CONTRIBUTIONS TOWARD A FLORA OF NEVADA

NO. 42

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LEGUMINOSAE OF NEVADA, PART III

(EXCLUSIVE OF LUPINUS, ASTRAGALUS AND OXYTROPIS)

by

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LEGUMINOSAE OF NEVADA, PART III
(EXCLUSIVE OF LUPINUS, ASTRAGALUS AND OXYTROPIS)

by C. L. Porter *

Contributions Toward a Flora of Nevada, No. 42.

LEGUMINOSAE Pea Family

Herbs, shrubs, or trees, with alternate, usually compound and usually stipulate leaves. Flowers mostly perfect, regular to irregular, more or less perigynous, 5-merous, the stamens numerous to definite but often 10 and monadelphous or diadelphous. Pistil 1, of 1 carpel, forming a legume in fruit, this sometimes modified into a loment or indehiscent, and one or both sutures sometimes intruded to make the pod partly or completely 2-celled. Seeds 1 to many.

A family of about 500 genera and 14,000 species, world-wide in distribution, and including many valuable food and forage plants as well as some ornamentals and poisonous plants.

The following subfamilies are sometimes treated as families.

Key to subfamilies

Flowers regular; petals valvate in bud; stamens 10 or more; leaves bipinnate . . . . . 1. MIMOSOIDEAE

Flowers more or less irregular; petals imbricate in bud; stamens 10 or less; leaves mostly pinnate or digitate, but sometimes simple or bipinnate

Lateral petals covering the upper one in the bud. 2. CAESALPINIOIDEAE

Lateral petals (wings) enclosed by the upper one (standard or banner) in the bud . . . . . 3. LOTOIDEAE

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Subfamily 1. MIMOSOIDEAE Mimosa Subfamily

Trees or shrubs, rarely herbs. Leaves bipinnate, with numerous small leaflets. Flowers perfect, small, spicate or capitate, regular or nearly so, usually 5-merous. Petals valvate in bud. Stamens distinct in ours, numerous or definite.

The subfamily includes about 35 genera and 2000 species, mainly in tropics and subtropics, often in dry places.

Key to genera

Plants shrubby or arborescent, spinescent; flowers in cylindrical spikes in ours; stamens numerous or 10

Spines curved, less than 5 mm. long; stamens numerous . . .1. ACACIA

Spines straight, more than 5 mm. long; stamens 10 . . . .2. PROSOPIS

Plants herbaceous, unarmed; flowers in globose heads; stamens 5 3. DESMANTHUS

1. ACACIA (Tourn.) Mill. "Acacia, Cat-claw".

Gard. Dict. ed. 4. 1754; Willd., Sp. Pl. 4:1049. 1806.

Trees or shrubs, rarely herbaceous, ours armed with short, curved spines, the leaves bipinnate, with numerous small leaflets. Flowers small, regular, numerous, crowded in cylindrical spikes in ours. Sepals 4-5, distinct or united below. Petals 4-5, distinct or united below, sometimes wanting. Stamens numerous, exserted, the filaments distinct. Pods variable in shape, often constricted between the seeds.

A large subtropical genus of about 300 species.

1. ACACIA GREGGII A. Gray, Pl. Wright. 1:65. 1852. (Map 1)

Acacia durandiana Buckl., Proc. Acad. Nat. Scie. Phila. 1861: 453. 1861; Senegalia greggii Britt. & Rose, N. Am. Fl. 23:110. 1928.

A shrub or small tree armed with short, curved spines less than 5 mm.

long. Leaves with 2-3 pairs of pinnae, the leaflets oblong to obovate, 3-6 mm. long. Spikes of flowers 3-5 cm. long, the flowers yellowish. Pods flat, more or less constricted between the seeds, 8-12 cm. long.

Dry hillsides, Lower Sonoran zone. Clark and S Lincoln Cos. W Texas and Sonora to S California and Baja California.

2. PROSOPIS L., Mant. 1:10. 1767. "Mesquite, Screw-bean"

Trees or shrubs, often armed with straight axillary or stipular spines, the leaves bipinnate, with numerous small leaflets. Flowers small, numerous, regular, crowded in cylindrical spikes in ours. Calyx campanulate, with very short teeth. Petals 5, distinct or united below. Stamens 10, exserted, the filaments distinct. Pods linear and flattened, scarcely constricted between the seeds, or tightly coiled and the coil cylindrical.

About 10 species of warm regions.

Key to species

Spines developed as branches from axillary buds, not adnate to the petioles; fruit flattened but turgid, straight; petals distinct 1. P. JULIFLORA

Spines developed from stipules, adnate to the petioles; fruit tightly coiled into a cylinder; petals united . . . . . 2. P. PUBESCENS

1. PROSOPIS JULIFLORA (Sw.) DC., Prodr. 2:447. 1825. "Mesquite" (Map 2)

Mimosa juliflora Sw., Prodr. 85. 1788; Acacia juliflora Willd., Sp. Pl. 4:1076. 1806; Mimosa salinarum Vahl, Eclog. 3:35. 1807; Desmanthus salinarum Steud., Nom. Bot. Phan. 269. 1821; Acacia (?) salinarum DC., Prodr. 2:447. 1825; Prosopis domingensis DC., l.c.; Neltuma juliflora Raf., Sylva Tell. 119. 1838; Algarobia juliflora Benth. ex Heynhold, Nom. 2:18. 1840; Prosopis dulcis var. domingensis Benth., Journ. Bot. Hook. 4:350. 1841.

A small tree with spreading branches armed with slender spines 1-4 cm. long, the leaves with 1-2 pairs of pinnae and the leaflets linear-oblong, 7-16 mm. long. Flowers greenish or yellowish, in dense cylindrical spikes or spikelike racemes 5-10 cm. long. Pods flattened but somewhat turgid, 7-20 cm. long, 10-16 mm. wide, little if any constricted between the seeds.

Nevada plants are referred to var. TORREYANA Benson, Am. Journ. Bot. 28:751. 1941. This is commonly known as Western Honey Mesquite, which is characterized by having foliage glabrous or glabrate, and the leaflets more than 15 mm. long.

Along desert streams and on dry flats, Lower Sonoran zone. S Nye and Clark Cos. The species ranges from south-central Kansas and extreme NW Louisiana westward to S California and Mexico; also in the West Indies. The variety ranges from the Gulf Coast of Texas along the Rio Grande to S and central New Mexico, Arizona, S Nevada, S California, and Mexico.

2. PROSOPIS PUBESCENS Benth. in Hook., Lond. Journ. Bot. 5:82. 1946.
"Screw-bean" (Map 3)

Prosopis odorata Torr. in Frém., 2nd. Rept. 313, pl. 1. 1845. Nomen confusum.; P. emoryi Torr. in Emory, Notes Mil. Recon. 139. 1847; Strombocarpa pubescens A. Gray, Pl. Wright. 1:60. 1852; S. brevifolia Nutt. ex A. Gray, l.c. as synonym; S. odorata A. Gray, Bot. Wilkes Exped. 1:475. 1854. Nomen nudum; S. odorata Britt. & Rose, N. Am. Fl. 23:183. 1928.

