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GEOGRAPHY OF *GRINDELIA COLUMBIANA* (ASTERACEAE: ASTEREAE)

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

ABSTRACT

Plants of Washington and Oregon identified mostly as *Grindelia nana* var. *discoidea* or *Grindelia columbiana* are discretely different in morphology from *G. nana* Nutt. and are more narrowly distributed, restricted to Columbia River shores or close by. Their distinction is confirmed here and they are recognized as *Grindelia columbiana* Rydb. The distributions of both species are mapped. Discoid plants in southeastern Idaho probably are probably not the same species as *G. columbiana*.

Discoid *Grindelia* from Washington and Oregon has been subject to taxonomic and nomenclatural disagreement. The species was first described by Nuttall as *Grindelia discoidea*, but Hooker and Arnott had used the name four years earlier. Rydberg followed Nuttall in applying a name at specific rank — Steyermark recognized it as as species, followed in that assessment by Cronquist (1973, 1994) and Ferris (1960). Asa Gray, however, then Piper, and most recently Moore (2020), have regarded it as an infraspecific variant of *G. nana* Nutt. Strother and Wetter (2006), followed by Giblin et al. (2018) positioned it within a broadly conceived *G. hirsutula*. Here, a case is made for identifying the discoid plants as specifically distinct from *G. nana*, using the apt epithet of Piper and Rydberg.

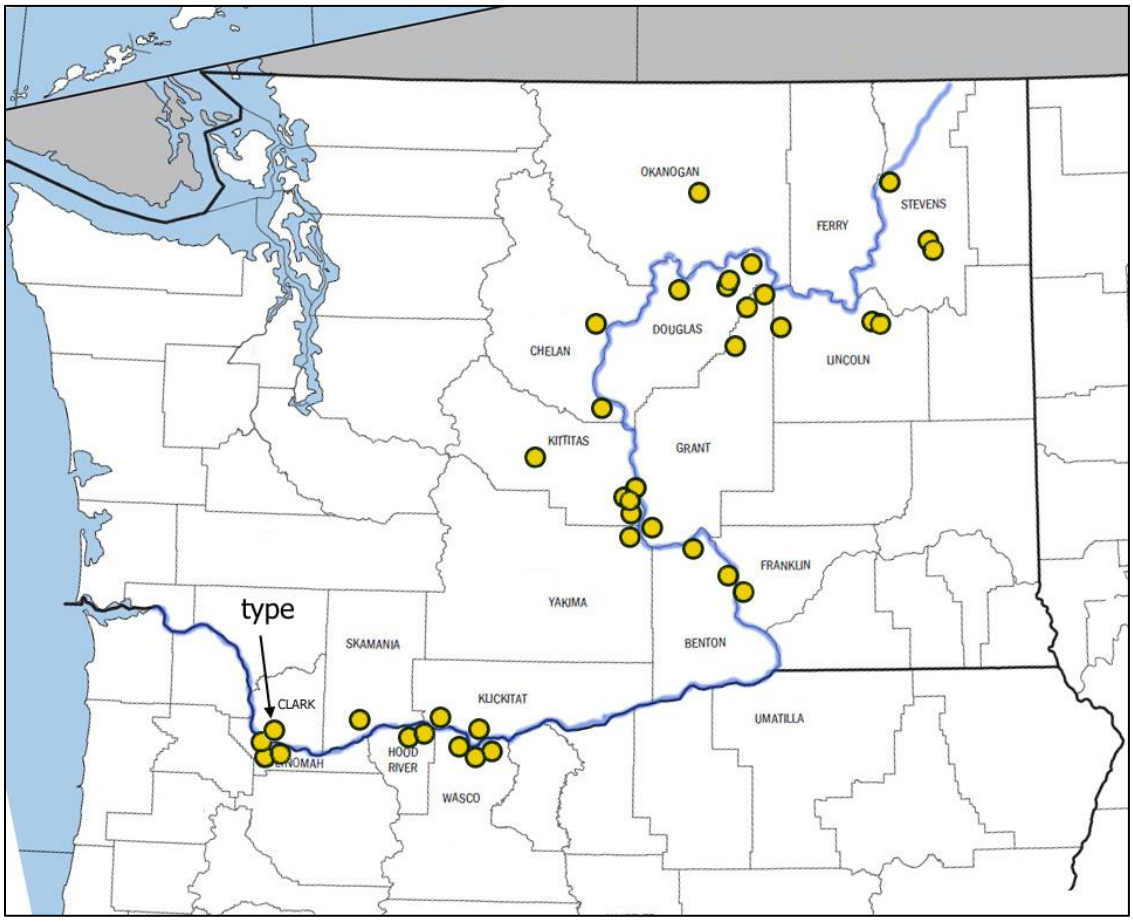
GRINDELIA COLUMBIANA Rydb., Bull. Torrey Bot. Club 37: 128. 1910. *Grindelia discoidea* Nutt., Trans. Amer. Philos. Soc. ser. 2, 7: 315. 1840 [nom. illeg.; not Hook. & Arn., Companion Bot. Mag. 11: 45. 1836, the type from South America]. *Grindelia nana* var. *discoidea* A. Gray, Synopt. Fl. N. Amer. 1(2): 119. 1884 [nom. nov., replacing *Grindelia discoidea* Nutt.]. *Grindelia nana* **[**unranked**]** *columbiana* Piper, Contr. U.S. Natl. Herb. 11: 556. 1906 [nom. nov. illeg., replacing *Grindelia nana* var. *discoidea* A. Gray]. *Grindelia nana* var. *columbiana* (Piper) Bartoli & Tortosa, Ann. Missouri Bot. Gard. 98: 488. 2012 [nom. illeg., fide IPNI]. **TYPE**: **Washington**. [Clark Co.]: [Fort] Vancouver, Sep 1834, *T. Nuttall s.n.* (holotype: PH; isotype: GH).

