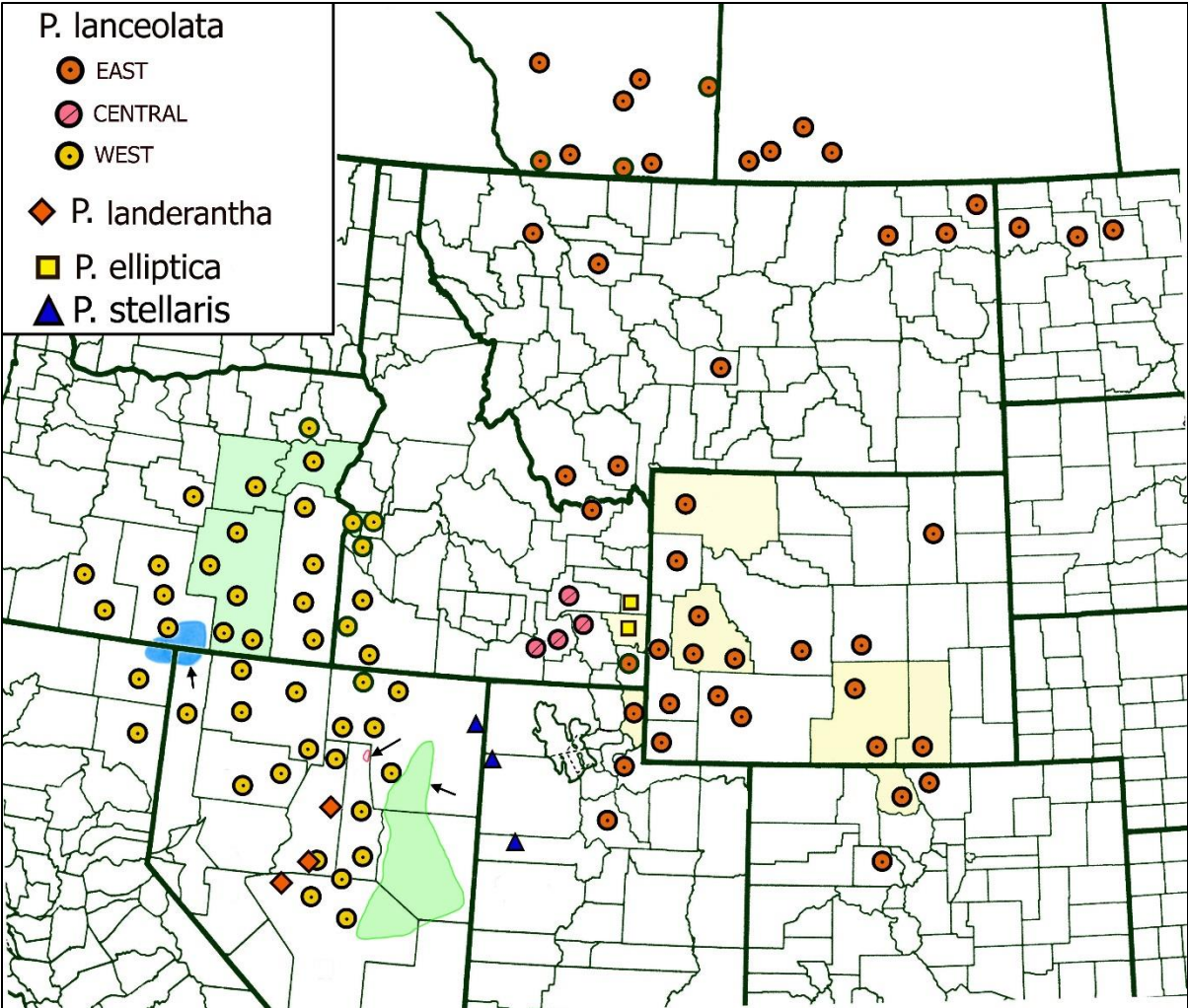
A taxonomic overview is presented for *Pyrrocoma lanceolata* (Hook.) Greene. Collections of this species are mapped as three, apparently geographically discrete systems — eastern, central, and western. The eastern (typical) system is hexaploid, while the western system (Oregon, Idaho, California, Nevada) is diploid. The central system lacks chromosome information but is in close proximity to the eastern system.