A small tree or large shrub with slender spines 8-20 mm. long, the leaves with 1-2 pairs of pinnae and the leaflets oblong, 6-10 mm. long. Flowers yellowish, in dense cylindrical spikes 3-8 cm. long, whitish-pub-

erulent. Fruit tightly coiled, cylindrical, puberulent, 3-5 cm. long.

Bottom lands, along streams in the desert, and about waterholes, often in alkaline soils. Lower Sonoran zone. Clark Co. W Texas to S Nevada, S California, No Mexico, and Baja California.

3. DESMANTHUS Willd., Sp. Pl. 4:1044. 1806.

Perennial herbs, in ours, with bipinnate leaves and 6-14 pairs of pinnae bearing numerous small leaflets. Flowers small, regular, densely clustered in axillary, slender-peduncled, globose heads. Calyx campanulate, with short teeth. Petals 5, distinct. Stamens 5 or 10, exserted, the filaments distinct. Pods linear to oblong, straight or curved, flat, few to several seeded.

About 30 species of the American tropics and subtropics, a few extending northward to temperate regions.

1. DESMANTHUS ILLINOENSIS (Michx.) MacMill., Metasperm. Minn. 388. 1892. (Map 4)

Mimosa illinoensis Michx., Fl. Bor. Am. 2:254. 1803.; M. glandulosa Michx., l.c.; Acacia brachyloba Willd., Sp. Pl. 4:1071. 1806.; Desmanthus brachylobus Benth., Journ. Bot. 4:358. 1842.; Acuan illinoense Kuntze, Rev. Gen. 158. 1891.

Stems 3-10 dm. high. Stipules filiform, 6-8 mm. long. Leaflets very numerous, 2-3 mm. long, oblong to linear. Stamens 5. Pods 15-25 mm. long, about 5 mm. wide, curved.

Meadows and ditch banks. Lower Sonoran zone. Clark Co., where it is apparently introduced near Las Vegas and Moapa. Ranging from Ohio to Minnesota and North Dakota, and southward to Florida, Texas and New Mexico.

Subfamily 2. CAESALPINIOIDEAE Senna Subfamily

Herbs, shrubs, or trees. Leaves simple, pinnate, or bipinnate. Flowers perfect or sometimes unisexual, more or less irregular, small or large, often showy, racemose, spicate, or rarely cymose, 5-merous. Petals imbricate in the bud. Stamens 10 or less, distinct or somewhat united.

The subfamily includes about 60 genera and 2,000 species, mainly in tropical and subtropical regions.

Key to genera

Leaves simple, not fugacious

Leaves cordate-orbicular, mostly 3-6 cm. broad; branches not spinescent . . . . . 4. CERCIS

Leaves oblong to linear, 1-2 mm. broad; branches spinescent 5. KRAMERIA

Leaves compound, sometimes fugacious and lacking during the dry season

Calyx densely glandular; plants herbaceous . . . . 6. HOFFMANSEGGIA

Calyx not glandular; plants woody or herbaceous

Plants arborescent, 4-10 m. high, with short spines about 5 mm. long . . . . . 7. CERCIDIUM

Plants shrubby and less than 4 m. high with longer spines, or unarmed herbs . . . . . 8. CASSIA

4. CERCIS L., Sp. Pl. 374. 1753. "Red-bud"

Small, unarmed trees with simple, cordate-orbicular, glabrous or glabrate leaves. Flowers appearing before the leaves, in lateral clusters, pinkish-purple. Calyx campanulate, 5-toothed. Corolla irregular, pea-like, but the keel petals larger than the others, and the wings enclosing the standard. Pod oblong, flat, not constricted between the seeds.

About 7 species in North America, Europe and Asia.

1. CERCIS OCCIDENTALIS Torr. ex A. Gray, Bost. Journ. Nat. Hist. 6:177. 1850. "Western Red-bud" (Map 5)

Cercis californica Torr. ex Benth., Pl. Hartw. 361. 1857.; Siliquastrum occidentale Greene, Man. Bot. Bay Reg. 84. 1894.; Cercis nephrophylla Greene, Rep. Spec. Nov. 11:111. 1912.; C. orbiculata Greene, l.c.; C. latissima Greene, l.c.

A small tree 2.5-5 m. high, with glabrous or glabrate foliage. Leaves 3-6 cm. broad, with petioles 15-20 mm. long. Pods 5-6 cm. long, about 15 mm. wide, pointed at the apex, strongly flattened.

Canyons and slopes of the Upper Sonoran zone. Specimens from Nevada seen only from the Charleston Mts., Clark Co. S Utah to Arizona, S Nevada, and the Coast Ranges and Sierra Nevada of California.

5. KRAMERIA (Loefl.) L., Sp. Pl. ed. 2:177. 1762. "Ratany"

Low spinescent shrubs, in ours, or perennial herbs, grayish-pubescent, with simple, entire, exstipulate leaves. Flowers in racemes, or in ours solitary and axillary, irregular, purplish, the petals 5, smaller than the sepals, the upper 3 petals with long claws and the lower 2 petals reduced to fleshy glands. Stamens 3 or 4, free or attached to the claws of the upper petals. Fruit globose or ovoid, indehiscent, 1-seeded, covered with long slender spines.

About 20 species, American in distribution.

Key to species

Pubescence of leaves of soft, matted, curly hairs; spines of fruit barbed only at the apex; pedicels without stipitate glands . . . 1. K. GRAYI

Pubescence of leaves strigose, the hairs stiff and straight; spines of fruit barbed on sides below the apex or sometimes barbless; pedicels with or without stipitate glands . . . . . 2. K. PARVIFOLIA

1. KRAMERIA GRAYI Rose & Painter, Contr. U. S. Nat. Herb. 10:108. 1906.

Krameria canescens A. Gray, Pl. Wright. 1:42. 1852. Not Willd. 1825. (Map 6)

Intricately branched spinescent shrubs 3-6 dm. high, the coarse twigs densely silvery canescent. Leaves linear, 6-10 mm. long, covered with silvery, curly, matted hairs. Claws of the upper petals distinct. Fruit subglobose, 7-8 mm. long, its spines 3-4 mm. long and barbed only at the apex.

Dry, rocky ridges and desert slopes. Lower Transition zone. Clark and SE Lincoln Cos. W Texas to S California and southward to No Mexico and Baja California.

2. KRAMERIA PARVIFOLIA Benth., Bot. Voy. Sulph. 6, pl. 1. 1844. (Map 7)

Much-branched spinescent shrubs 3-7 dm. high, the slender twigs pale or brownish. Leaves linear, mostly 5-12 mm. long, strigose with stiff, straight hairs. Claws of the upper petals united. Fruit subglobose, 6-7 mm. long, its spines 4-5 mm. long and barbed along the sides or sometimes barbless.

The typical phase of the species, var. parvifolia, occurs in S Baja California. Nevada plants belong to two other varieties as follows:

var. GLANDULOSA (Rose & Painter) Macbride, Contr. Gray Herb. 56:52. 1918.
Krameria glandulosa Rose & Painter, Contr. U. S. Nat. Herb. 10:108. 1906.