In his Flora of the State of Washington, Piper (1906) consistently used subspecies as the rank for infraspecific taxa of Asteraceae (making many new combinations as such), and his failure to specify rank for "columbiana" probably was an oversight. In transferring the name to specific rank, Rydberg cited the basionym as "*Grindelia nana columbiana*" and gave the authority for the new name as "(Piper) Rydb. comb. nov." — Piper's epithet has been considered to be at that rank and nomenclatural form by Cronquist (1955, 1994) and Ferris (1960). IPNI (in Dec 2025), however, considers the correct name to be "*Grindelia columbiana* Rydb.," apparently regarding Piper's newly coined infraspecific epithet to be superfluous and illegitimate (replacing a name at varietal rank with a different one at subspecific rank) and Rydberg's name as a nomen novum — IPNI is followed here in order to be aligned with the current flow of authoritative opinion. In this view, Piper apparently was not trying to add an infraspecific rank (beyond the secondary rank of variety) but rather to use the category "subspecies" instead of "variety," considering them to be of the same rank. This perhaps is how it's viewed by IPNI, although it seems that the Code does not provide guidance in this.

Bartoli and Tortosa (2012) identified this entity as "*Grindelia nana* var. *columbiana* Piper" — IPNI considers this as publication of an illegitimate name (as "*G. nana* var. *columbiana* (Piper) Bartoli & Tortosa") but there is no indication that it was intended to be a new combination. It probably was the interpretation of Bartoli and Tortosa of the rank category intended by Piper.

Flowering June-August (September). Along the Columbia River (among rocks, rocky, gravelly, sandy soil and bars, muddy banks, riparian associations, hillsides), roadsides and other disturbed sites, alkali lake shores; 20–850 (–1500) feet, 2100–3550 feet in Douglas, Lincoln, Okanogan, and Stevens cos. Map 1.

