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A FLORA OF NEVADA. NO. 27.

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LOASACEAE OF NEVADA

by

Rogers McVaugh

March 15, 1941.

Issued by

The Division of Plant Exploration and Introduction,
Bureau of Plant Industry,
U. S. Department of Agriculture,
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Work Projects Administration of Nevada,
Projects, O. P. 65-2-04-13, W. P. 658;
O. P. 165-2-04-21, W. P. 752.

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Collaborator

University of Nevada.

Address all queries concerning this publication to the Division of Plant Exploration and Introduction Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

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LOASACEAE OF NEVADA

By Rogers McVaugh

Coarse herbs or low shrubs with very rough foliage or with stinging hairs and often with white deciduous bark. Leaves alternate, entire to pinnatifid. Flowers perfect; calyx-lobes 5; petals 5 (sometimes apparently more because of the dilated and petaloid filaments), distinct or nearly so. Stamens few to many, inserted with the petals on the base of the calyx-tube. Ovary unilocular, inferior, often overtopped by the calyx-tube. Seeds 1 to many. Fruit a capsule, dehiscent at apex or irregularly. Style 1, entire or cleft.

KEY TO THE GENERA

1. Stamens 5; style 1, undivided; seed 1 only; plants usually definitely shrubby - - - - - - - - - - - - - - - - 1. Petalonyx.
1. Stamens 10 to 100 or more; style various; seeds few to many; plants herbaceous, often coarse - - - - - - - - - - - - - - 2
   2. Style 5-cleft; placentae 5; plants armed with stinging hairs - 3. Eucnide.
   2. Style 3-cleft at apex; placentae 3; plants rough, but without stinging hairs - - - - - - - - - - - - - 2. Mentzelia.

1. PETALONYX A. Gray

Low shrubs or coarse herbs with woody bases. Leaves very rough, entire or toothed. Flowers white or yellow. Petals 5, connivent at base so that the corolla appears tubular. Stamens distinct, long-exserted. Ovary linear, the capsule oblong and irregularly dehiscent.

KEY TO THE SPECIES

1. Leaves petiolate, the petiole sometimes not more than 1 mm. long; blades usually toothed, 1.5-3 cm. long - - - - - - - 2
   2. Inflorescence corymbose, much-branched near tips of branches; calyx-lobes 1.5-2 mm. long - - -1. P. nitidus.
   2. Inflorescence racemose, the flowers in spikes 2-8 cm. long; spikes usually unbranched; calyx-lobes 3-4 mm. long - 2. P. Parryi.
1. Leaves sessile, the base broad and often cordate and sub-clasping; blades usually less than 1.5 cm. long. 3. P. Thurberi.

1. PETALONYX NITIDUS S. Wats. Am. Nat. 7: 300. 1873.

Plants bush-like, with a woody base. Stems 40 cm. high or less, green. Leaves ovate, acute at tip, truncate to rounded or acute at base, with prominent firm margins. Petioles 1-5 mm. long. Blades sinuate or sharply dentate, with 1-5 teeth on each side of the midrib. Inflorescence dense, more or less flat-topped, 1-5 cm. wide and high. Corolla 6-8

mm. long, white.

Desert canyons, southwestern Utah to southern California. Grows on cliffs or in gravelly washes, at elevations of 900-2000 meters.

Nevada: Clark County. The type was collected in southern Nevada by the Wheeler Expedition, in 1871 or 1872.

2. PETALONYX PARRYI A. Gray, Proc. Amer. Acad. 10: 72. 1874.

Low much-branched shrubs 25 cm. high or less; bark of the young branches pale brown, freely peeling off; bark of the old stems gray, rough, longitudinally ridged. Leaves ovate or elliptic, acute or blunt at tip, acute to rounded or truncate at base, with prominent firm margins. Petioles 2 mm. long or less, stout. Blades sinuate or dentate with 5-10 rounded or pointed teeth on each side of the midrib. Racemes dense, many-flowered, the bracts soon scarious and conspicuous. Corolla 8-10 mm. long, white.

Desert areas and canyons, southwestern Utah and southern Nevada, at elevations of 375-750 meters. The type was collected by Parry at St. George, Utah.

Nevada: Clark and Lincoln Counties.

3. PETALONYX THURBERI A. Gray, Mem. Amer. Acad. ser. 2, 5: 319. 1854.

Plants bushy, much-branched, woody at base, up to 1 m. high and 2 m. across; stems green, straw-colored at base.