This is probably the more common variety in Nevada, distinguished by having the pedicels, and sometimes other parts, covered with dark stipitate glands.

Desert slopes and sandy washes, Lower Sonoran zone. Clark and Lincoln Cos. W Texas to California, extending northward into Utah and southward into No Mexico.

var. IMPARATA Macbride, Contr. Gray Herb. 56:52. 1918.
Krameria imparata Britt., N. Am. Fl. 23:199. 1930.

Distinguished by not having the dark stipitate glands on pedicels noted above.

Desert slopes and sandy washes. Lower Sonoran zone. Clark and Lincoln Cos. Arizona and SW Utah to Nevada and S California, and southward into No Mexico and Baja California.

6. HOFFMANSEGGIA Cav., Ic. 4:63. pl. 392, 393. 1797.

Herbaceous to shrubby plants with bipinnate and stipulate leaves. Flowers somewhat irregular, racemose, the calyx with 5 subequal lobes, covered with stipitate glands, the petals nearly equal, yellowish. Stamens 10, distinct, their filaments often glandular. Pods flat, dehiscent, several-seeded.

About 20 species in North and South America and Africa.

1. HOFFMANSEGGIA DENSIFLORA Benth. ex A. Gray, Pl. Wright. 1:55. 1852. (Map 8)

Hoffmanseggia stricta Benth. ex A. Gray, Pl. Wright. 1:56. 1852.; H. stricta β demissa Benth. ex A. Gray, Pl. Wright. 1:56. 1852.; H. falcaria var. stricta Fisher, Contri. U. S. Nat. Herb. 1:144. 1892.; H. falcaria var. rusbyi Fisher, l.c. 145.; H. falcaria var. demissa Fisher, l.c.; H. falcaria var. pringlei Fisher, l.c.; H. falcaria var. capitata Fisher, l.c.; Caesalpinia falcaria var. stricta Fisher, Bot. Gaz. 18:122. 1893; C. falcaria var. densiflora Fisher, l.c.; C. falcaria var. rusbyi Fisher, l.c.; C. falcaria var. pringlei Fisher, l.c.; C. falcaria var. capitata Fisher, l.c.; Larrea densiflora Britt., N. Am. Fl. 23:311. 1930.

A perennial, decumbent herb from a deep root, the stems several from the base, up to 3 dm. long. Leaves with 5-9 pinnae each bearing 10-20 oblong, puberulent leaflets which are rounded at the apex and very inequilateral at the base, mostly 3-6 mm. long. Flowers in glandular racemes, yellowish and tinged with pink, the calyx conspicuously pubescent and stipitate-glandular, the corolla about 1 cm. long. Pods nearly straight, mostly 15-40 mm. long and about 7 mm. wide, puberulent and stipitate-

glandular.

Only a single collection seen from Nevada, collected on silty bottom lands, Lower Sonoran zone, 10-12 mi. N of Ripley, Clark Co., where it is locally common. Texas to S California and central Mexico.

7. CERCIDIUM Tulasne, Arch. Mus. Paris 4:133. 1844. "Palo-verde"

Large shrubs or small trees with the younger bark smooth and green, the branches bearing short spines about 5 mm. long. Leaves bipinnate, the rachis of the pinnae short and terete, the leaflets in ours 4-8 mm. long, usually deciduous and lacking during the dry season. Flowers yellow, clustered, with 5 petals and 10 stamens. Pods flattened or turgid, more or less constricted between the seeds.

An American genus of about 10 species in warm regions.

1. CERCIDIUM FLORIDUM Benth. ex A. Gray, Pl. Wright. 1:58. 1852.
Parkinsonia florida S. Wats., Proc. Am. Acad. 11:135. 1876; P. torreyana S. Wats. l.c.; Cercidium torreyanum Sarg., Gard. & Forest 2:388. 1889.

A thorny shrub or small tree 4-10 m. high, with a broad, irregular, open crown of crooked branches. Flowers bright yellow, in axillary racemes, nearly regular, the stamens exserted. Fruit about 7-10 cm. long.

Lower Sonoran zone. S and W Arizona and SE California, southward to Sonora and Baja California. Approaching S Nevada but not known to occur there except as an ornamental in Boulder City, Clark Co.

8. CASSIA (Tourn.) L., Sp. Pl. 376. 1753 "Senna"

Trees, or in ours shrubs or herbs with even-pinnate leaves having few to many leaflets. Flowers yellowish, somewhat irregular, in ours in

terminal or axillary racemes. Calyx deeply and subequally 5-lobed. Corolla of 5 subequal clawed and spreading petals. Stamens 10 or 5, often unequal or some of them sterile, the anthers opening by terminal pores. Pods very variable, in ours erect or ascending, turgid, nearly straight, pointed, 2-4 cm. long, several-seeded.

A large genus of about 500 species, mostly in warm regions of both hemispheres.

Key to species

Plants shrubby, usually 1 m. high or more; leaf rachises prolonged into a sharp pointed spine, the leaflets fugacious, green, about 5 mm. long or less . . . . . 1. C. ARMATA

Plants herbaceous, woody only at the base, mostly less than 6 dm. high, without spines; leaflets persistent, grayish-green, mostly 10-25 mm. long . . . . . 2. C. COVESII

1. CASSIA ARMATA S. Wats., Proc. Am. Acad. 11:136. 1876. (Map 9)

Xerocassia armata Britt. & Rose, N. Am. Fl. 23:246. 1930.

Shrubs 1 m. high or more with numerous pale green branches. Leaves exstipulate, with the rachis prolonged into a straight spine. Flowers in elongate racemes, the petals yellowish-orange. Pods indehiscent or tardily dehiscent, 2-4 cm. long.

Dry desert slopes. Lower Sonoran zone. Clark Co. W Arizona, S Nevada and SE California.

2. CASSIA COVESII A. Gray, Proc. Am. Acad. 7:399. 1868. (Map 10)

Earleocassia covesii Britt., N. Am. Fl. 23: 249. 1930.

A grayish-pubescent herbaceous perennial, somewhat woody at the base, 3-6 dm. high. Leaves stipulate, with 2-3 pairs of elliptic leaflets 10-25 mm. long and 8-15 mm. wide. Flowers in corymbose racemes, the petals

pale yellow. Pods dehiscent, 2-3 cm. long.

Desert arroyos, canyons, and rocky slopes. Lower Sonoran zone, Clark Co. S Nevada southward through Arizona and S California to N W Mexico.

Subfamily 3. LOTOIDEAE Pea Subfamily

Herbs, shrubs, or trees. Leaves simple or usually pinnate or digitate. Flowers often showy, usually papilionaceous (in Petalostemon the corolla reduced to only the banner). Petals usually 5, in the bud the upper largest one (standard or banner) enclosing the two smaller lateral ones (wings), and the two lowest petals (keel) enclosed by the others and more or less united. Stamens usually 10, sometimes 5, distinct or monadelphous or usually diadelphous (9 united and 1 free), the anthers all alike or sometimes of two forms.

The subfamily includes some 400 genera and 10,000 species, widely distributed in temperate and tropical regions, a few extending into the arctic.

