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GRINDELIA ARIZONICA AND *GRINDELIA NEOMEXICANA* (ASTERACEAE: ASTEREAE)

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ABSTRACT

Grindelia arizonica sensu stricto is a species of central Arizona and adjacent New Mexico — it is allopatric with the closely similar *G. stenophylla* from Colorado and northwestern New Mexico. **Grindelia coconinoa** Nesom, **sp. nov.**, from the Coconino Plateau of Arizona, is distinctive in its pinnatifid leaves and is hypothesized to be most closely related to *G. arizonica* and the mainly Coloradan *G. stenophylla* and *G. laciniata*. Plants of trans-Pecos Texas and of Chihuahua previously identified as *G. arizonica* are different species and probably most closely related to *G. scabra*. *Grindelia neomexicana* is from southwestern New Mexico (mapped here) and has been nomenclaturally allied (mistakenly) with *G. arizonica* — it has features suggesting that its closer relationship lies with *G. scabra* and *G. havardii* of southeastern New Mexico and trans-Pecos Texas.

Grindelia arizonica A. Gray has been identified mostly as a species of central Arizona and immediately adjacent New Mexico and of southeastern Colorado and adjacent New Mexico, but the northern populations are morphologically distinct (Nesom 2025; Map 1) and justifiably identified as *G. stenophylla* (Steyerm.) Nesom. In 1990, I treated *G. arizonica* as conspecific with *G. neomexicana* Woot. & Standl., but with more collections now easily available for study, it is clear that I was mistaken. Steyermark (1934) was closer to the mark, placing typical *G. arizonica*, var. *stenophylla*, and var. *dentata* in the same group of his key. Plants from Texas and Chihuahua previously identified as *G. arizonica* (Nesom 1990) are treated as different species (Nesom in prep.).

1. Mostly annual; midcauline leaves mostly 3–6 mm wide; involucres 12–13 mm wide; phyllaries graduate in length, outermost ca. 1/4-1/3 as long as the inner; ray florets 12–20; achenes longitudinally furrowed ..... **Grindelia arizonica**

1. Perennial, sometimes flowering the first year; midcauline leaves 5–8 mm wide; involucres 18–19 mm wide; phyllaries subequal in length, outermost as long or slightly longer than the inner; ray florets 16–28; achenes +- smooth ..... **Grindelia neomexicana**

1. GRINDELIA ARIZONICA A. Gray, Proc. Amer. Acad. Arts 17: 208. 1882. **TYPE**: **USA**. **Arizona**. [Apache Co.]: "Southern Arizona," Mesa of Black River, Sep 1874, *J.T. Rothrock 796* (holotype: GH 8420; isotypes: GH 8422, NY).

"In Gray's 1882 publication of this name, he noted that it was 'as yet unpublished (to which belongs *G. microcephala*, Rothrock in Wheeler Rep. 141)' (Vol.. VI.-Botany 141. 1878). In Wheeler's report, Rothrock had presented a description and citation of his own collection *796*, which he identified as *G. microcephala* DC. Two years later (Synopt. Fl. N. Amer. 1[2]: 118. 1884) Gray cited his 1882 publication of *G. arizonica* as the origin of its name" (from Nesom 1990, p. 318).

Rothrock made a number of collections from "Black River" in 1874, including "Black River flats," "mesa south of Black River," and Black River south of Camp Apache." The locality is mapped here at the confluence of the East and West Forks of the Black River (33.75° N, 109.36° W).

Grindelia setulifera Woot. & Standl., Contr. U.S. Natl. Herb. 16: 179. 1913. **TYPE**: **New Mexico**. [Catron Co.]: High summits of the Mogollon Mountains, Sep 1881, *H.H. Rusby 206* (holotype: US 127658; isotypes: DOV, MICH, US 1679686, WS).

Grindelia arizonica var. *microphylla* Steyerm, Ann. Missouri Bot. Gard. 21: 508. 1934. **TYPE**: **Arizona**. [Greenlee Co.]: 10 mi N of Clifton, San Francisco River, 7 Sep 1902, *A. Davidson 736* (holotype: GH; isotypes: CAS, PH, RM).

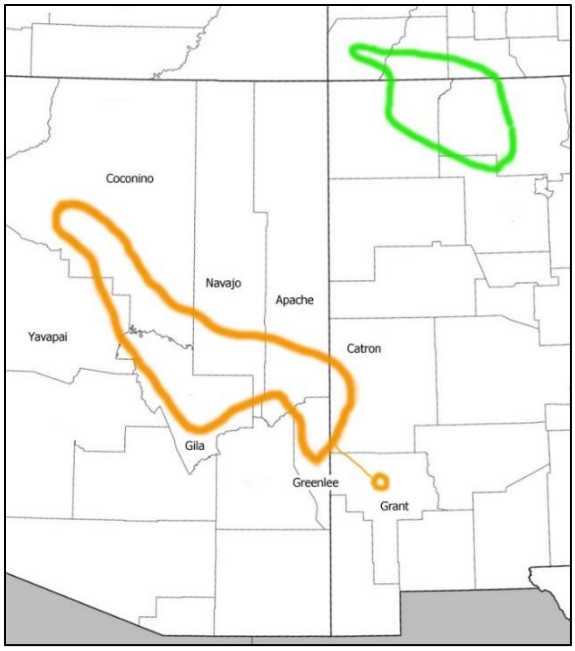
Grindelia arizonica A. Gray var. *dentata* Steyerm., Ann. Missouri Bot. Gard. 21: 508. 1934. **TYPE**: **New Mexico**. Grant Co.: Bear Mountain near Silver City, ca. 8000 ft, 19 Sep 1903, *O.B. Metcalfe 744* (holotype: US; isotypes: GH, MIN, MO, ND, NY, RM).