The name *Pyrrocoma lanceolata* has been used to identify a number of species distinct from it — some of those treated in synonymy of *P. lanceolata* have been reviewed (earlier in Nesom 2025a, b, c, d and in this issue, Nesom 2025e, f, g, h, i). The core of the species is treated here.

Geographical gaps divide population systems within *Pyrrocoma lanceolata* as treated here. Plants of the **WESTERN** system (Oregon, Idaho, California, Nevada) are diploid, those of the **EASTERN** (typical) system hexaploid. A middle group of populations, but closest to the eastern, is the **CENTRAL** system. The populations in Canada, northern Montana, and North Dakota might be seen as another geographical system (Map 2).



Map 1. Distribution of *Pyrrocoma lanceolata* in Canada. Records mostly from the GBIF database, vouchers not seen. Arrows point to localities visited by Drummond in 1825, traveling west from Cumberland House.



Map 2. Distribution of *Pyrrocoma lanceolata* (Map 1 for Canada) and similar species. Chromosome counts: $2n = 12$ (diploid) in green-shaded counties; $2n = 36$ (hexaploid) in yellow-shaded counties. *P. elliptica* — Nesom (2025c), *P. stellaris* — Nesom (2025d), *P. halophila* – Nesom (2025e). With arrows: blue shaded = *P. halophila*; green shaded = *P. tenuicaulis*; red shaded = *P. solidaginea*.

DIPLOID $2n = 12$	HEXAPLOID $2n = 36$
Idaho	Colorado
Payette Co.: Mayes 174	Jackson Co.: Mayes 142
Oregon	Idaho
Baker Co.: Mayes 97	*Caribou Co.: Anderson 3614, 3615; reported by Anderson et al. (1974), vouchers not found, cited as "KSC"
Grant Co.: Mayes 95	Utah
Harney Co.: Mayes 93, 94, 175	Rich Co.: Mayes 98, 99
	Wyoming
	Albany Co.: Mayes 143, 144, 145

Table 1. Chromosome counts for *Pyrrocoma lanceolata*. Counts from Mayes collections were reported in Mayes (1976) – vouchers at TEX and elsewhere.

* L.C. Anderson collected for chromosome counts in Camas and Elmore counties in 1965 (for *P. insecticruris*, his nos. 3610 and 3612) and it seems probable that the Caribou collections, from slightly to the east, were made shortly after. The Caribou Co. plants are identified as *Pyrrocoma elliptica* Nesom (2025c).

The voucher for a chromosome report of n=12 for "*Haplopappus lanceolatus*" from Albany Co, Wyoming (Anderson 1974; Anderson 2698, cited as KSC) was not located. Anderson's 2697 (BRY, LSU, NY) from Albany Co. is *Oonopsis wardii*.

The voucher for a chromosome report of n=12 for "*Haplopappus lanceolatus*" from Saguache Co, Colorado (Anderson 1974; Anderson 2528, cited as KSC) was not found. This was a collection of plants identified as *Pyrrocoma sanluisia* Nesom (2025b).

A collection from Park Co., Wyoming, was reported as n=18 (Solbrig et al. 1969; Solbrig 3116, as "aff. clementis," voucher not found). Mayes included it among the chromosome counts for *P. lanceolata* (perhaps based on the chromosome number), though it seems likely that "aff. clementis" would have used the name for a monocephalous plant. Solbrig made other collections in northwestern Wyoming in 1960 (online collection numbers are 3121-3128, 3131, 3133).

1. PYRROCOMA LANCEOLATA (Hook.) Greene, Erythea 2: 69. 1894. *Donia lanceolata* Hook., Fl. Bor. Amer. 2: 25. 1834. *Haplopappus lanceolatus* (Hook.) Torr. & Gray, Fl. N. Amer. 2: 241. 1842. *Hoorebekia lanceolata* (Hook.) M.E. Jones, Bull. Univ. Mont. Biol. 15: 49. 1910. **TYPE: CANADA. Saskatchewan.** Between Carleton House and Edmonton House, [early September 1825], *T. Drummond s.n.* (holotype: K?; probable isotypes: GH, NY). Figure 0. Beginning in late August 1825, Drummond traveled with the Hudson's Bay Company's expedition from Cumberland House, Saskatchewan, west to "Upper House" (probably Henry House, Alberta) on the Athabasca River (Drummond 1830; Hoeniger 2003). Map 1.