Leaves numerous on the upper parts of the branches, ovate to lanceolate, acute or blunt at tip; those on the branches usually entire or nearly so, and not more than 1 cm. long. Inflorescence consisting of a dense few-flowered cluster at the tip of each branch. Corolla 4-5 mm. long, cream-colored or greenish-white.

Sandy washes and dunes, desert plains and canyons, western Arizona to southern Nevada and southern California, at 300-1200 meters elevation.

Nevada: Clark County.

2. MENTZELIA L.

Herbs, often coarse. Flowers white or yellow. Leaves rough, entire to pinnatifid. Flowers solitary or in cymose clusters, white or yellow; petals distinct, 5, or apparently more because of the dilated outer filaments. Fruit a linear, oblong, cylindrical or ovoid capsule, surmounted by the free rim of the calyx, or this almost none. Calyx-lobes often deciduous in fruit. (Reference: Darlington, Josephine. A Monograph of the Genus Mentzelia. Ann. Mo. Bot. Gard. 21: 103-226. 1934).

KEY TO THE SPECIES

1. Filaments broadened and cuspidate at apex, the anthers borne on the central cusp, the two lateral cusps naked - - - - - 2

2. Bracts narrow, green and leaf-like - - - - 11. *M. tricuspis*.

2. Bracts ovate, white, scarious, membranaceous with green margins and midveins - - - - - - - - - - *M. involucrata*. (see list of excluded species).

1. Filaments filiform or dilated and petaloid, but not cuspidate - 3

3. Petals 40-80 mm. long - - - - - - - - - - - 1. *M. laevicaulis*.

3. Petals 25 mm. long or less - - - - - - - - - - - - - - - - - - 4

4. At least the outer filaments dilated, more or less petaloid; plants biennial or perennial; seeds usually numerous (50-80) - - - - - - - - - - - - - - - - - - - 5

5. Stem glabrous, white, polished; leaves entire; petals white; seeds obovate-rotund. 2. *M. polita*.

5. Stem pubescent or, if nearly glabrous, the leaves deeply sinuate-dentate or pinnatifid; petals yellow; seeds prominently winged - - - - - - - - 6

6. Leaves very white with a close felt-like pubescence; blades entire or nearly so, thick, the margins revolute. 3. *M. leucophylla*.

6. Leaves green, not persistently white-pubescent; blades usually toothed - - - - - - - - 7

7. Petals 8-11 mm. long; capsule 9-12 mm. long - - - - - - - - - - - - - - - - - - - 8

8. Petals obtuse - - - - - - 5. *M. puberula*.

8. Petals acute - 4. *M. pumila* var. *procera*.

7. Petals 12-20 mm. long; capsule 15-20 mm. long - - - - - - - - - - - - - - - - - - 9

9. Leaves entire or slightly dentate. M. integra. (see list of excluded species).

9. Leaves sinuate-dentate to pinnately toothed or lobed - - M. multiflora. (see list of excluded species).

4. Filaments all filiform (or the bases sometimes deltoid); plants annual or perennial; seeds few to 40 - 10

10. Capsule ovoid, 6 mm. long or less (10 mm. long or less, including the persistent neck of the calyx); leaves rigid, more or less spine-tipped - - - - - - - - - - - - - - 6. M. Torreyi.

10. Capsule linear to ellipsoid or oblong, 7-35 mm. long; leaves not rigid and spine-tipped - - 11

11. Bracts subtending the flowers ovate, the central portion becoming scarious and white-membranaceous; inflorescence usually more or less congested, the flowers concealed by the bracts - - - - - - - 9. M. congesta.

11. Subtending bracts linear-lanceolate, green; inflorescence not congested, or, if so, not concealed by bracts - - - - - - - - - 12

12. Seeds regularly and sharply angled (usually 3-angled), appearing smooth or

nearly so, deeply grooved on each of the three angles - - - 10. M. dispersa.

12. Seeds irregularly angled, usually evidently tuberculate, not grooved on the angles or somewhat so on one angle - - - - - - - - - - - - - - - -13

13. Petals (5) 7-14 mm. long.

8. M. gracilenta.

13. Petals 2-6 mm. long.

7. M. albicaulis.

1. MENTZELIA LAEVICAULIS (Dougl. ex Hook.) Torr. & Gray, Fl. N. Am. 1: 535. 1840.

Bartonia laevicaulis Dougl. ex Hook. Fl. Bor. Am. 1: 221. 1834.

Nuttallia laevicaulis (Dougl. ex Hook.) Greene, Leafl. 1: 210. 1906.

Mentzelia acuminata (Rydb.) Tidestr. Contr. U. S. Nat. Herb. 25: 363. 1925.