Annual or sometimes apparently biennial to short-lived perennial herbs, glabrous, slender-taprooted. **Stems** mostly 30–90 cm tall, 1 (most commonly) or several from the base, often purplish, branching mostly above midstem. **Leaves**: basal entire to pinnatifid, cauline mostly oblong to oblong-lanceolate, 2–5 cm long, midcauline mostly 3–6 mm wide, sessile (not subclasping), gland-dotted, not viscid, margins serrate with sharp-pointed, indurate-tipped teeth. **Heads** in a distinct corymb, not immediately subtended by bracts. **Involucres** 12–16 mm wide (pressed); phyllaries linear-lanceolate to narrowly oblong-lanceolate, in 4–5 series graduate in length, inner 8–10 mm long, green on the distal 1/2–1/3, apex narrowly acute or becoming linear and slightly reflexed, outermost ca. 1/4–1/3 as long as the inner. **Ray florets** 12–20. **Disc corollas** 5 mm long. **Achenes** with shallow longitudinal furrows. Figures 1-6.

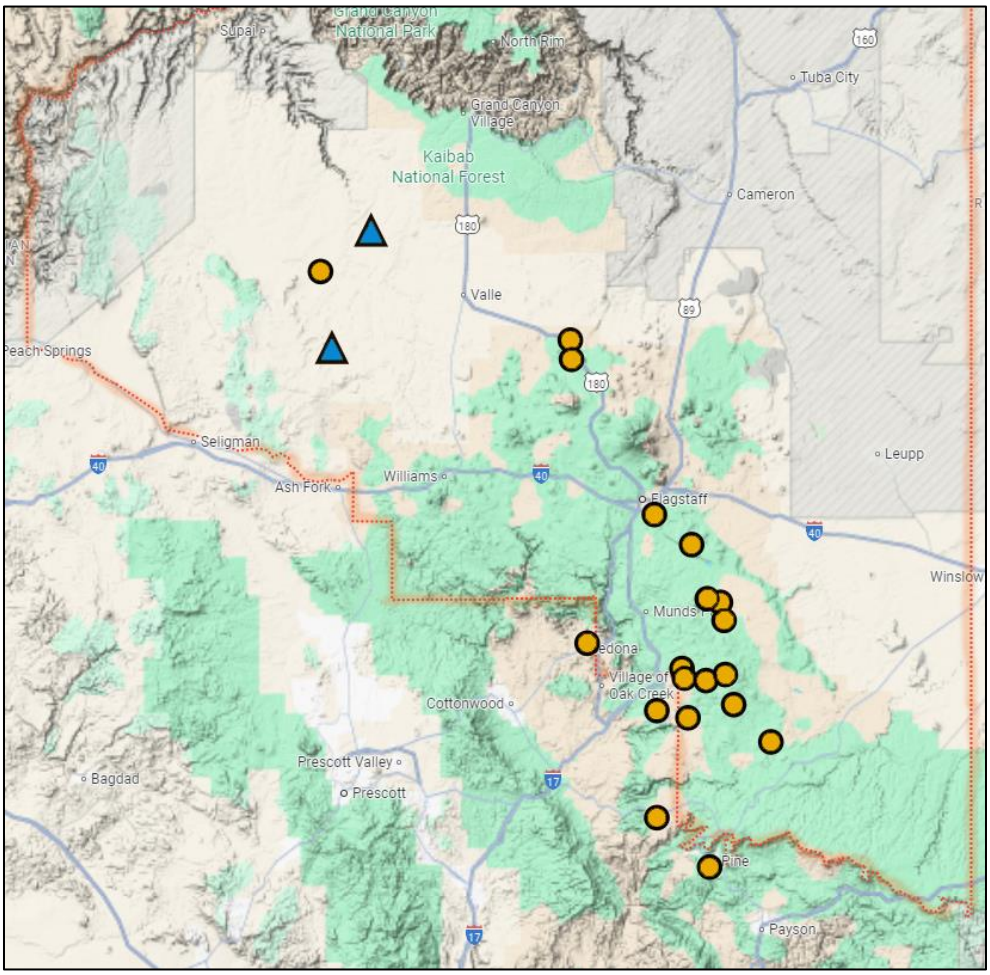
Flowering July-September (-October). Pine, pine-oak, pine-juniper, juniper, juniper-oak, openings, roadsides, disturbed sites, meadows and pastures, canyon bottoms, rocky soil; (4000-) 4400-7000 (-7400; -8000 on Bear Mtn) feet.

Grindelia arizonica in New Mexico. Catron Co.: Pueblo Park Rd 0.25 mi W of Hwy 180, 33.64 N, 108.89 W, N-facing slope under trees, 6068 ft, with *Pinus ponderosa*, *Juniperus scopulorum*, 28 Sep 1995, *Peterson 95-618* (SFBG not seen); San Francisco Mtns, 29.8 mi N of the Catron-Grant co. line along Hwy 180, 33.58 N, 108.91 W, locally abundant along a rocky roadcut in gravelly loam soil, some plants apparently perennial with new rosettes on flowering stems, heads not very sticky, close (0.2 mi) to a population of *Grindelia aphanactis*, no hybrids found, 14 Aug 1983, *Freeman & Wetter 2142* (NMC, NY, RM); ca. 2 mi N of bridge at Glenwood along Hwy 180, 33.34 N, 108.89 W, 1 Aug 1980 *Wetter 675* (NY); along Hwy 180, 7.3 mi N of Catron-Grant Co. line, 4.8 mi S of jct with Hwy 78 at Alma, 33.29 N, 108.88 W, 4900 ft, 18 Aug 1980, *Wetter 799* (NY); 10.6 mi N of Catron-Grant Co. line along Hwy 180, 1.8 mi S of jct with Hwy 78 at Alma, 33.33 N, 108.89 W, 18 Aug 1984, *Wetter 800* (COLO, NY, RM); along Hwy 180, 26.6 mi N of Catron-Grant Co. line, 14.5 mi N of jct with Hwy 78 at Alma, 10.4 mi S of jct with Hwy 12, 33.54 N, 108.94 W, 6300 ft, 18 Aug 1984, *Wetter 801* (COLO, NY, RM); along Hwy 180, 3.8 mi S of jct with Hwy 12, 33.2 mi N of Catron-Grant Co. line, 33.61 N, 108.89 W, 6100 ft, 18 Aug 1984, *Wetter 802* (NY). Grant Co.: Bear Mountain near Silver City, ca. 8000 ft, 19 Sep 1903, *Metcalfe 744* (TYPE of *G. arizonica* var. *dentata*); 12 mi NW of Mimbres [on Hwy 35], 32.99 N, 108.70 W, open meadows in pine forest, 6400 ft, common, 30 Aug 2006, *Neff 06-08-30-01* (TEX).