Homopappus multiflorus Nutt., Trans. Amer. Philos. Soc. 2, 7: 333. 1840. **TYPE: Protologue:** "Prairies on the east and west side of the Rocky Mountains," [probably southwestern Wyoming, 1834], *T. Nuttall s.n.* (probable holotype: PH 00014739; isotype: GH 00009250). **EASTERN**

Pyrrocoma kennedyi A. Nels., Bot. Gazette 37: 265. 1904. **TYPE: Nevada.** [Elko Co.]: Maggie Creek, 13 Aug 1902, *P.B. Kennedy* 630 (holotype: RM; isotypes: RENO, UC-fragment). **WESTERN** Discussion and illustrations in Nesom (2025e).

Pyrrocoma lagopus Rydb., Bull. Torrey Bot. Club 32: 130. 1905. **TYPE: Wyoming.** Lincoln Co.: Ham's Fork and La Barge, 7000 ft, 13-21 Jul 1900, *C.C. Curtis s.n.* (holotype: NY). **EASTERN** Figure 2.

Pyrrocoma cuspidata Greene, Leaf. Bot. Observ. Crit. 2: 17. 1909. **Type: Oregon.** [Lake Co.]: Cyscan [Sycan] Marsh, marsh margin, 10 Aug 1901, *W.C. Cusick* 2741 (holotype: US; isotypes: GH, MO, NDG, NY, OSC, RM, WS). **WESTERN** Discussion and illustrations in Nesom (2025i).

Pyrrocoma curvata (Piper) Nesom, **comb. nov.** *Hoorebekia curvata* Piper, Proc. Biol. Soc. Washington 31: 77. 1918. **TYPE: Oregon.** [Klamath Co.:] Klamath Falls, 29 Aug 1916, *M.E. Peck* 7492 (holotype: not located, US-photo and fragment; isotype: WS). **WESTERN**

Piper noted in the manuscript introduction that "The types are in the possession of the writer." He was at the time employed with the U.S. Department of Agriculture in Washington, D.C., but only a photo and fragments of the type specimen at housed at US — the US label says "Photog. & fragm. of type in herb. Piper." Other collections by Peck in Klamath County in August 1916 are at OSC, but none from 28 August --- Peck's numbers of these collections are both higher and lower than 7492.

The WS specimen is not the same one pictured in the US photo, but the four WS stems seem to be from the same population if not the same plant. The stems are tall and nearly filiform, perhaps as if etiolated, but otherwise they appear to belong with the western form of *P. lanceolata*.

1A. PYRROCOMA LANCEOLATA -- Eastern population system

Stems erect to ascending-erect, (3–)5–35 cm, sparsely pubescent to glabrate or glabrous. **Leaves:** basal oblanceolate to lanceolate-spatulate, 3.5–22 cm long, basally attenuate to a petiole or petiolar region 1/4–1/3 the leaf length, with cottony tufts at the petiole bases, fibrous remnants of petiole bases persistent, blades 3–11(–16) mm wide, glabrous, thickened, margins entire to sparsely serrulate to denticulate or spinulose, cauline mostly oblong-lanceolate to narrowly lanceolate, usually gradually reduced, becoming bracteate about midstem or nearing the inflorescence, usually not subclasping but sometime the medial subclasping-sheathing, not auriculate. **Heads** (rarely 1–) 2–15(–20), loosely racemoid-paniculate to racemoid-corymboid, without immediately subtending bracts. **Involucres** 5–8(–9, 12) mm wide (pressed); phyllaries oblong to oblong-lanceolate with a deltate-ovate to deltate-acuminate apex, in (2–)3–4 series of unequal length, inner 4–5 mm long, green patch usually sharply delimited in the distal 1/3–1/2 or only in the deltate apex, stramineous proximally with a green midline, glabrous or usually sparsely villous-pubescent, margins pubescent or less commonly fringed-ciliate. **Ray florets** 10–15(–20), corollas 8–10 mm long, 1.5–2 mm wide, coiling. **Disc corollas** 5 mm long. **Achenes** sericeous-strigose. Figures 1-14.

Flowering (June–) July–Aug (–September). Alkaline meadows, edges of marsh, ponds, reservoirs, canals, and creeks, river terraces, saline flats and ditches, mudflats, around sulphur springs, roadsides in alkaline areas; 6100–7300(–7500) feet.