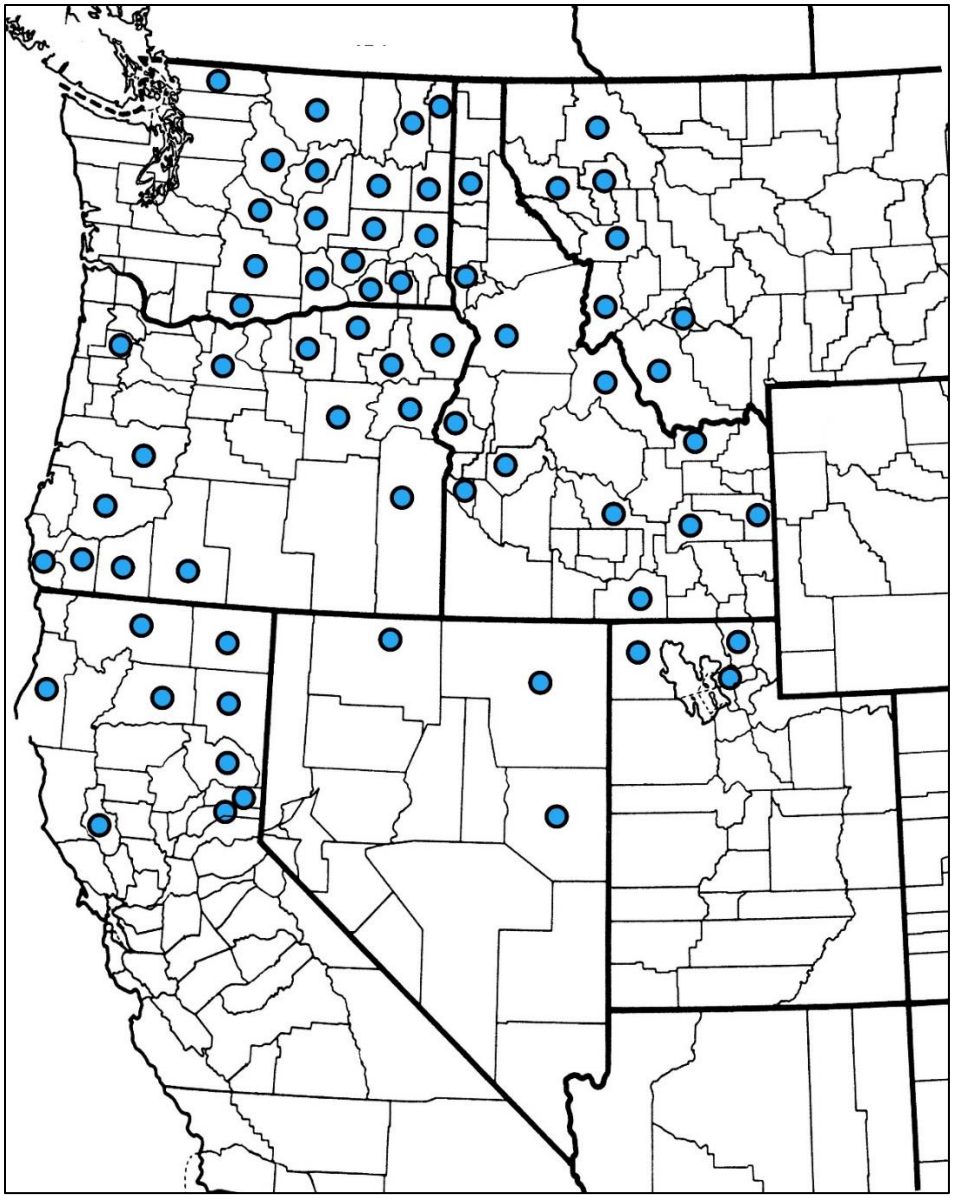
Northern localities in Washington are at greater distances from the river and at higher elevations, but morphological differences are not evident. The collection (cited, not seen, not mapped) from British Columbia is close to the border of Stevens County. Discoid plants from Bingham County in southeastern Idaho, sometimes referred to var. *disoidea*, are discussed below.



Map 2. Distribution of *Grindelia columbiana*. The blue line is the Columbia River. All mapped records are cited. See text for comments regarding collections from Idaho and British Columbia.

Steyermark (1934, p. 556) observed that *Grindelia columbiana* differs from *G. nana* "chiefly in its more serrulate or setulose-serrulate pappus awns, discoid heads, and in a receptacle which becomes slightly distended at the base." Cronquist's key (of 1955) separated them as discoid vs. radiate, but his description of *G. columbiana* noted "involucres moderately to strongly resinous, more nearly resembling that of *G. squarrosa* than *G. nana*." Others (Piper 1906, Ferris 1960, Moore 2020) have used only the lack of rays in distinguishing *G. columbiana*.

The unambiguous morphological difference and the sharply delimited geography of *Grindelia columbiana* support its recognition as a species distinct from *G. nana*. The latter has a wider range (Map 2) and is sympatric with the former. Remarkably, each species is typified by a Nuttall collection from Vancouver, Washington. Outside of *G. columbiana*, discoid heads are not known from elsewhere in the range of *G. nana*.



Map 1. Distribution of *Grindelia nana*. The distribution continues into British Columbia. Data from various sources. *Grindelia nana* is morphologically and molecularly variable and probably comprises several distinct entities (for which names at specific rank already are available).