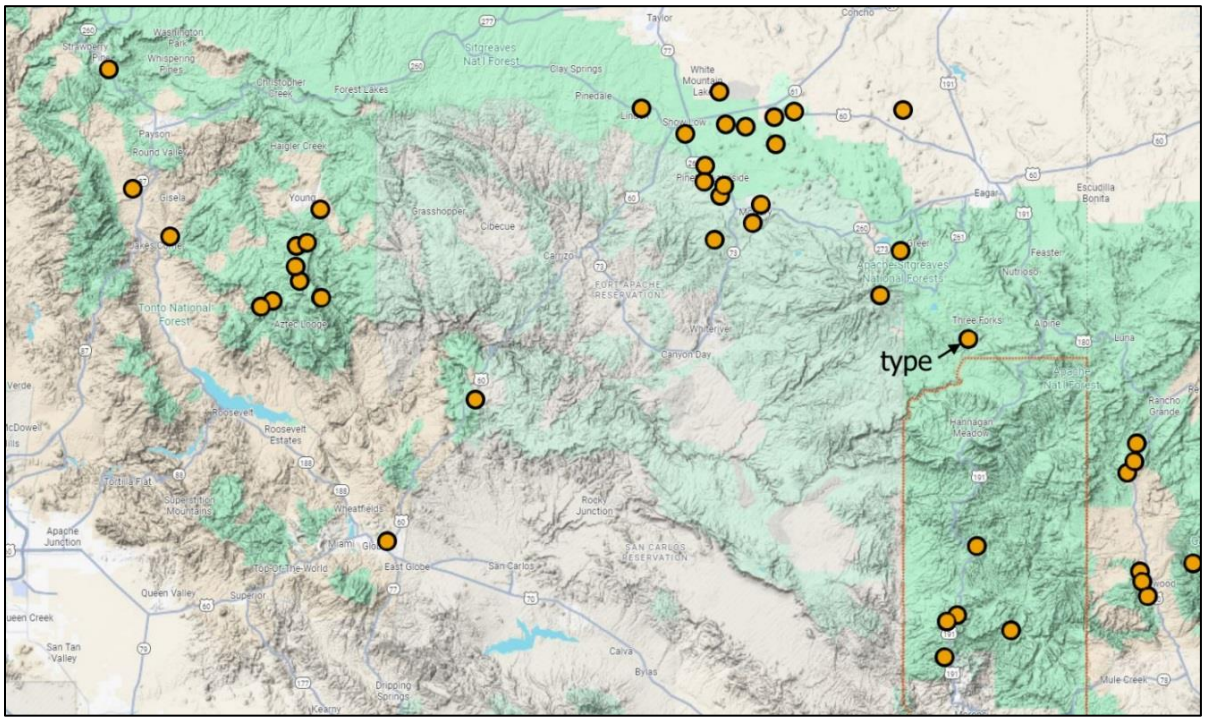
The type of *Grindelia arizonica* var. *dentata* is a collection of typical *G. arizonica* from Bear Mountain (Grant County, northwest of Silver City), seemingly separated southward from the main range of the species. A collection from the "W side of Bear Mtn" (*Fletcher 4295,* with collector's geographic coordinates, cited below) is typical *G. neomexicana*. Metcalfe made many collections from Bear Mountain in April to September 1903, his numbers ranging from 10 to 883 (fide Intermountain Consortium) — among those from September 19th are 740, 741, 742, 743, 744 (var. *dentata*), 745, 747, 748, and 749, thus the geography of var. *dentata* seems securely established. The Neff collection from Grant County is more recent and the plants there were noted to be "common."



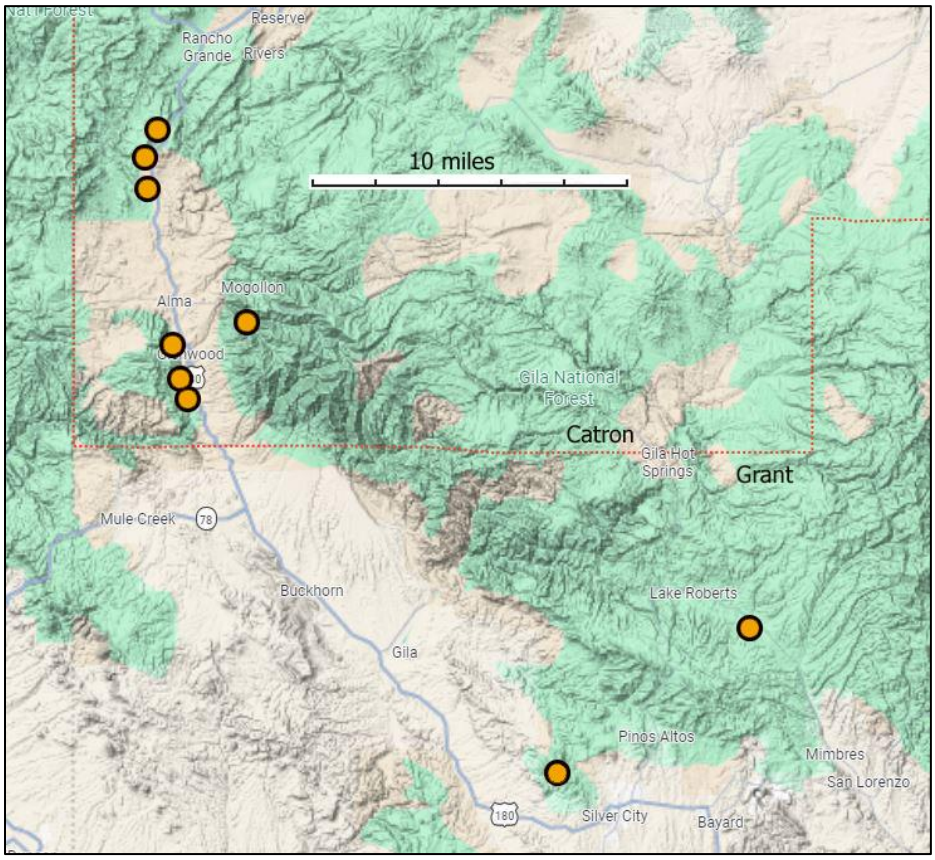
Map 1. Distribution of *Grindelia arizonica* (gold) and *G. stenophylla* (green).