1B. PYRROCOMA LANCEOLATA -- Central population system

Different from typical (eastern) *Pyrrocoma lanceolata* in its more consistently serrulate to denticulate leaf margins, larger involucres, and phyllaries with a white midline and usually margined with a hyaline rim, but variation is overlapping.

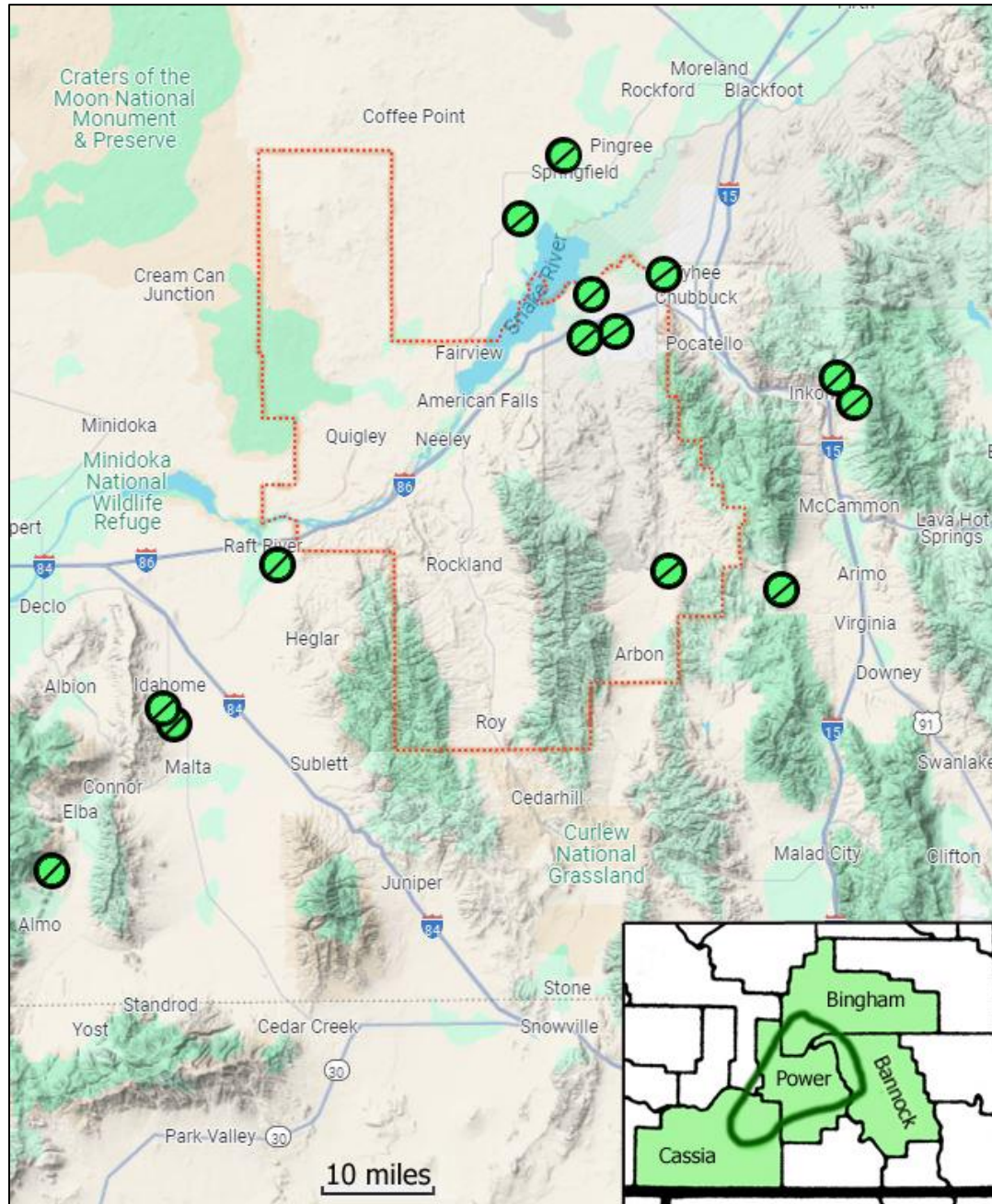
Involucres (9–)10–15 mm wide (pressed); phyllaries in (2–) 3–4 series of unequal length, inner 6–8 mm long, triangular lanceolate, large green patch with white midline, sometimes tomentose. **Ray florets** 14–18. Figures 15-20.