Grindelia columbiana. **Additional collections**. **BRITISH COLUMBIA**. Grand Forks, old smelter, 20 Jul 1939, *Eastman s.n.* (UBC, not seen). **OREGON.** Hood River Co.: Columbia River, Mitchell's Point, 45.7011° N, 121.6156° W, among rocks, [ca. 830 ft], 21 Aug 1882, *Henderson 435* (MO, OSC); Columbia River, Shell Rock, dry, rocky ground, 21 Aug 1882, *Howell s.n.* (OSC); Hood River, Jul 1886, *Howell s.n.* (OSC). Multnomah Co.: Columbia Beach, 19 Sep 1915, *Flinn 1900* (HPSU) and *1901* (HPSU); Portland, Lower Albina, 21 Jul 1902, *Sheldon 10960* (GH, MO, NY, OSC, POM, US); Hayden Island, opposite Vancouver, muddy shore of Columbia River, 9 Oct 1920, *Nelson 3394* (GH); Hayden Island, opposite Vancouver, 45.622617° N, 122.70176° W, sandy beach, [ca. 35 ft], 18 Sep 1927, *Thompson 3848* (WTU). Umatilla Co.: No other locality data [not mapped], 1938, *Zivney 800* (OSC). Wasco Co.: Columbia Hwy W of The Dalles, N side of road, 3 Jul 1938, *Baker 898* (ID); The Dalles, 7 Sep 1947, *Baker 5112* (ID); The Dalles, banks of the Columbia River, 28 Aug 1910,

Flinn 1899 (HPSU); The Dalles, along roadsides and streets, 18 Jun 1924, *Gilkey s.n.* (OSC); The Dalles, slopes overlooking the Columbia River, 4 Jul 1931, *Howell 7194* (CAS); The Dalles, dry hillsides, 15 Sep 1933, *Jones 4282* (WTU); Columbia River, shore at mouth of Deschutes River, 29 Jul 1914, *Peck 4914* (OSC); Columbia River, bar near mouth of Deschutes River, 30 Jul 1914, *Peck 4906* (OSC); The Dalles, dry ground, 1 Aug 1921, *Peck 10484* (OSC). **WASHINGTON**. Benton Co.: Hanford Works (DOE) Columbia River, shoreline N of 100-D area, 46.701614 N, 119.526491 W, 390 ft, 14 Aug 1984, *Baird 1397* (NY); Wooded Island, near center, 46.430614° N, 119.263589° W, occasional in extensive, diverse, open, wet silty gravel, 25 Aug 2021, *Dunwiddie PWD-21-238* (WTU); Kennewick, Aug 1926, *Jones 354* (PH); Prosser, Aug 1926, *Jones 404* (WS); Columbia River, banks, by Juniper stand, 24 Jun 1983, *Leitz WHC/JGL-33* (WS); Prosser, Alexander Ct., 46.209017° N, 119.75372° W, canal bank, 640 ft, Aug 1972, *Rincker 115* (EWU); Prosser, dry ground above river, 11 Aug 1929, *Smith 151* (WS). Chelan Co.: Wenatchee, near Columbia River, along RR tracks W of Western Storage Co., 1200 ft, 13 Aug 1931, *Moore & Steyermark 3692* (MO); along Columbia River [probably near Chelan], dry hillside, 10 Aug 1938, *Purer 7783* (CM, SD); Wenatchee, rocky bar of the Columbia, [ca. 700 ft], Jul 1899, *Whited 1151* (US). Douglas Co.: Spiva Butte Preserve, Chelan Douglas Land Trust, head of Deep Creek Canyon, ca 0.5 mi E of Spiva Butte, 3 air mi SW of Leahy Junction, 47.89285° N, 119.45240° W, edge of old sandy two track, 2080 ft, 31 Jul 2019, *Fertig 34127* (WS); Wells Wildlife Area. Dyer Hill Road access point, area from parking area to 1 km N along Foster Creek, 2090 ft, 47.88463° N, 119.72034° W, sagebrush steppe upland with riparian corridor, scattered in disturbed soil near parking area, 11 Sep 2014, *Giblin 5433* (WTU); Big Bend Wildlife Area, parking area for Rock Lake at end of 32 Road NE, 48.07807° N, 119.09082° W, disturbed roadside edge, 2375 ft, locally common, 13 Sep 2023, *Giblin 9523* (WTU). Franklin Co.: Hanford Natl Wildlife Refuge, Wahluke Unit Parking Area 4, 46.55334° N, 119.29939° W, semi-permanent pond and adjacent upland, 360 ft, uncommon in disturbed upland adjacent to pond, 17 Sep 2015, *Giblin 5752* (WTU); Savage Island slough, 46.5447° N, 119.2856° W, base of steep W-facing sandy slope, 23 Aug 2021 *Zika PWD-21-177* (WTU). Grant Co.: Grand Coulee, above Blue Lake, 5 Jul 1926, *Babcock & Collins 52* (UC); Grand Coulee area, Coulee bottom, 47.5453° N, 119.3935° W, [ca. 1500 ft], with *Artemisia tripartita*, 6 Jun 1998, *Camp 1281* (WTU); near Banks Lake, informal parking area S of Hwy 2, 47.625 N, 119.332 W, sagebrush community, ca. 1550 ft, gravelly, compacted sandy area, 1 Jun 2013, *Camp 3277* (WTU); Columbia River near Beverly, sandy, wet flood banks, [ca. 500 ft], 20 Nov 1971, *Taylor 3912* (WWB); Grand Coulee, near Coulee City, shores of alkali lake, 27 Jun 1935, *Thompson 11812* (IND, MONTU, NY, US). Kittitas Co.: Along Columbia River at Dallesport, 45.640391° N, 121.15548° W, sand dunes, 26 Jul 2008, *Gross 364* (WTU); Priest Rapids, S of Vantage along Columbia River, W shore of river above Priest Rapids Dam, about 0.8 mi N of Borden Springs, 46.744349°, 119.97969°, broad, flat floodplain, water's edge, 12 Sep 1980, *Mastrogiuseppe 2640* (WS); Yakima Training Center, Hanson Creek, Training Area 5, 46.773299° N, 120.01484° W, beaver pond ford, beside creek on flat flooded by beaver dam until flash flood in July 1991, 850 ft, 27 Aug 1991, *Mastrogiuseppe 6339* (ID, WTU); 4 mi E of Cle Elum, 1000 m, 13 Aug 1931, *Moore & Steyermark 3694* (MO); Ginkgo State Park, W bank Columbia River, 46.94945° N, 120.00305° W, below high water line, [ca. 840 ft], 15 Aug 1936, *Smith 1769* (WTU); W shore of Priest Rapids Reservoir on Columbia River, 0.8 air km SSE of Wanapum Dam, near boat launch, 46.865° N, 119.969° W, sandy ground at upper edge of riparian zone, 510 ft, 23 Sep 2020, *Zika 30429* (WTU). Klickitat Co.: W part of the county, sandy banks of the Columbia River, Sep 1883, *Suksdorf 189* (F, GH, UC, US); Bingen, sandy banks of the Columbia River, 27 Aug 1903, *Suksdorf 515* (DS). Lincoln Co.: 5 mi W of Davenport, Lake Creek watershed, treeless plain, 2500 ft, 25 Jul 1933, *Benson 5500* (RSA); 5 mi S of Grand Coulee dam, low spot in pasture, 10 Aug 1941, *Brenckle 41-170* (UBC); Davenport, 26 Jun 1952, *Howell 28489* (US); [no locality given on label], 24 Jul 1989, *Robson s.n.* (WTU); near Wilbur, sagebrush plains 30 Jun 1931, *Thompson 7164* (UC, GH, MO). Okanogan Co.: Concully Reservoir, sandy lake shore margin, 2300 ft, occasional to scattered, 15 Aug 1978, *Naas 3742* (NOCA). Skamania Co.: SE end of Pierce Island on N shore of Columbia River, across from Beacon Rock State Park, Columbia Land Trust Pierce Island Preserve, 45.621536° N, 122.00343° W, vernal area on clayey sand and scattered cobbles in old channel, [ca. 15