Key to genera

1. Stamens not united by their filaments; herbs with leaves 3-foliolate and stipules large and foliaceous; flowers yellow . . 1. THERMOPSIS

1. Stamens monadelphous or diadelphous

    2. Anthers of two sizes; stamens 10 and monadelphous; leaves digitately 7-11-foliolate . . . . . 2. LUPINUS

    2. Anthers usually all alike; stamens 10 and diadelphous or 5 and monadelphous; leaves mostly otherwise

        3. Leaves not terminated by a tendril or bristle

            4. Fruit not a loment

                5. Herbage not glandular-dotted

                    6. Leaflets often 3 but sometimes more, usually denticulate, the teeth sometimes minute.

7. Terminal leaflet petiolulate, the leaves pinnately 3-foliolate; flowers racemose or spicate, the corolla deciduous

8. Pods straight; flowers white or yellow, in elongate racemes . . . . . 3. MELILOTUS

8. Pods curved or coiled; flowers purple or yellow, in short, dense racemes or capitate clusters 4. MEDICAGO

7. Terminal leaflet not petiolulate, the leaves digitately 3-several-foliolate; flowers in dense, short spikes or capitate clusters, the corolla persistent 5. TRIFOLIUM

6. Leaflets entire, 1 to many

9. Flowers umbellate or solitary . . . . . 6. LOTUS

9. Flowers racemose

10. Stems woody throughout, the plants arborescent 7. ROBINIA

10. Stems herbaceous or woody only at the base

11. Stipules a pair of short spines .8. PETERIA

11. Stipules not spinescent

12. Calyx subtended by a pair of small deciduous bractlets; tall introduced plants with reddish flowers and papery-inflated, stipitate pods . . . . 9. SPHAEROPHYSA

12. Calyx not subtended by bractlets

13. Keel of corolla blunt, or if beaked the stems sprawling and leafy; pod never with only the ventral (upper) suture intruded . . 10. ASTRAGALUS

13. Keel of corolla with an abrupt beak; plants usually scapose; pod with only the ventral (upper) suture intruded 11. OXYTROPIS

5. Herbage glandular-dotted

14. Fruit covered with stiff hooked prickles (or an intro-

duced species with fruit only glandular); flowers white or blue, in dense racemes or spikes; tall coarse herbs with pinnately 11-19-foliolate leaves, the leaflets 7-30 mm. broad. . . . . 12. GLYCYRRHIZA

14. Fruit not prickly; leaves and leaflets not as above

15. Fertile stamens 9-10

16. Leaves digitately 3-5-foliolate or pinnately 3-foliolate . . . . . 13. PSORALEA

16. Leaves odd-pinnate with several leaflets, or simple, or plants spiny and leafless 14. DALEA

15. Fertile stamens 5, alternating with 4 petaloid staminodes . . . . . 15. PETALOSTEMON

4. Fruit a loment, constricted and separating between the seeds

17. Leaves odd-pinnate; perennial herbs without spines 16. HEDYSARUM

17. Leaves simple; low shrubs with axillary spines 17. ALHAGI

3. Leaves terminated by a tendril or bristle

18. Stigma terminal, a tuft of hairs on the end of the style 18. VICIA

18. Stigma lateral, the hairs on one side of the apical portion of the style . . . . . 19. LATHYRUS

1. THERMOPSIS R. Br. in Ait., Hort. Kew. ed. 2, 3:3. 1811. "Golden Pea"

Perennial rhizomatous herbs with trifoliolate leaves, ours having conspicuous foliaceous stipules. Flowers yellow, in terminal or axillary bracteate racemes. Calyx-tube campanulate, bilabiate, the upper lip about half the length of the tube. Corolla papilionaceous, about 1 cm. long. Stamens 10, distinct. Pods sessile or nearly so, linear, straight in ours, not constricted between the seeds, ascending in ours, 4-5 cm. long, 5-6 mm. broad, several-seeded.

About 17 species, 9 in North America and 8 in N and E Asia.

1. THERMOPSIS MONTANA Nutt. in T. & G., Fl. N. Am. 1:388. 1840 (Map 11)

Thermopsis stricta Greene, Pl. Baker. 3:34. 1901; T. angustata Greene, l.c.

Stems erect, 4-7 dm. high, usually somewhat branched above, glabrous or nearly so. Leaves with broadly to narrowly lanceolate stipules 2-4 cm. long, and linear-lanceolate to oblanceolate leaflets 3-5 cm. long. Racemes mostly 7-20 cm. long, bearing flowers about 2 cm. long. Pods appressed to the rachis, villous.

Common along streams and in meadows or aspen woods, Transition and Boreal zones. Mainly in the N half of Nevada. Montana to E Washington, and southward to Colorado, Utah and Nevada.

2. LUPINUS L. "Lupine"

This genus has been treated by David B. Dunn in Contr. Fl. Nevada No. 39, April 6, 1956.

3. MELILOTUS Mill., Gard. Dict. ed. 4. 1754. "Sweet-Clover"

Annuals, in ours, with pinnately 3-foliolate, denticulate leaves and small white or yellow flowers less than 6 mm. long in slender racemes. Calyx-teeth subequal. Corolla papilionaceous, the standard obovate, the wings oblong, and the keel obtuse. Stamens diadelphous. Pod ovoid, straight, reflexed, dehiscent or indehiscent, and 1-2-seeded.

About 20 species, native of the Old World.

Key to species

Corolla white; pods inconspicuously reticulate but not rugose 1. M. ALBA

Corolla yellow; pods rugose

Flowers about 5 mm. long; leaflets neither truncate nor retuse, broadest near the middle; plants mostly 10-20 dm. high . 2. M. OFFICINALIS

Flowers about 2.5 mm. long; leaflets often truncate or retuse at the apex, broadest above the middle; plants mostly 2-7 dm. high 3. M. INDICA

1. MELILOTUS ALBA Desr. ex Lam., Encycl. 4:63. 1797. "White Sweet-clover"

Melilotus vulgaris Willd., Enum. Hort. Ber. 790. 1809.

Plants glabrate, erect, 1-2 m. high. Leaflets mostly 1.5-3 cm. long, 5-10 mm. wide. Racemes mostly 6-10 cm. long.

Widely planted and naturalized, meadows and roadsides. Native of Eurasia.

2. MELILOTUS OFFICINALIS (L.) Lam. Franc. 2:594. 1778. "Yellow Sweet-clover"

Trifolium melilotus officinalis L., Sp. Pl. 765. 1753.

Very similar to the preceding, but the flowers yellow and the pods rugose.

Widely planted and naturalized, meadows and roadsides. Native of Eurasia.

3. MELILOTUS INDICA (L.) All., Fl. Ped. 1:308. 1785. "Indian Melilot"

Trifolium melilotus indica L., Sp. Pl. 765. 1753.

Plants relatively smaller than the preceding two species, less than 7 dm. high, the yellow flowers about half as long and the leaflets relatively broader.

Occasionally weedy or naturalized; specimens seen from Lyon and Nye Cos. Native of the Mediterranean region.