Flowering July-August. Saline meadows, salt flats, along creeks and rivers, marshes; 4300–5000 feet.

Central population system. Idaho. Bannock Co.: Fort Hall Indian Reservation, Bannock Creek near Interstate hwy, 42.8834° N, 112.6428° W, 28 Jul 1987, *Glennon 1483* (IDS, SRP); Indian Rocks State Park, path near Oxbow, 42° 47' 42" 47' 30.68" N, 112° 12' 30.11" W, dry meadow, 4684 ft, with *Artemisia tridentata*, *Bromus tectorum*, and bitterbrush, 6 Aug 1996, *Holte 371* (IDS, NY, SRP); Havenor's, 42.92776° N, 112.51547° W [Havenor's Dairy Farm (Ranch), 3–4 mi NW of Pocatello], alkaline soil, 4470 ft, 24 Aug 1935, *Davis 247-35* (IDS-2 sheets); near Hawkins Reservoir, R35E, T10S, Sec 35, moist area next Hawkins Creek, 5000 ft, 17 Jul 2001, *Davis 2001.123* (CIC); along Spring Creek from Sheepskin Road to American Falls Reservoir, T5S R33E S1/2 S29 [42.95671 N, 112.62454 W], 18 Aug 1987, *Glennon 1564* (IDS, NY). Bingham Co.: Springfield, banks of slough, 4 Sep 1937, *Christ 8941* (NY); Springfield, 29 Jul 1938, *Davis 1542* (IDS); Sterling Wildlife Management Area, 43.0207° N, 112.7545° W, alkaline mesic meadow, 4370 ft, with *Juncus balticus*, *Hordeum jubatum*, *Distichlis spicata*, *Suaeda calceoliformis*, *Lysimachia maritima*, *Muhlenbergia asperifolia*, *Carex praegracilis*, *Sonchus arvensis*, uncommon, 29 Aug 2018, *Exe MJNE113* (IDS). Cassia Co.: Along the Raft River at Idahome Lane, 3 mi E of Idahome, 42.404448° N, 113.35652° W, dry alkali flat, 27 Aug 1951, *Baker 8750* (NY, WTU-2 sheets); mouth of Raft River, 42.604834° N, 113.24055° W, alkaline meadow and marshes, 24 Aug 1940, *Christ 11794* (ID, NY); 3 mi E of Idahome, 42.415452° N, 113.34085° W, salt flat, saline meadow, 4300 ft, 27 Aug 1951, *Morton s.n.* (ID); Almo, 42.100192° N, 113.63361° W, 28 Jul 1952, *Zappettini 51* (ID). Power Co.: 1 mi E of Arbon Valley Hwy on Lusk loop, 42.574841° N, 112.49816° W, 18 Aug 1987, *Neibaur s.n.* (ID); 5 mi W of Pocatello, 42.871261 N, 112.544368 W, salty meadow, 12 Jul 1937, *Christ 8363* (NY); American Falls, moist saline flats, 28 Jul 1911, *Macbride 1385* (WS).

***Pyrrocoma lanceolata sensu stricto* (Eastern system) in Idaho.** Bear Lake Co.: N end of Bear Lake near pumping plant, 42.226484° N, 111.33373° W, 6 Sep 1937, *Christ 9039* (ID, WS); 2 mi S of Bloomington, 42.162963° N, 111.40056° W, salty marsh edge, 9 Jul 1949, *Christ 18594* (WS); Bear Lake,

42.0503° N, 111.33167° W, 6000 ft, 30 Jul 1930, *Davis s.n.* (IDS); N end of Bear Lake, 42.1214° N, 111.31828° W, wet alkaline soil, 6000 ft, 2 Jun 1939, *Davis* 977 (IDS); 4 mi NE of St. Charles, Bear Lake State Park, N end of Bear Lake, disturbed sandy soil at roadside, edge of marshy area, 6100 ft, frequent, 14 Aug 1993, *Naczi* 3468 (KNK); 2 mi E of Ovid on Hwy 89, 4 mi W of Montpelier, roadside drainage, 5900 ft, with *Sonchus arvensis* and *Carex* spp., 14 Aug 1989, *Shaw* 4653 (COLO). Clark Co.: Ca. 2 mi SE of Monida, Montana, tributary to upper Beaver Creek, 44.543169° N, 112.29459° W, graminoid-dominated meadow, small subirrigated, channel bottom; alkaline alluvial substrate with light gray-colored crusting at surface, 6770 ft, 20 Jul 2005, *Mancuso* 2784 (ID).