Map 2. Distribution of *Grindelia arizonica* (circles) and *G. coconinoa* (triangles) in Coconino (red outline) and Yavapai cos., Arizona.



Map 3. Distribution of *Grindelia arizonica* in Greenlee (red outline), Navajo, Apache, and Gila cos., Arizona, and Catron Co., New Mexico. Records for mapping are mostly from the Intermountain Consortium herbaria.



Map 4. Distribution of *Grindelia arizonica* in New Mexico. The Catron Co. boundary is outlined in red.

A population system of southwestern Colorado and adjacent New Mexico has been identified as *Grindelia arizonica* var. *stenophylla* but is justifiably treated at specific rank (Nesom 2025), as *G. stenophylla* (Steyerm.) Nesom (Figs. 7-8). In addition to the geographical disparity, the northern plants are perennial and have a bracteate inflorescence (compared to annual duration and leafy inflorescence in typical *G. arizonica*). The mainly Coloradan *G. decumbens* Greene and *G. laciniata* Rydb. are similar to *G. stenophylla* and are hypothesized to be part of a species group that includes *G. arizonica* and a previously undescribed species (immediately below), the group characterized by relatively small involucres (7–11 mm wide) with unequal-graduate phyllaries and heads in a subcorymboid, relatively compact (short peduncles) inflorescence.

2. GRINDELIA COCONINOA Nesom, **sp. nov. TYPE**: **Arizona**. Coconino Co.: 5 mi SE of Redlands Camp, 35.746683 N, 112.35515 W, roadside, 5800 ft, blue grama grassland, with *Cleome serrulata*, *Marrubium vulgare*, 12 Aug 2007, *G. Goodwin 1592* (holotype: ASC). Figure 9.

Similar to *Grindelia arizonica* but distinct in its pinnately lobed leaves. Similar to *Grindelia laciniata* in the tendency for pinnate lobing but different in its proximal and distal leaves pinnately lobed (vs. distal mostly entire in *G. laciniata*).

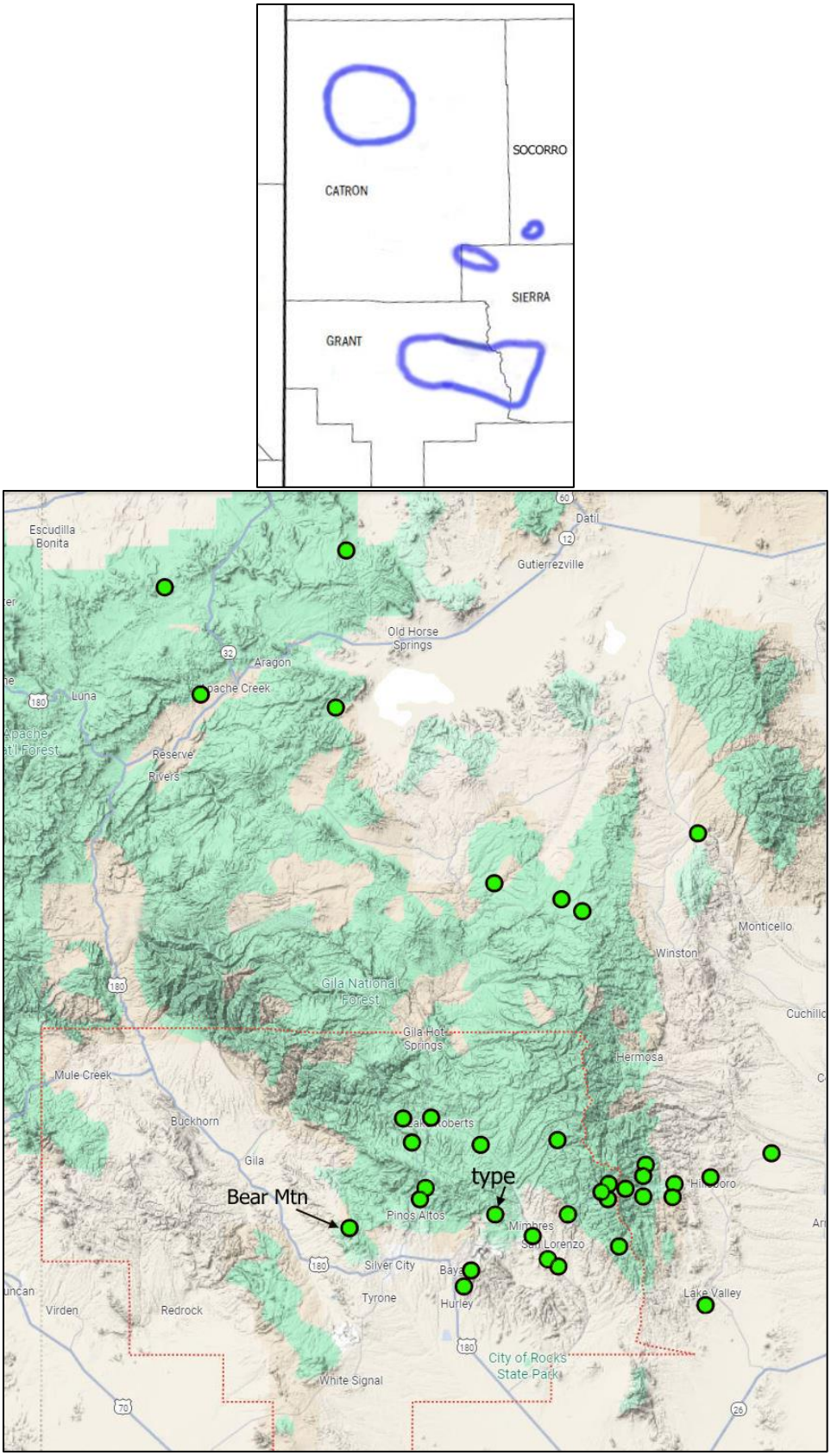
Annual to short-lived perennial herbs, glabrous, taprooted. **Stems** erect, 25–35 cm tall, 4–7 from the base. **Leaves**: basal densely clustered, pinnatifid, mostly senescent and persistent or deciduous before flowering, cauline evenly spaced and relatively even-sized to immediately below the heads, oblong in outline, 2.5–4 cm long, obscurely gland-dotted, slightly subclasping or not, deeply pinnatifid with 3–4(–5) pairs of oblong-linear, opposite to subopposite lobes, midzone area ca. 1–1.3 mm wide, becoming shorter and shallowly lobed near the inflorescence. **Heads** in a distinct corymb, not immediately subtended by bracts. **Involucres** 8–11 mm wide; phyllaries narrowly oblong-lanceolate to narrowly triangular, graduate in length, inner 5–6 mm long, gland-dotted on the distal 1/2–1/3, outermost ca. 1/3–1/2 as long as the inner. **Ray florets** 18–20. **Achenes** oblong, 2.5-3 mm long, longitudinally furrowed. Figures 9-11.