4. MEDICAGO L., Sp. Pl. 778. 1753. "Alfalfa, Medic"

Annuals or perennials with pinnately 3-foliolate, denticulate leaves, and small dark blue, purplish, or yellow flowers in dense short heads or racemes. Calyx-teeth subequal. Corolla papilionaceous, the standard obovate or oblong, the wings oblong, and the keel obtuse. Stamens diadelphous. Pod curved or coiled, reticulate or sometimes spiny, indehiscent. Seeds few or one.

About 50 species of the Mediterranean region, Europe, and W Asia.

Key to species

Flowers dark blue or purplish; plants perennial with mostly erect stems
1. M. SATIVA

Flowers yellow; plants annual or sometimes perennial with low, sprawling or ascending stems

Pods without spiny processes, 1-seeded, black at maturity, only the tip coiled . . . . . 2. M. LUPULINA

Pods with spiny processes on either side of the keeled edge, several-seeded, green at maturity, the whole pod in 2-3 tight coils
3. M. HISPIDA

1. MEDICAGO SATIVA L., Sp. Pl. 778. 1753. "Alfalfa"

Medicago media Pers., Syn. Pl. 2:356. 1805; Medica media Fourr., Ann. Soc. Linn. Lyons 2, 16:359. 1868.

Erect or sometimes decumbent, branching perennial up to 1 m. high, glabrous or nearly so at maturity. Leaflets oblanceolate to obovate, 1.5-3 cm. long, denticulate around the apex. Flowers in short dense spike-like racemes 1-3 cm. long, the corolla about 8 mm. long, dark blue or purplish. Pods with 1-3 turns in the spiral coil, puberulent.

Widely planted as a forage crop and naturalized around cultivated areas and roadsides. Native of Asia.

2. MEDICAGO LUPULINA L., Sp. Pl. 779. "Black Medic, Nonesuch"

Medica lupulina Scop., Fl. Carn. ed. 2, 2:88. 1772.

Procumbent, branching annual or sometimes perennial, the stems up to 8 dm. long. Leaflets obovate to suborbicular, cuneate at the base, 8-15 mm. long, the apex denticulate, pubescent especially beneath with rather long appressed hairs. Flowers in capitate or short-cylindric spikes 1 cm. long or less, these becoming somewhat elongated in fruit, the corolla 2 mm. long or less, yellow. Pods reniform, only the tip coiled, turning black at maturity, 1-seeded, sparsely glandular-puberulent.

Widely introduced and often becoming weedy. Native of Eurasia.

3. MEDICAGO HISPIDA Gaertn., Fruct. 2:349. 1791. "Bur-clover"

Medicago denticulata Willd., Sp. Pl. 3:1414. 1800.

Annual or winter annual with glabrous or sparsely pubescent foliage, with several spreading or ascending branches from the base. Leaflets obovate or obcordate, cuneate at the base, 6-15 mm. long, sharply denticulate. Flowers yellow, about 4 mm. long. Fruit spirally coiled, spiny, 4-6 mm. in diameter, bur-like, green at maturity.

No specimens from Nevada have been seen, but the species is reported by Billings (Univ. Nevada Agr. Ext. Service Bull. 89:57. 1941) as appearing spontaneously in parts of Nevada in wet years. Native of the Mediterranean region and widely naturalized.

5. TRIFOLIUM L., Sp. Pl. 764. 1753. "Clover"

Annual or perennial herbs with digitately 3-9-foliolate leaves having prominent adnate stipules and usually denticulate leaflets. Inflorescence capitate or short-spicate, usually pedunculate, usually many-

flowered (in T. monanthum 1-6-flowered), and with or without a subtending involucre of united or sometimes distinct bracts. Calyx with 5 subequal or somewhat unequal teeth, persistent. Corolla papilionaceous, white, yellow, purplish, or reddish, usually persistent. Stamens diadelphous. Pod straight, membranaceous, usually included in the calyx, 1-several-seeded, dehiscent or indehiscent.

About 300 species, chiefly in the north temperate zone.

Key to species

1. Leaflets mostly 5-7

   2. Herbage densely shaggy-villous; leaflets subentire; heads 2 cm. long or less . . . . . 1. T. ANDERSONII

   2. Herbage short-pubescent; leaflets conspicuously denticulate; heads mostly 3-5 cm. long . . . . . 2. T. MACROCEPHALUM

1. Leaflets mostly 3, occasionally 4-5

   3. Heads closely subtended by 1 or 2 leaves, subsessile; flowers reddish or purplish; introduced species . . . . . .3. T. PRATENSE

   3. Heads not subtended by leaves, the peduncles well developed; flowers white or yellowish to pinkish, never reddish; native or introduced species.

      4. Heads not involucrate

         5. Flowers distinctly pedicellate in the head; calyx glabrous; introduced species

            6. Corolla pink; stems ascending . . . . . .4. T. HYBRIDUM

            6. Corolla white; stems creeping . . . . . 5. T. REPENS

         5. Flowers sessile or subsessile in the head; calyx pubescent; native species

            7. Leaflets 3-5, sharply denticulate, mostly less than 3 cm. long, ovate or obovate to elliptical; plants subacaulescent, the peduncles not produced on elongate leafy stems 6. T. GYMNOCARPON

7. Leaflets 3, inconspicuously denticulate to subentire, mostly more than 3 cm. long, at least the upper leaves with narrowly elliptical to linear leaflets; plants caulescent, the peduncles produced on elongate leafy stems

8. Calyx-teeth long-villous on each side so as to appear plumose; flowers reflexed due to curvature of the base of the flower and sometimes the whole head inverted due to curvature of the apex of the peduncle. 7. ERIOCEPHALUM

8. Calyx-teeth not appearing plumose, the pubescence shorter and more appressed; flowers erect or spreading, or if reflexed the flowers not curved at the base. 8. LONGIPES

4. Heads involucrate

9. Flowers 1-3 or occasionally up to 6 in each head; involucre small, with 3-9 lanceolate lobes . . . . 9. T. MONANTHUM

9. Flowers many in each head; involucre a conspicuous several-lobed disc or cup

10. Calyx bladdery-inflated, reticulate-veined, and enclosing the corolla at maturity; introduced species 10. T. FRAGIFERUM

10. Calyx neither bladdery-inflated nor reticulate-veined, not enclosing the corolla; native species

11. Teeth of calyx ternately parted into divaricate setae 11. T. CYATHIFERUM

11. Teeth of calyx entire or sometimes bifid, without divaricate setae

12. Flowers about 1 cm. long or more; rhizomatous perennials . . . . . 12. T. WILLDENOVII

12. Flowers less than 1 cm. long; annuals

13. Herbage villous; clayx-teeth with broad scarious margins; involucre equaling the corollas or longer . . . . . 13. T. MICROCEPHALUM

13. Herbage glabrous; calyx-teeth without scarious margins; involucre shorter than the corollas 14. T. VARIEGATUM

1. TRIFOLIUM ANDERSONII A. Gray, Proc. Am. Acad. 6:522. 1865. (Map 12)

Densely villous, caespitose perennial 1 dm. or less high, from a deep taproot and branching root-crown. Leaves mostly 5-foliolate, the leaflets

cuneate-oblong or oblanceolate, acute, subentire. Peduncles equaling or shorter than the leaves. Heads subglobose, 2-3 cm. broad, subtended by a rudimentary scarious involucre. Calyx-teeth subulate, plumose. Corolla purplish or pink, 12-15 mm. long.