Map 3. Distribution of *Pyrrocoma lanceolata* — CENTRAL population system. Bannock, Bingham, Cassia, and Power cos., Idaho. The Power County boundary is outlined in red.

1C. PYRROCOMA LANCEOLATA -- Western population system

Different from (but morphologically overlapping with) eastern *Pyrrocoma lanceolata* in its more elongate basal leaves, spinulose-denticulate leaf margins, clasping to subclasping cauline leaves, and loosely panicate to corymboid-paniculate inflorescence. See types of *P. curvata*, *P. cuspidata*, and *P. kennedyi*.

Involucres (8–)10–12 mm wide (pressed); phyllaries in ca. 3 series of unequal length, inner 6–7 mm long, green patch triangular-lanceolate with a white midline, elongate on distal half, with a slightly raised keel, apex with a short, indurate apiculum. **Ray florets** 10–16, corollas 8–10 mm long, 2–2.2 mm wide, coiling. Figures 21–26.

Flowering June–August (September). Saline meadows, alkaline seeps, alkaline deserts, salt flats, sagebrush flats, creek terraces, playa margins, roadside ditches, old lake beds; (2600–)3300–6200 feet.

Although Western population system seems recognizable as a geographic unit, variation in habit, vestiture, inflorescence, and involucral size and morphology indicates that it needs study. Segregates are discussed in Nesom (2025e, f, g, h, and i; see Map 2 — *P. halophila*, *P. solidaginea*) that probably are closely related or else geographic variants that might be included within the more widely distributed entity. *Pyrrocoma tenuicaulis* and *P. landerantha* are more strongly delimited although the former also needs further study.

Northernmost populations of the Western system — Union, Baker, Grant, Harney, and northern Malheur cos., Oregon, and Payette, Gem, and Canyon cos., Idaho — might also constitute an evolutionary unit. There is a tendency in these plants for a racemose to subspicate inflorescence and the involucres tend to be more variable in size than those to the south. *Pyrrocoma payettensis* (Nesom 2025a) may prove to be a morphological extreme of this group.

ACKNOWLEDGEMENTS

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Figure 1. *Pyrrcoma lanceolata*. Canada, Saskatchewan, Drummond s.n. (K). Holotype of *Donia lanceolata*.



Figure 2. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Curtis s.n. (NY). Holotype of *Pyrrocoma lagopus*.



Figure 3. *Pyrocoma lanceolata*. EASTERN. Wyoming, Fremont Co., Haines 7048 (RM).



Figure 4. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Fremont Co., Johnson 2594 (BRY).



Figure 5. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Sweetwater Co., Harrison 13096 (NY).



Figure 6. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Lincoln Co., Dorn 4400 (NY).



Figure 7. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Lincoln Co., Jones 6942 (NY).



Figure 8. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Lincoln Co., Goodrich 28686 (BRY).



Figure 9. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Sublette Co., Fertig 31946 (UT).



Figure 10. *Pyrocoma lanceolata*. EASTERN. Utah, Uinta Co., Garrett s.n. (UT).

Figure 11. *Pyrocoma lanceolata*. EASTERN. Wyoming, Carbon Co., Ward 3733 (RM).



Figure 12. *Pyrrocoma lanceolata*. EASTERN. Wyoming, Carbon Co., Hammel 663 (RM).



Figure 13. *Pyrocoma lanceolata*. EASTERN. Idaho, Bear Lake Co., Shaw 4653 (UT).



Figure 14. *Pyrocoma lanceolata*. EASTERN. Idaho, Bear Lake Co., Flowers 2274 (UT).



Figure 15. *Pyrocoma lanceolata*. CENTRAL. Idaho, Bannock Co., Holte et al. 371 (SRP).



Figure 16. *Pyrocoma lanceolata*. CENTRAL. Idaho, Bannock Co., Glennon 1483 (IDS).



Figure 17. *Pyrocoma lanceolata*. CENTRAL. Idaho, Bannock Co., Glennon 1483 (SRP).