Additional collection. Coconino Co.: Espee Ranch in Monument Wash, 3 mi S of Espee Camp, 35.54395 N, 112.544017 W, gravel drainage channel in a juniper woodland, 5530 ft, limestone soil, 22 Jun 2012, *Goodwin 3472* (ASC). Figure 10.

Grindelia coconinoa is an immediately recognizable species. Its pinnatifid lobing does not occur in typical *G. arizonica* (except sometimes in the basal leaves), but a similar tendency characterizes *G. laciniata* (e.g., Fig. 12), the evolutionary sister of which may be the mostly entire-leaved *G. decumbens* (Nesom 2025), based on their morphology and geography, both hypothesized here to be closely related to *G. arizonica*.

4. GRINDELIA NEOMEXICANA Woot. & Standl., Contr. U.S. Natl. Herb. 16: 178. 1913. *Grindelia scabra* var. *neomexicana* (Woot. & Standl.) Steyerm., Ann. Missouri Bot. Gard. 21: 510. 1934. *Grindelia arizonica* var. *neomexicana* (Woot. & Standl.) Nesom, Phytologia 68: 318. 1990. **TYPE**: **New Mexico**. Grant Co.: Mountains N of Santa Rita, 23 Aug 1900, *E.O. Wooton s.n.* (holotype: US 127645; isotypes: US-2 sheets).

Short-lived perennial herbs, taprooted, sometimes apparently flowering the first year, glabrous. **Stems** 40–120 cm tall. **Leaves**: basal subentire to subpinnatifid, often deciduous before flowering, cauline mostly oblong, midcauline 5–8 mm wide, subclasping, gland-dotted, not viscid, margins serrate with sharp-pointed, indurate-tipped teeth. **Heads** in a distinct corymb, without immediately subtending bracts. **Involucres** 18–19 mm wide (pressed); phyllaries — subequal in length, outermost as long or slightly longer than the inner, inner narrowly oblong, linear distally, 10-11 mm long, outer linear and loose. **Ray florets** 16–28. **Achenes** smooth. Figures 13-18.



Map 5. Distribution of *Grindelia neomexicana*. Grant County is outlined in red.

Flowering (June-) July-September. Pine, juniper-pine-oak, openings, pastures, roadsides, disturbed sites, pond and floodplain edges, riparian, ridges, rock outcrops, rocky and gravelly soil (5200-) 5700-7900 (-8200) feet.