ft], 7 Oct 2021, *Fertig 35317* (WS). Stevens Co.: Meyers Falls, dry sand, 20 Aug 1902, *Kreager 473* (GH, MIN, NY, US, UTC, WTU); near Upper Cottonwood Road, shoulder of closed road #230 just beyond first set of berms and scattered at least two more spots in next 0.5 mi, 48.237065° N, 117.60534° W, 3080 ft, 25 Aug 1999, *Swartz 551* (WTU); Colville Natl Forest, shoulder of Cottonwood Divide road #4342, a short distance above intersection with Road #300, 48.239605° N, 117.54634° W, 3560 ft, 29 Aug 1999, *Swartz 554* (WTU). Yakima Co.: Columbia River near mouth of Alkali Canyon, below Borden Springs, training Area 6B, 46.735131° N, 119.97893° W, small bay of river shore, outwash deposits, 15 Sep 1989, *Bagley 5411* (ID)

Discoid plants from southeastern Idaho

Two collections from Bingham Co., Idaho, sometimes have been identified as *Grindelia nana* var. *discoidea* because of the rayless heads (Fig. 1), but they are far out of range and probably derived independently of *G. columbiana*. A plausible guess is that they are most closely related to *G. howellii*.

IDAHO. Bingham Co.: Blackfoot, southern Idaho, dried sink, 23 Jul 1897, *L.F. Henderson 2996* (GH); Blackfoot, 9 Aug 1892, *A.I. Mulford s.n.* (DOV, MIN, NY).

Figure 1. *Grindelia* sp. (rayless). Bingham Co., Idaho, *Mulford s.n.* (NY).

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