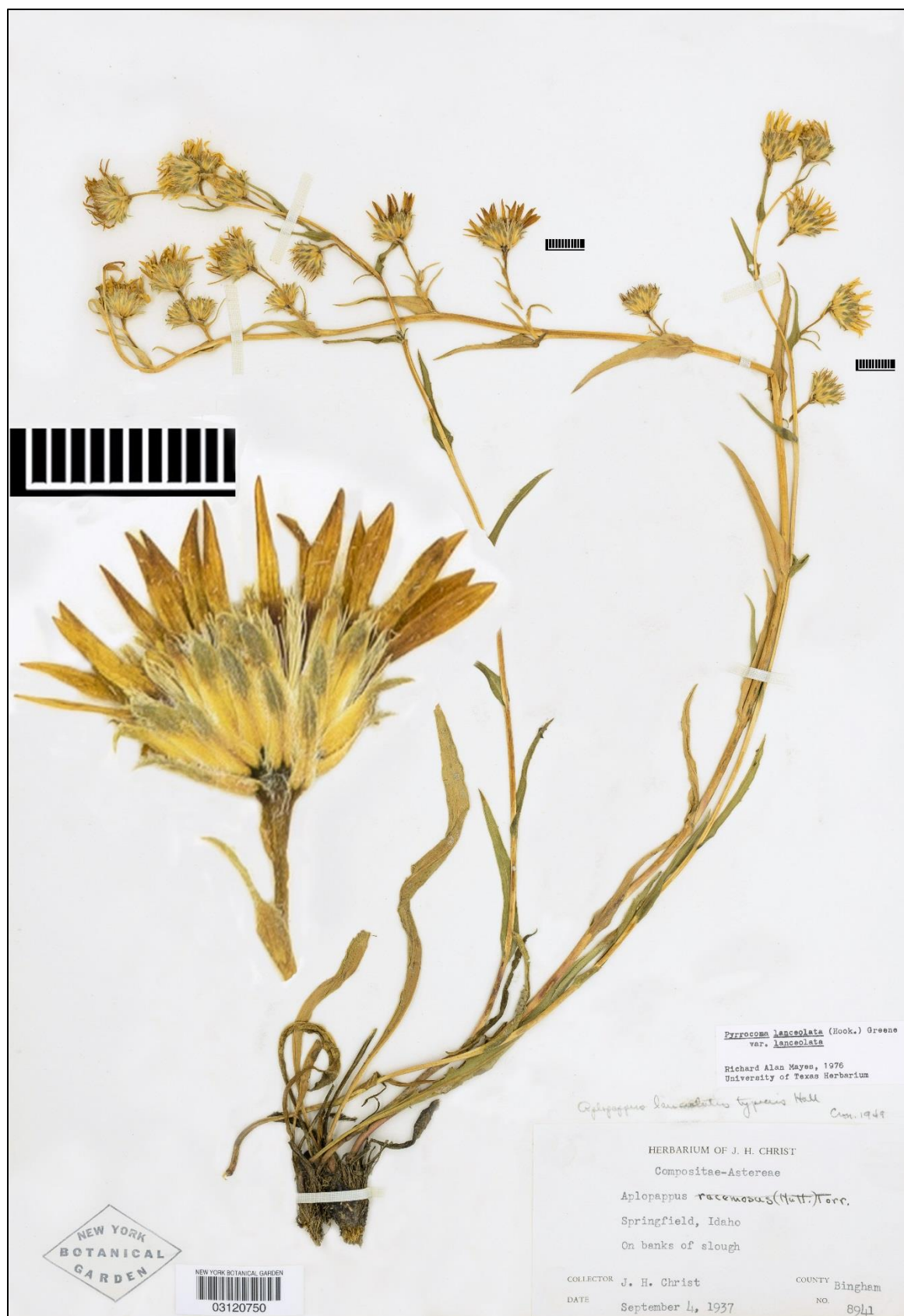


Figure 18. *Pyrocoma lanceolata*. CENTRAL. Idaho, Bingham Co., Christ 8941 (NY).

Nesom: *Pyrrocoma lanceolata*Figure 19. *Pyrrocoma lanceolata*. CENTRAL. Idaho, Power Co., Neibaur s.n. (ID).



Figure 20. *Pyrocoma lanceolata*. CENTRAL. Idaho, Cassia Co., Baker 8750 (NY).



Figure 21. *Pyrrocoma lanceolata*. WESTERN. Oregon, Klamath Co., Evans 395 (OSC).