Additional collections. **New Mexico**. Catron Co.: Datil Natl Forest, Mangas Ranger Station pasture, 34.09559 N, 108.3558 W, 7600 ft, 6 Aug 1924, *Kimmel 17* (RM); Gila Natl Forest, ca. 8 mi NNE of Reserve, ca. 1 mi E of Forest Rd 49, 33.8206 N, 108.7009 W, 6663 ft, pinyon juniper-ponderosa pine-grey oak, 6 Aug 2008, *Makings 3005* (SD, USFS-TEUI); Datil Natl Forest, Seven Troughs, 34.0397 N, 108.78579 W, 7725 ft, pine community in a damp site near spring, not common, 26 Aug 1915, *Talbot 181* (RM). Grant Co.: Fort Bayard Watershed, 6020 ft, 20 Aug 1905, *Blumer 4* (GH, NY); Gila Natl Forest, adjacent to Hwy 15 at McMillan Campground, 32.925688 N, 108.213126 W, 7200 ft, gravelly soil, with *Pinus ponderosa*, *Acer negundo*, *Robinia neomexicana*, 1 Jul 2001, *Carter 3258* (UNM); Black Range, E of Santa Rita, 32.810 N, 107.744 W, open woods, 14 Aug 1942, *Clark 8511* (UNM); Twin Sisters Quad., Trout Creek, 32.997291 N, 108.2176 W, 7080 ft, small openings in woodland on ridge top, red rocky barren soil; 20 Sep 2008, *Clifton 47703* (UNM); Santa Rita, 6 Sep 1939, *Cory 33086* (LL); Santa Rita, 6 Sep 1939, *Cory 33085a* (GH); Kingston, 7 Sep 1939, *Cory 33188* (LL); Iron Creek campsite, ca. 15 mi NE of Santa Rita, igneous soil, 28 Jul 1979, *Davies & Turner 79226* (TEX); Black Range, near Emory Pass, Wright Camp, 32.913 N, 107.779 W, 10 Sep 1950, *Dittmer 8512* (UNM); Black Range, Emory Pass, road from Kingston to San Lorenzo, 32.910074 N, 107.7667 W, 7 Aug 1952, *Fleetwood 9400* (UNM); W side of Bear Mtn, Cane Spring Canyon, 32.8435 N, 108.3811 W, 6200 ft, 11 Sep 1980, *Fletcher 4295* (UNM); along Hwy 15 between Pinos Altos and jct with Hwy 35, 33.035038 N, 108.229756 W, roadside near pine forest, 24 Aug 2003, *Holland 10527* (KANU); State Rd 61, 0.8 mi N of San Juan, 32.769 N, 107.910 W, 5700 ft, gravel in sandy clay loam of roadside, 14 Aug 1991, *Hutchins 13186* (UNM); Mimbres Mountains, E of Emory Pass, ca. 32.907 N, 107.769 W, 23 Jun 1956, *Jackson 2070* (UNM); Lake Roberts, 33.03038 N, 108.15806 W, 6187 ft, parking area and boat launch area, 15 Aug 2006, *Kindscher 2650* (KANU-2); Gila Natl Forest, McKnight Road ca. halfway to McKnight Cabin, 33.00852 N, 107.90511 W, 7890 ft, open ponderosa pine forest, roadside, rocky soil, abundant, 9 Jul 2009, *Kindscher 3100* (KANU); Black Range, Iron Canyon, ca. 32.906 N, 107.818 W, 3 Sep 1961, *Osborn 917* (UNM); Black Range, Railroad Canyon, just up from trail head at creek crossing, E side of creek, W-facing rock outcrop, ca. 32.91 N, 107.82 W, 7100 ft, E-facing rock outcrop and along flat stream bank, severly burned ponderosa pine forest, 14 Sep 2022, *Roth 2436* (UNM); along Hwy 15, 11.3 mi N of jct Hwy 15 and 180 at Silver City, 22.4 mi S of jct with Hwy 35, at N edge of Cherry Point Campground, ca. 32.9137 N, 108.2246 W, 6700 ft, 17 Aug 1984, *Wetter 794* (NY); along Hwy 35, 9.2 mi E of jct with Hwy 15, 2.4 mi W of jct with Hwy 61, 6300 ft, 17 Aug 1984, *Wetter 795* (NY); along Hwy 61, S of jct with Hwy 90, 13.5 mi N of Luna-Grant Co. line, 15.7 mi N of Luna-Grant Co. line, 19 mi N of jct with hwy to City of Rocks State Park, 5400 ft, 17 Aug 1984, *Wetter 796* (NY); along Hwy [180], 17.7 mi N of jct with hwy to City of Rocks State Park, 11.6 mi N of Grant-Luna Co. line, 2.6 mi S of jct with Hwy 90, 5700 ft, 18 Aug 1984, *Wetter 797* (NY); along Hwy 90, 6.7 mi W of jct with Hwy 61, 7.7 mi E of jct with Hwy 180 at Central, 6600 ft, 18 Aug 1984, *Wetter 798* (NY-2); along Hwy 90, 1.2 mi E of jct Hwy 90 and 61S, 15.1 mi E of jct Hwy 90 and 180 near Central, 14.5 mi W of Grant-Sierra Co. line, 5900-6000 ft, 30 Aug 1986, *Wetter 997* (BRY, GA, NY-2); along Hwy 90, 8 mi W of Grant-Sierra Co. Line, 7.7 mi E of jct Hwy 90 and 61S, 21.6 mi E of jct Hwy 90 and 180 near Central, 6900 ft, 30 Aug 1986, *Wetter 998* (NY-2); mtns SE of Patterson [ca. 33.8 N, 108.4 W], 16 Aug 1900, *Wooton s.n.* (US). Sierra Co.: Lake Valley [32.72 N, 107.57 W], 1916, *Beals s.n.* (US); 11 mi E of Beaverhead R.S. on Hwy 59, 33.422562 N, 107.965758 W, roadside, 7600 ft, 14 Aug 1982, *Dunbar 392* (UNM); along Hwy 90 [152], 7.8 mi E of the jct (in Hillsboro) of Hwy 90 and 27, 32.965833 N, 107.467488 W, 14 Aug 1983, *Freeman 2134* (NY); along Hwy 90, ca 3 mi W of jct (in Kingston) of Hwy 90 and 27, 32.920306 N, 107.615401 W, 14 Aug 1983, *Freeman 2137* (NY); Gila Natl Forest, Black Range, auxiliary rd off Forest Service Rd 46, ca. 1/2 mi S of jct with Rd 46, near edge of pond, ca. 7500 ft, infrequent, 12 Aug 1982, *Gustafson 2448* (RSA); Percha Creek Box ca 2.5 mi W of Hillsboro on Hwy 152, 32.9178666667 N, 107.61265 W, 5485 ft, 7 Sep 2010, *Heil 32801* (UNM); Black Range, Sawmill Peak area, between sects. 11 and 12 [near Poverty Creek], 33.457953 N, 107.831362 W, 7300 ft, gravel and sandy loam of dry riparian area, 12 Aug 1982, *Hutchins 10291* (UNM); near Hwy 59, vicinity of jct with Forest Rd 46, 33.400278 N, 107.849773 W, 7500 ft, moist sandy loam of meadow, 14 Aug 1982, *Hutchins 10425* (UNM); S end of the Black Range, Kingston, 32.92 N, 107.71 W, 6600 ft, 9 Sep 1904, *Metcalfe 1302* (COLO, NMC, NY, TEX, UNLV, UNM); center