Coarse erect perennials, 30-100 cm. high; stems shining white, nearly glabrous. Leaves sessile, lanceolate or oblanceolate, coarsely toothed or pinnately lobed. Flowers terminal, sessile; petals 5, showy, pale yellow. Capsule 3-4 cm. long; seeds winged, grayish-brown, 2-3.5 mm. long.

Canyons, dry valleys and dry foothills, Montana and Wyoming to the Pacific Coast.

Nevada: Clark (Charleston Mts.), Douglas, Elko, Eureka, Humboldt, Lander, Lincoln, Lyon, Mineral, Storey, Washoe, White Pine Counties.

2. MENTZELIA POLITA A. Nels. Bot. Gaz. 47: 427. 1909.

Perennial from a semi-woody tap-root; stems 2 to several, slender, erect, 20-40 cm. high, cymosely branched and grayish toward the summit, glabrous and ivory-white below; leaves entire, the lower narrowly spatulate-oblanceolate, often abruptly acute, sessile to subsessile; intermediate and upper leaves broadest at base, all obscurely papillose and covered with short spine-like barbed hairs; calyx-tube short-turbinate, 5 mm. long; stamens numerous, the outer filaments dilated-petaloid, antheriferous, shorter than the petals; style short, not cleft at apex; capsule globose; seeds small, obovate-rotund, smooth.

Open places, hillsides and valleys in Nevada.

Nevada: Candelaria, Esmeralda Co., Shockley 227; hillside washes, Las Vegas, Clark Co., Goodding 2273; Muddy Valley, Lincoln Co., Kennedy & Goodding 40. The type is Goodding 2273, at the Rocky Mountain Herbarium of the University of Wyoming. The writer has seen no specimens of this species; the citations and description given above are adapted from Darlington's monograph.

3. MENTZELIA LEUCOPHYLLA Brandg. Bot. Gaz. 27: 446. 1899.

Biennial or perennial, 30-40 cm. high; stems several from a small tap-root, clothed with soft white pubescence; basal leaves linear-oblong, 6-8 cm. long, 1 cm. wide, attenuate at both ends, regularly sinuate-dentate, densely clothed on the upper and lower surfaces with short rigid upwardly barbed hairs, and with minute glochidiate hairs along the margins; cauline leaves oblong, 4 cm. long, 1-1.5 cm. wide, rounded at apex, slightly acute; base cordate-clasping; blades slightly sinuate, densely short-hispid, appearing felted. Flowers bright yellow, pedicellate, in a divaricately branched panicle; calyx-lobes triangular-acuminate, obtuse, 6mm. long; petals broadly spatulate, the apex slightly retuse and pubescent; outer series of stamens broadly petaloid, somewhat dentate above; capsule 8-10 mm. long and nearly as broad; seeds flat, narrowly margined.

On slopes of dry arid canyons, southern Nevada.

Nevada: Ash Meadows, Nye Co., Purpus 6032; Sheep Mountain, Clark Co., Purpus 6144; between Owens and Lee Canyons, Clark Co., Heller 10980a. The type of the species is Purpus 6032. The above citations and description are taken from Darlington's monograph.

4. MENTZELIA PUMILA (Nutt.) Torr. & Gray, var. PROCERA (Woot. & Standl.) Darlington, Ann. Mo. Bot. Gard. 21: 169. 1934.

Nuttallia procera Woot. & Standl. Contr. U. S. Nat. Herb.

16: 150. 1913.

Plants perennial, slender, 60-100 cm. high; stems strict, sometimes branching at the base, white, the epidermis papery, smooth except on young stems; leaves small, sessile, oblong, obtuse, 3-5 cm. long, and about 0.5 cm. broad, with 5-10 coarse rounded teeth on each side, scabrous with short stout white barbed hairs; flowers small on slender terminal peduncles; calyx-lobes narrowly lanceolate, abruptly acuminate; petals bright yellow, oblanceolate, acute, 1 cm. long; outer series of filaments petaloid, narrower than the petals, short-acuminate; capsule oblong-cylindric, 10-12 mm. long, 6-7 mm. in diameter; seeds disk-shaped, white, tuberculate, surrounded by a broad white wing.

Southern Utah and Nevada to Arizona, western Texas, Coahuila and Nuevo Leon.

Nevada: Pioche, Lincoln Co., Purpus 6269, Jones. The citations and description are taken from Darlington's monograph.

Note: Typical Mentzelia pumila ranges from Wyoming and Utah to western Texas, west to New Mexico and Arizona, but apparently does not occur in Nevada.