Dry hills and valleys, with sagebrush, pinyon, and yellow pine. California and W Nevada. The type came from near Carson City, Ormsby Co., Nevada. Sterile plants might well be taken for a lupine.

2. TRIFOLIUM MACROCEPHALUM (Pursh) Poir. in Lam., Encycl. Suppl. 5:336. 1817. (Map 13)

Lupinaster macrophyllus Pursh, Fl. Am. Sept. 479. 1814.; Trifolium megacephalum Nutt., Gen. 2:105. 1818.

Sparsely villous perennial 1-2 dm. high, from a branching woody root. Leaves mostly 5-7-foliolate, the leaflets cuneate-obovate, obtuse or truncate and mucronate at the apex, their margins sharply denticulate. Peduncles exceeding the leaves. Heads ovoid, about 3-6 cm. long. Involucre vestigial. Calyx-teeth subulate, plumose. Corolla purplish or pinkish, about 2 cm. long.

Meadows and valleys of the Transition and Upper Sonoran zones, mostly between 4,000 and 5,000 ft. British Columbia and Idaho southward to NE California and NW Nevada.

3. TRIFOLIUM PRATENSE L., Sp. Pl. 768. 1753. "Red-clover"

Sparingly villous ascending or erect, branching perennial or biennial 2-6 dm. high, from a deep woody taproot. Leaves 3-foliolate, the leaflets elliptical to ovate, mostly 2-4 cm. long and 1-2.5 cm. broad, obtuse or emarginate, sparingly pubescent, very obscurely denticulate. Peduncles very short, the heads subsessile and subtended by 1 or 2 leaves

whose broad stipules resemble an involucre but true involucre lacking. Heads globose or ovoid, 2-3 cm. broad. Calyx-teeth subulate, villous. Corolla reddish or purplish, about 12-15 mm. long.

Widely planted as a forage crop and sometimes naturalized. Native of Eurasia.

4. TRIFOLIUM HYBRIDUM L., Sp. Pl. 766. 1753. "Alsike Clover"

Glabrous or nearly glabrous, erect or ascending perennial up to about 5 dm. high, from a taproot and branching root-crown. Leaves 3-foliolate, the leaflets cuneate-obovate, up to 25 mm. long, rounded at the apex, sharply serrulate. Peduncles equaling or exceeding the leaves. Heads globose, without an involucre, mostly 1.5-2 cm. broad, the flowers on short slender pedicels and soon reflexed. Calyx-teeth narrowly lanceolate to subulate, glabrous. Corolla pink, 6-8 mm. long.

Commonly cultivated and becoming naturalized. Native of Europe.

5. TRIFOLIUM REPENS L., Sp. Pl. 767. 1753. "White Clover"

Glabrous or sparingly pubescent, creeping perennial, the stems rooting at the nodes, 1-3 dm. long. Leaves 3-foliolate, with petioles up to 8 cm. long, the leaflets cuneate-obovate to obcordate, mostly 10-20 mm. long, sharply serrulate. Peduncles usually exceeding the leaves. Heads globose, without an involucre, mostly 1.5-2.5 cm. broad, the flowers on short slender pedicels, reflexed in age. Calyx-teeth lanceolate-acuminate, glabrous. Corolla white, 7-10 mm. long.

Commonly cultivated and widely naturalized. Native of Europe.

6. TRIFOLIUM GYMNOCARPON Nutt. in T. & G., Fl. N. Am. 1:320. 1838. var. PLUMMERAE (S. Wats.) Martin, Bull. Torr. Club 73:368. 1946. (Map 14)

Trifolium plummerae S. Wats., Bot. Calif. 2:440. 1880; T. plummeri Lemmon ex Lojac., Nuov. Giorn. Bot. Ital. 15:162. 1883; T. gymnocarpon f. plummerae McDermott, N. Am. Sp. Trifol. 192. 1910.

Strigose, subacualescent, caespitose perennial less than 1 dm. high, from a deep woody taproot and a branching caudex. Leaves 3-5-foliolate, the leaflets pale green, oval or elliptic, about 6-10 mm. long, prominently strigose beneath and sparsely strigose above, sharply denticulate. Peduncles shorter than the leaves. Heads globose or hemispheric, 1-2 cm. broad, 3-12-flowered, without an involucre, the flowers erect or spreading. Calyx-teeth broadly subulate, strigose. Corolla cream-colored or pinkish, 6-9 mm. long.

Dry hills and slopes, often in clayey soils, with sagebrush and pinyon-juniper, ascending to 10,000 ft., and present throughout most of Nevada. The type came from "Peaks above Pyramid Lake, Nevada."

This variety differs from the typical var. gymnocarpon in having a more acualescent habit and leaflets strigose above instead of glabrous. It ranges from SW Montana to NE Oregon, and southward to W Wyoming, NW Colorada, Nevada and NE California. The range of var. gymnocarpon is more to the eastward.

A related species, Trifolium lemmonii S. Wats., Proc. Am. Acad. 11: 127. 1876. is listed for western Nevada by Abrams (Ill. Fl. Pacif. States 2:530. 1944.) but no authenticating specimens have been seen by the writer. It has the general aspect of T. gymnocarpon but the flowers are reflexed and the stems often a little taller and the peduncles tend to arise from leafy stems. It may occur on the eastern slope of the Sierra Nevada along the Nevada border.

7. TRIFOLIUM ERIOCEPHALUM Nutt. in T. & G., Fl. N. Am. 1:313. 1838. var. CUSICKII (Piper) Martin, Madroño 8:156. 1946. (Map 15)

Trifolium arcuatum var. cusickii Piper, Bull. Torr. Club 29:641. 1902; T. harneyense Howell, Fl. N. W. Am. 1:134. 1897.; T. arcuatum var. harneyense McDermott, N. Am. Sp. Trifol. 231. 1910.; T. tropicum A. Nels. Bot. Gaz. 54:409. 1912.

Villous, erect or spreading perennial 5-45 cm. high, the stems branching from the summit of a deep root. Leaves 3-foliolate, the leaflets mostly narrowly lanceolate to linear, 2-8 mm. wide, 30-60 mm. long, acute, and with irregularly and sharply denticulate margins. Peduncles exceeding the leaves. Heads subglobose to oval, without an involucre, many-flowered, 15-30 mm. broad, the flowers reflexed due to bending of the apex of the peduncle. Calyx-teeth narrowly subulate, 2-5 times as long as the tube, villous with long diverging hairs so as to appear plumose. Corolla yellowish, pink, or purplish, 8-16 mm. long.

The species is variable, ranging from S Washington southward to Utah, N Nevada, and N California. Four varieties are recognized by Martin (Madroño 8:152-157. 1946), but only the above variety is known to occur in Nevada. It is distinguished by narrow, usually linear leaflets, and ovaries 4-5-ovuled and 1-3-seeded.