of Hillsboro, Percha Creek along dry drainage, 32.92 N, 107.57 W, 5220 ft, 25 Jul 2010, *O'Kane 9417* (SJNM); boundary of Grant Co. on Hwy 90, roadside, *Pseudotsuga*, pine-oak, 24 Aug 1983, *Sundberg 2156* (TEX); 10 mi W of Hillsboro alo9ng Hwy 90, oak-ponderosa pine, igneous soil, ca. 7200 ft, 30 May 1993, *Turner 93-22* (TEX); along Hwy 90, 4.6 mi E of Sierra-Grant Co. line, 10.7 mi W of jct Hwy 27 and 90 at Hillsboro, 32.897 N, 107.739 W, 7100 ft, 30 Aug 1986, *Wetter 999* (NY); Black Range, 0.5 mi W of Kingston, up North Percha Creek, 23 Aug 1980, *Worthington 6396* (COLO); Black Range, Kingston, 32.92 N, 107.71 W, 6220 ft, 22 Jun 1985, *Worthington 13295* (UTEP); Black Range, Emory Pass at Grant Co. line, 32.9145 N, 107.7595 W, 8202 ft, 12 Jul 1986, *Worthington 14262* (COLO, NY, OBI); Black Range, 2 air mi NE of Kingston [N Percha Rd] in Sawpit Canyon, 32.944 N, 107.699 W, 6500 ft, 8 Aug 1998, *Worthington 27775* (UTEP). Socorro Co.: 15 mi N of Winston, S side of Alamosa Creek ca. 25 mi W of the mouth of Monticello Box, 33.570 N, 107.599 W, 6200 ft, level, clayey soil along the edge of the floodplain, scattered, 26 Aug 2006, *Alexander 433* (NMC).

ACKNOWLEDGEMENTS

Thanks to Zach Rogers (NMC) for sending an image of *Alexander 433* (*Grindelia neomexicana* from Socorro County), staff at ASC for the loan (to TEX) of *G. coconinoa*, and to the staff at TEX-LL for help during recent study there.

LITERATURE CITED

Nesom, G.L. 1990. Studies in the systematics of Mexican and Texan *Grindelia* (Compositae: Astereae). Phytologia 68: 303–332.

Nesom, G.L. 2019. Taxonomy of *Grindelia lanceolata* sensu lato (Asteraceae). Phytoneuron 2019-34: 1–22.

Nesom, G.L. 2025. Taxonomic review of *Grindelia* (Asteraceae: Astereae) in Colorado. Phytoneuron 2025-57: 1–35.

Steyermark, J.A. 1934. Studies in *Grindelia* II. A monograph of the North American species of the genus *Grindelia*. Ann. Missouri Bot. Gard. 21: 433–608.

Figure 1. *Grindelia arizonica*. Coconino Co., *Wetter 781* (NY).

Figure 2. *Grindelia arizonica*. Coconino Co., *Wetter 783* (NY).

Figure 3. *Grindelia arizonica*. Coconino Co., *Huisinga s.n.* (ASC).

Figure 4. *Grindelia arizonica*. Gila Co., *Hodgson 6769* (DES).

Figure 5. *Grindelia arizonica*. Navajo Co., *Wetter 787* (NY).

Figure 6. *Grindelia arizonica* heads. *Wetter 787* from Navajo Co. Arizona.

Figure 7. *Grindelia stenophylla*. Archuleta Co., Colorado. *Wetter 710* (NY).

Figure 8. *Grindelia stenophylla*. Rio Arriba Co., New Mexico. *Wetter 701* (NY).

Figure 9. *Grindelia coconinoa*. *Goodwin 1592* (ASC). Holotype.

Figure 10. *Grindelia coconinoa*. *Goodwin 3472* (ASC).

Figure 11. *Grindelia coconinoa* heads. *Goodwin 1592*.