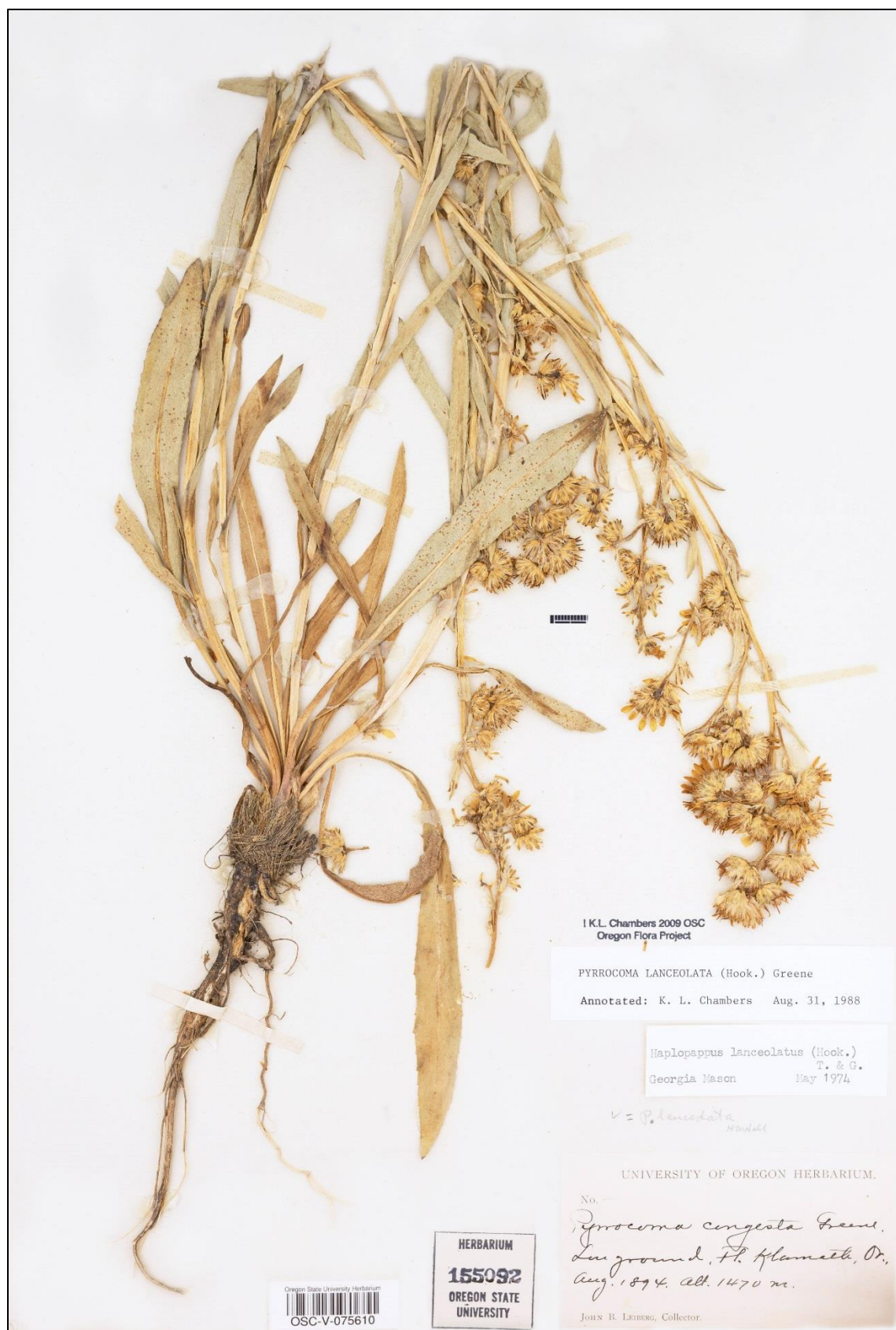


Figure 22. *Pyrocoma lanceolata*. WESTERN. Oregon, Klamath Co., Leiberg s.n. (OSC).



Figure 23. *Pyrocoma lanceolata*. WESTERN. Oregon, Klamath Co., Coville 1349 (US).



Figure 24. *Pyrocoma lanceolata*. WESTERN. Oregon, Klamath Co., Leiberg s.n. (US).



Figure 25. *Pyrocoma lanceolata*. WESTERN. Oregon, Klamath Co., Leiberg 4636 (OSC).



Figure 26. *Pyrocoma lanceolata*. WESTERN. Oregon, Klamath Co., Hitchcock 19495 (WTU).