5. MENTZELIA PUBERULA Darlington, Ann. Mo. Bot. Gard. 21: 177. 1934.

Plants perennial, up to 40 cm. high; stems usually decumbent, white, slightly rough to the touch; leaves up to 10 cm.

long, ovate or broadly ellipsoid, 1-3 cm. broad, coarsely dentate or the blades sinuate, appearing subentire; lower leaves on petioles up to 2 cm. long, the upper sessile. Flowers yellow, numerous, at the ends of the branches, subtended by linear bracts; petals 8-11 mm. long, the apex rounded. Calyx-lobes 6-9 mm. long; capsule turbinate, 7-10 mm. long, 6-8 mm. in diameter; seeds very pale brown, broadly winged, about 3.5 mm. across.

Dry cliffs and canyons, southern California, southern Nevada and adjacent Arizona.

Nevada: This species was not reported from Nevada by Darlington. The following recent collections are referred here with some hesitation: 6 mi. s. of Caliente, Lincoln Co., Percy Train 2452; Valley of Fire, Clark Co., Train 1903; Telephone Canyon, Newberry Mts., Clark Co., Train 1393; Black Canyon, 0.5 mi. below Boulder Dam, Clark Co., Train 1633.

6. MENTZELIA TORREYI A. Gray, Proc. Amer. Acad. 10: 72. 1874.

Plants perennial, caespitose, 5-15 cm. high, freely branched and often much tangled; leaves sessile, thick, 2-5 cm. long, with prominent midrib; blades coarsely pinnatifid, the central division ending in a spine; margins revolute. Flowers yellow, solitary; petals about 5 mm. long; seeds 7-9, about 1 mm. long, turgid, dark, shiny, obscurely angled.

Sterile saline plains, Idaho and northern Nevada to Mono Co., Calif.

Nevada: U. Spring; Muncy, Nye Co.; Deephole Springs, Washoe Co.; "Sterile saline plains of Humboldt County, Nevada", Torrey 138 (Type, in the U. S. National Herbarium); Pyramid Lake; Hot Creek Valley. The localities are taken from Darlington's monograph.

7. MENTZELIA ALBICAULIS (Dougl. ex Hook.) Torr. & Gray, Fl. N. Am. 1: 534. 1840.

Bartonia albicaulis Dougl. ex Hook. Fl. Bor. Am. 1: 222. 1834.

Plants annual, 10-40 cm. high; stems slender, white or greenish-white, shining, pubescent below; leaves linear or lanceolate, 2-5 cm. long, usually pinnately lobed; flowers sessile, the terminal ones in clusters of 3, the intermediate ones in pairs and the lowest solitary; capsule 10-15 mm. long, about 2 mm. in diameter; petals yellow; seeds about 30.

Arid regions, on dry slopes, British Columbia to Wyoming and western Nebraska, southward to southern California, Arizona and New Mexico.

Nevada: All counties, at elevations of 500-2000 meters.

Note: According to Darlington, the variety gracilis (Rydb.) Darl. (Acrolasia gracilis Rydb.), distinguished by having the leaves all pinnatifid and the petals 5-6 mm. long, is found in southern Nevada (Lincoln Co.). The writer has been unable to find a satisfactory basis for separating such a variety.

8. MENTZELIA GRACILENTA Torr. & Gray, Fl. N. Am. 1: 534. 1840.

Mentzelia albicaulis var. gracilenta S. Wats. U. S. Geol. Surv. 40th Parallel 5: 114. 1871.

Distinguished from M. albicaulis by having the stems mostly green or greenish rather than white, and by the larger petals, which are said to be golden-yellow with an orange base; capsule 10-20 mm. long; seeds about 20. As pointed out by Jepson (Fl. Calif. 2: 533-534. 1936), this species and the preceding are scarcely separable, and might with some justification be united into a single species. According to Darlington, M. gracilenta is represented in Nevada by one variety, var. Veatchiana (Kell.) Jeps. (Mentzelia Veatchiana Kell.), which has the petals 5-8 mm. long.

Mountainous areas, dry regions, British Columbia and Montana to southern California and Arizona.

Nevada: (var. Veatchiana; data from Darlington): Ormsby, Storey, Washoe and Humboldt Counties.

9. MENTZELIA CONGESTA Torr. & Gray, Fl. N. Am. 1: 534. 1840.

Plants slender, annual, 10-40 cm. high; leaves sessile, lanceolate, 5-7 cm. long or the upper small; blades often subclasping at base, toothed or pinnately lobed; bracts of the inflorescence lobed or toothed, 0.6-1.8 cm. long, nearly concealing the clusters of 3-5 flowers; petals 4-5 mm. long; capsule 7-10 mm. long; seeds about 20, irregularly angled.