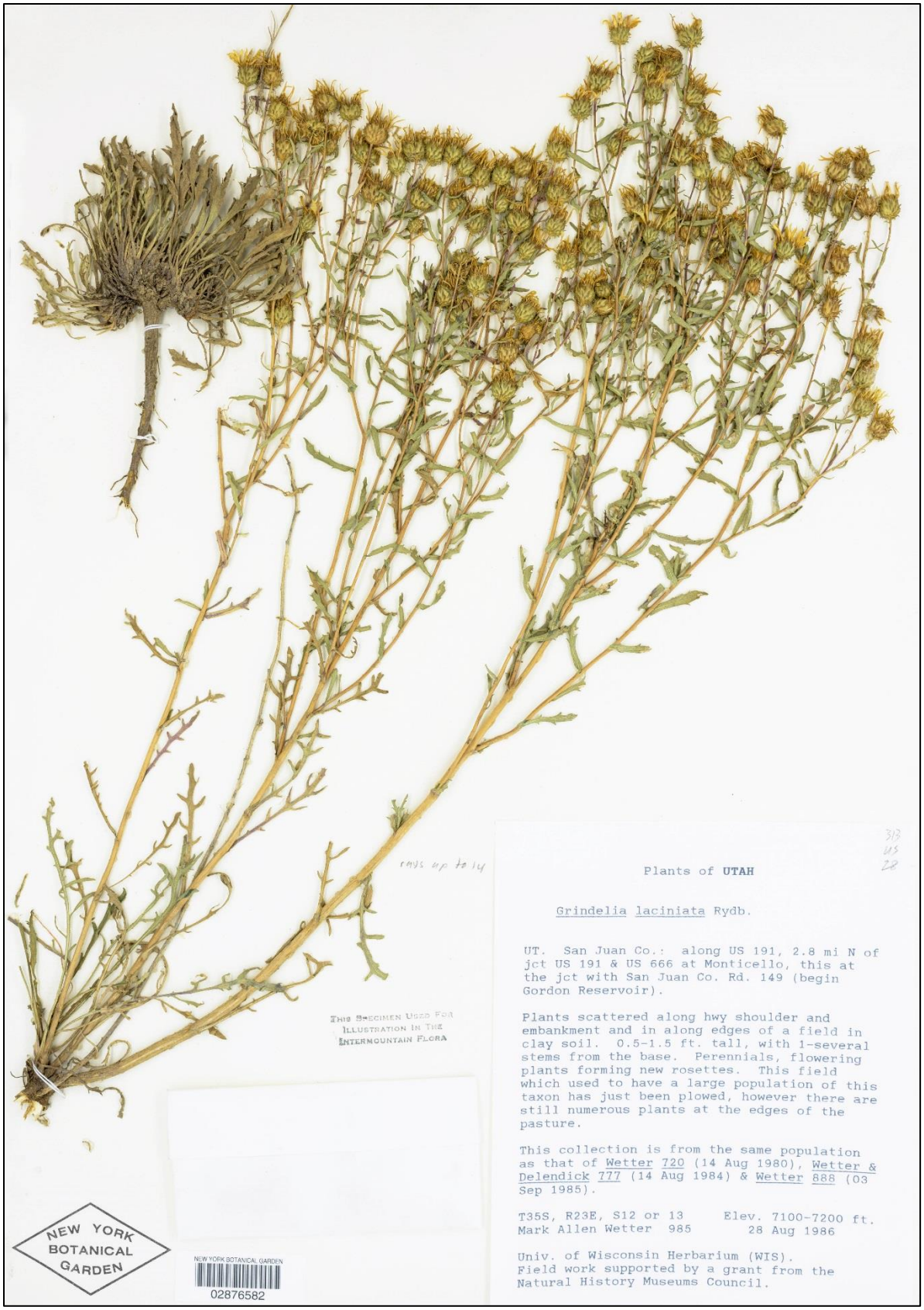


Figure 12. *Grindelia laciniata*. San Juan Co., Utah, *Wetter 985* (NY).

Figure 13. *Grindelia neomexicana*. Grant Co., New Mexico, *Wooton s.n.* (US), holotype.

Figure 14. *Grindelia neomexicana*. Heads from the type collection.

Figure 15. *Grindelia neomexicana*. Grant Co. New Mexico, *Blumer 4* (GH).

Figure 16. *Grindelia neomexicana*. Grant Co., New Mexico. *Holland 10300* (KANU).

Figure 17. *Grindelia neomexicana*. Grant Co., New Mexico. *Tucker 3174* (IND).

Figure 18. *Grindelia neomexicana*. Socorro Co., New Mexico. *Alexander 433* (NMC).

ARIZONICA
Greenlee Co.:
33.248 N, 109.377 W
33.3669 N, 109.332 W
33.191667 N, 109.379167 W
33.2629 N, 109.36629 W
33.11749 N, 109.1076 W
San Fransisco River, 10 miles north of Clifton

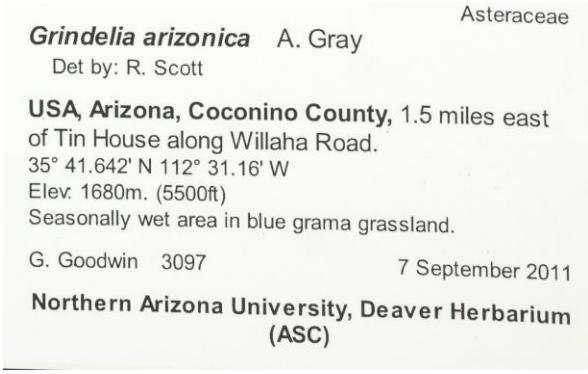
Apache Co.:
South shore of White Mountain Lake
33.671333 N, 109.815 W
34.073857 N, 109.861312 W
33.91056 N, 109.58444 W
34.2782 N, 109.8922 W
34.2782 N, 109.8047 W
city limits of Lakeside - Pinetop area

Navajo Co.:
34.016667 N, 109.933333 W
34.083333 N, 109.85 W
34.1333 N, 109.95 W
34.133333 N, 109.955833 W
34.166667 N, 109.966667 W
34.17 N, 110.01 W
34.190367 N, 110.013141 W
34.1944 N, 110.004 W
34.19588 N, 110.00349 W
34.233333 N, 109.833333 W
34.2542 N, 110.029 W
34.2573 N, 109.464 W
34.27 N, 109.95 W
34.281 N, 109.8065 W
34.2858 N, 110.097 W
Rainbow lake

Gila Co.:
33.3942 N, 110.7871 W Globe,?????
33.6946 N, 110.557 W
33.921 N, 110.92 W
33.921 N, 111.0564 W
33.9497 N, 110.9708 W
33.9497 N, 110.971 W
33.95 N, 110.966667 W
33.991667 N, 110.958333 W
34.010045 N, 110.957623 W
34.0299 N, 111.2866 W
34.0939 N, 110.9365 W

34.1195 N, 111.39184 W
34.3845 N, 111.4551 W
1 mile southwest Hilltop
Sierra Ancha Mountains, near Pine Mountain
Juniper Flat, 7 miles north of McFadden Peak

Coconino Co.:
34.661226 N, 111.306802 W
34.71931 N, 111.38469 W
34.7258 N, 111.551 W
34.768889 N, 111.554167 W
34.7741 N, 111.4893 W
34.77944 N, 111.51806 W
34.7899 N, 111.44329 W
34.987441302759 N, 111.4505299812 W
35.001490551322 N, 111.4538681631 W
35.0135 N, 111.4514 W
35.2 N, 111.65 W, Flagstaff,
35.53333 N, 111.85 W
35.694033 N, 112.519333 W
35.715267 N, 111.487517 W
Morman Lake



Asteraceae

Grindelia arizonica A. Gray
Det by: R. Scott

USA, Arizona, Coconino County, 1.5 miles east of Tin House along Willaha Road.
35° 41.642' N 112° 31.16' W
Elev: 1680m. (5500ft)
Seasonally wet area in blue grama grassland.

G. Goodwin 3097 7 September 2011

Northern Arizona University, Deaver Herbarium (ASC)

Yavapai Co.:
34.192486 N, 112.4067 W
34.4772 N, 111.5977 W
34.825873 N, 111.783946 W
34.76786 N, 111.567214 W