Moist meadows and open woods at about 4000-7000 ft. in the Transition Zone. E Oregon, N Nevada and SW Idaho.

8. TRIFOLIUM LONGIPES Nutt. in T. & G., Fl. N. Am. 1:314. 1838.

Glabrous to moderately pubescent, erect, branching perennial 1-4 dm. high, from a creeping rhizome or sometimes from a taproot. Leaves 3-foliolate, the leaflets variable in shape but mostly elliptical to broadly

or narrowly lanceolate, 12-40 mm. long, rounded or usually acute at the apex, usually finely denticulate but sometimes subentire. Peduncles exceeding the leaves. Heads subglobose to ovate, without an involucre, many-flowered, mostly 1-2 cm. broad, the flowers erect or reflexed. Calyx-teeth narrowly subulate, 2-3 times as long as the tube, moderately to sparsely villous, the hairs ascending. Corolla ochroleucous, purplish, or pinkish, 8-14 mm. long.

A highly variable species ranging from Montana to Washington, and southward to Colorado, Arizona, and southern California. Nevada plants may be referred to the following varieties:

var. LONGIPES (Map 16)

Trifolium rusbyi Greene, Pittonia 1:5. 1887.; T. elmeri Greene, l.c. 3: 223. 1897.; T. caurinum Piper, Erythea 6:29. 1898.; T. pedunculatum Rydb., Bull. Torr. Club 30:254. 1903.; T. covillei House, Bot. Gaz. 41:337. 1906.

Flowers erect or ascending, usually purplish or pinkish, 8-10 mm. long; aerial portion of plants usually 1-3 dm. high.

Meadows and stream banks at 6000-9000 ft. in the Transition and Canadian zones of the Sierra Nevada of W Nevada. Idaho and Washington southward to S California.

var. REFLEXUM A. Nels., Wyo. Expt. Sta. Bull. 28:94. 1896. (Map 16)

Trifolium rydbergii Greene, Pittonia 3:222. 1897.

Flowers reflexed at maturity due to bending of the pedicels, usually ochroleucous, 10-14 mm. long; plants usually more robust, up to 4 dm. high, and usually less pubescent.

Mountain meadows and stream banks in the Transition and Canadian

zones. The only Nevada collection seen came from 7500 ft. in the Burnt Timber Mts., Pole Creek, N Elko Co., Nelson & Macbride 2062 (RM). Montana to Washington, and southward to Colorado and Arizona.

9. TRIFOLIUM MONANTHUM A. Gray, Proc. Am. Acad. 6:523. 1865. (Map 17)

Low, glabrous to villous, mat-forming perennial with stems up to 3 dm. long from a taproot. Leaves 3-foliolate, the leaflets obcordate, obovate, or oblanceolate, rounded, truncate, or retuse at the apex, 2-5 mm. wide, 4-12 mm. long, sharply denticulate. Peduncles shorter than the leaves. Heads 1-2 (4-8) -flowered, with a small involucre of 2-4 narrow lobes 0.5-5 mm. long, the flowers erect, or sometimes the peduncle bent below the involucre and the flowers then at more or less right angles to the peduncle. Calyx-teeth narrowly lanceolate, about the same length as the tube. Corolla ochroleucous, with a purple-tipped keel, 10-12 mm. long.

A variable species of Nevada and California. Martin (Madroño 8:230-233. 1946) has delimited four varieties, the following two being found in Nevada:

var. MONANTHUM

Trifolium monanthum f. spatiosum McDermott, N. Am. Sp. Trifol. 98. 1910.

This is the common form in Nevada, characterized by being glabrous to sparsely villous, the involucral lobes mostly more than 2 mm. long, and the flowers erect.

Moist places in the mountains, 6000-10,000 ft., Transition to Canadian zone. Scattered over most of the higher mountains of Nevada and extending into the Sierra Nevada and South Coast Ranges of California.

var. PARVUM (Kellogg) McDermott, N. Am. Sp. Trifol. 105. 1910. Trifolium pauciflorum var. parvum Kellogg, Proc. Calif. Acad. Sci. 5:54. 1873; T. multicaule Jones, Bull. Torr. Club 9:31. 1882; T. parvum Heller, Muhlenbergia 1:114. 1905; T. monanthum var. parvum f. glabrifolium McDermott, N. Am. Sp. Trifol. 108. 1910.

Distinguished from var. monanthum by being more villous, the involucral lobes 0.5-2 mm. long, and the flowers often at right angles to the peduncle and commonly 4-8 in each head.

Moist places in the mountains, 6000-10,000 ft., Transition to Canadian zone. Sierra Nevada of California and adjacent W Nevada (Mt. Rose, Washoe Co.).

10. TRIFOLIUM FRAGIFERUM L. Sp. Pl. 772. 1753. "Strawberry Clover"

Creeping perennial, rooting at the nodes, glabrous or nearly so except for the calyces, the stems prostrate or ascending at the ends, 1-3 dm. long or more. Leaves 3-foliolate, long-petiolate, the leaflets mostly obovate, 10-30 mm. long, finely denticulate, finely but prominently veined especially near the margins. Peduncles usually exceeding the leaves. Heads subglobose, many-flowered, 10-14 mm. broad in flower, up to 20 mm. broad in fruit, with a deeply lobed involucre, the flowers at first erect but later spreading or reflexed. Calyx-teeth subulate, 2-3 mm. long, villous; calyx-tube about the same length as the teeth in anthesis but becoming enlarged, papery-inflated, and prominently reticulate in fruit. Corolla pinkish, 4-6 mm. long.

Introduced from Europe and occasionally becoming established in moist situations such as meadows and ditches. The single collection seen came from a pasture 13 mi. SE of Fallon, Churchill Co.

11. TRIFOLIUM CYATHIFERUM Lindl., Bot. Reg. under pl. 1070. 1827. (Map 18)

Glabrous, erect annual 1-4 dm. high, usually branching from the summit of a slender taproot. Leaves 3-foliolate, the leaflets oblanceolate to broadly obovate, rounded or emarginate at the apex, mostly 5-25 mm. long, sharply denticulate. Peduncles exceeding or shorter than the leaves. Heads subglobose, few-many-flowered, mostly 10-20 mm. broad, with a conspicuous bowl-shaped involucre having shallow, setose-toothed lobes. Calyx-teeth ternately parted into divaricate setae, about equaling the corolla, these and the setose involucral lobes giving the inflorescence a bristly appearance. Corolla white or pinkish, 6-11 mm. long.

Meadows and stream banks in the mountains, 5500-8000 ft., in the Transition and Boreal zones. Idaho to British Columbia, and southward to Utah, Nevada and California.

12. TRIFOLIUM WILLDENOVII Spring., Syst. 3:208. 1826. (Map 19)

Trifolium involucratum Willd., Sp. Pl. 3:1372. 1800. Not Lam. 1778, nor Ortega, 1797; T. fimbriatum Lindl., Bot. Reg. 13: pl. 1070. 1827; T. spinulosm Dougl. ex Hook., Fl. Bor. Am. 1:133. 1830; T. heterodon T. & G., Fl. N. Am. 1:318. 1838; T. involucratum var. fimbriatum McDermott, N. Am. Sp. Trifol. 52. 1910; T. wormskjoldii var. fimbriatum Jeps., Fl. Calif. 2:294. 1936.