Roadsides, sand-dunes and dry sandy slopes, Idaho and

northwestern Nevada, south in the mountains to southern California.

Nevada: Douglas, Humboldt, Ormsby, Washoe and Nye Counties (Nye County specimen from Toyabe Mts.).

Note: The variety Davidsoniana (Abrams) Macbr. (Mentzelia Davidsoniana Abrams), distinguished by having the leaves nearly or quite entire, is reported by Darlington from Washoe Co.

10. MENTZELIA DISPERSA S. Wats. Proc. Amer. Acad. 11: 137. 1876.

Plants slender, annual, 10-30 cm. high; leaves sessile, usually entire or nearly so, narrowly lanceolate to ovate; petals yellow, 3-4 mm. long; capsule 15-25 mm. long, narrowly linear-clavate; seeds few, appearing almost smooth.

Dry mountain slopes, Washington to Montana and Colorado, south in the mountains to northern Utah, northern and western Nevada and southern California.

Nevada: Elko, Humboldt, Washoe, Douglas, and Churchill Counties, at elevations of 1600-2100 meters.

Note: According to Darlington the var. latifolia (Rydb.) Macbr. (Acrolasia latifolia Rydb.), distinguished by having petals 5-6 mm. long and capsule 25-30 mm. long, has been found in Washoe County.

11. MENTZELIA TRICUSPIS A. Gray, Amer. Nat. 9: 271. 1875.

Plants annual, herbaceous, 5-25 cm. high, densely hispid to almost smooth. Leaf-blades linear-lanceolate to ovate-lan-

ceolate, 2-7 cm. long, subentire to sinuate-dentate. Flowers solitary, yellow; petals 2-2.5 cm. long; calyx-tube at maturity 10-15 mm. long, cylindric or turbinate; seeds numerous, rugose, not winged.

Desert areas, dry hillsides and canyons, southern Utah and Nevada, western Arizona and southern California.

Nevada: Clark and Lincoln Counties.

Excluded species:

Mentzelia ctenophora Rydb., included by Tidestrom in the Flora of Utah and Nevada (Contr. U. S. Nat. Herb. 25: 364. 1925). According to Darlington this is to be regarded as a variety of M. albicaulis (M. albicaulis var. ctenophora (Rydb.) Darl. Ann. Mo. Bot. Gard. 21: 184. 1934). She cites no specimens from Nevada.

Mentzelia decapetala (Pursh) Urb. & Gilg. "Nevada", according to Tidestrom, op. cit. 363. The range of this species apparently does not extend into the state at any point.

Mentzelia Rusbyi Wooton. Included by Tidestrom, l. c. The range as cited by Darlington is from Wyoming to New Mexico and Arizona; no specimens are cited from Nevada.

Mentzelia multiflora (Nutt.) A. Gray. "Colorado and Utah, southward to Texas and Mexico", according to Tidestrom, l. c. According to Darlington this species has not been collected in

Nevada, although it occurs in Utah, Arizona and California.

Mentzelia integra (Jones) Tidestr. "southern Utah to northern Arizona," according to Darlington, op. cit. 175. No specimens are cited from Nevada.

Mentzelia involucrata S. Wats. Included by Tidestrom, l. c. Not reported from Nevada by Darlington.

3. EUCNIDE Zucc.

Herbs or low bushes with stinging hairs; leaves alternate, the blades ovate, petiolate; flowers yellow; petals 5, somewhat united at base. Stamens filiform, numerous, inserted on the base of the petals in a broad band and deciduous with them. Style 5-cleft; capsule opening by 5 valves at summit.

1. EUCNIDE URENS (A. Gray) Parry, Amer. Nat. 9: 144. 1875.

Mentzelia urens Parry ex A. Gray, Proc. Amer. Acad. 10: 71. 1874.

Mentzelia synandra A. Nels. Bot. Gaz. 47: 428. 1909. (The type is Goodding 2373, from Clark County, Nevada).

Low bush 30-60 cm. high, the stems often decumbent; leaf-blades ovate, 2-5 cm. long, on petioles up to 5 cm. long; whole plant covered with stiff light-colored hairs up to 5 mm. long. Corolla 3.5-5 cm. long, the filaments much shorter than

the corolla. Style darkening and persistent in fruit, 2-2.5 cm. long. Capsule ellipsoid or obovate, about 1.5 cm. long.

Dry rocky canyons and cliffs in arid regions, Inyo Co., Calif., to Baja California, east to southern Utah.

Nevada: Clark, Lincoln and Nye Counties.

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