Glabrous, decumbent or erect perennial from creeping rhizomes, the stems branching, 1-4 dm. long. Leaves 3-foliolate, the leaflets obovate to narrowly elliptical, rounded or acute at the apex, mostly 10-30 mm. long, sharply denticulate. Peduncles usually exceeding the leaves. Heads subglobose, mostly 15-25 mm. broad, many-flowered, subtended by a conspicuous, deeply lobed and laciniately toothed involucre. Calyx-teeth glab-

rous, aristate-subulate, a little longer than the tube. Corolla reddish or purplish, 9-12 mm. long.

A highly variable species of moist situations (sometimes actually aquatic) in the mountains, 4000-9000 ft., Transition and Boreal zones. Nevada plants are probably all referable to var. willdenovii, the typical phase, which is wide-ranging from British Colombia to Mexico, and probably eastward as far as Idaho and New Mexico.

This is the plant which has been variously designated as T. involucratum, T. wormskjolkii, and T. fimbriatum by various authors. For a discussion of the correct name of this plant see Ewan in Leafl. West. Bot. 3:222-224. 1943. Various closely related so-called species of Arizona, New Mexico and S Colorado are probably only varietally distinct.

13. TRIFOLIUM MICROCEPHALUM Pursh, Fl. Am. Sept. 2:478. 1814. (Map 20)

Sparsely to moderately villous annual from a slender taproot, usually with several ascending or spreading branches from the base, up to 4 dm. long. Leaves 3-foliolate, the leaflets cuneate-oblanceolate to cuneate-obovate, 5-15 mm. long, rather coarsely toothed around the apex and often emarginate. Peduncles produced at intervals along the stems, mostly not exceeding the leaves. Heads subglobose, 5-10 mm. broad, several-many-flowered, with a conspicuous involucre of several broadly lanceolate and aristate-pointed lobes. Calyx-teeth lanceolate-subulate, with broad scarious margins near the base, about equaling the tube. Corolla 3-6 mm. long, pinkish or white, little if any exceeding the calyx-teeth.

Meadows and stream banks in the mountains at about 6000-7000 ft., Transition zone, mainly in NW Nevada. Idaho to British Colombia, and southward to Arizona and Baja California.

14. TRIFOLIUM VARIEGATUM Nutt. in T. & G., Fl. N. Am. 1:317. 1838.
(Map 21)

Glabrous annual from a slender taproot, with several ascending or decumbent stems from the base, up to 6 dm. long. Leaves 3-foliolate, the leaflets oblanceolate to cuneate-obovate, rounded or emarginate at the apex 5-20 mm. long, sharply denticulate. Peduncles produced at intervals along the stems, mostly not exceeding the leaves. Heads subglobose, 6-15 mm. broad, several-many-flowered, with a conspicuous involucre of several broad and laciniately toothed lobes which are aristate-pointed. Calyx-teeth lanceolate-subulate, not margined, a little longer than the strongly nerved tube. Corolla 5-8 mm. long, purplish, usually exceeding the calyx-teeth.

A highly variable species of moist situations, in the mountains and foothills at about 4000-8000 ft., Upper Sonoran and Transition zones. Montana to British Columbia, and southward to Arizona and Baja California; most abundant in the coastal part of its range.

6. LOTUS L., Sp. Pl. 773. 1753. "Deer-vetch"

Annuals or perennials, sometimes suffrutescent, with odd-pinnate or subdigitate leaves, the leaflets 1-several, entire, the stipules foliaceous, membranaceous, reduced to glands, or obsolete. Flowers axillary, umbellate, or sometimes solitary. Calyx-tube cylindrical to campanulate, the teeth subequal. Corolla papilionaceous, deciduous, yellow or whitish, often tinged with red or purple. Stamens diadelphous. Pod straight or curved, flat or subterete, leathery, 1-several-seeded, longitudinally dehiscent or indehiscent.

About 140 species, about 50 of which occur in western America and

are sometimes placed in the segregate genus Hosackia, the remainder natives of the Old World.

Key to species

1. Stipules foliaceous or membranaceous, lanceolate or broader; plants perennial; native or introduced species

   2. Plants essentially glabrous; stipules foliaceous, resembling a basal pair of leaflets; introduced species . . . 1. L. CORNICULATUS

   2. Plants pubescent; stipules small, membranaceous, not foliaceous; native species . . . . . 2. L. OBLONGIFOLIUS

1. Stipules reduced to dark glands or obsolete; plants annual or perennial; native species

   3. Plants annual

      4. Stems erect or ascending, often 2 dm. long or more; corolla whitish or pinkish . . . . . 3. L. PURSHIANUS

      4. Stems prostrate or sprawling, seldom more than 1.5 dm. long; corolla yellow or orange

         5. Pods oblong, mostly 3-4 mm. wide; herbage soft-villous, the hairs spreading . . . . . 4. L. HUMISTRATUS

         5. Pods linear, less than 3 mm. wide; herbage short-strigose, short-tomentulose, or glabrate

            6. Leaflets sub-succulent, some of them truncate or emarginate; calyx-teeth shorter than the tube .5. L. TOMENTELLUS

            6. Leaflets thin, rounded or subacute, often mucronulate; calyx-teeth equaling or longer than the tube 6. L. SALSUGINOSUS

   3. Plants perennial

      7. Pods straight, 20 mm. long or more, abruptly short-beaked; stems ascending or erect, more or less suffrutescent

         8. Stems rigid, with greatly elongated internodes, these several times longer than the leaves . . . . . .7. L. RIGIDUS

         8. Stems flexuous, the internodes not greatly elongated 8. L. UTAHENSIS

7. Pods arcuate, 8 mm. long or less, tapering into a beak as long as the body; stems prostrate or sprawling, scarcely suffrutescent . . . . . .9. L. DOUGLASII

1. LOTUS CORNICULATUS L., Sp. Pl. 775. 1753. (Map 22)

Lotus macbridei A. Nels., Bot. Gaz. 53:221. 1912.

Bright green herbaceous perennial, glabrous or nearly so. Leaves seemingly 5-foliolate, but the basal pair of apparent leaflets probably foliaceous stipules, the leaflets elliptic to oblanceolate, 5-15 mm. long. Flowers bright yellow or orange to reddish, about 14 mm. long, in pedunculate umbels. Pods straight, 2-4 cm. long.

Native of Europe, occasionally introduced in cultivated or waste places, the single Nevada collection seen from Fallon, Churchill Co.

2. LOTUS OBLONGIFOLIUS (Benth.) Greene, Pittonia 2:146. 1890. var. TORREYI (A. Gray) Ottley, Univ. Calif. Publ. Bot. 10:205. 1873 (Map 23)

Hosackia torreyi A. Gray, Proc. Am. Acad. 8:625. 1873.; H. torreyi var. nevadensis A. Gray, Proc. Am. Acad. 8:625. 1873.

Soft-pubescent herbaceous perennial with ascending or erect stems up to 5 dm. long. Leaves odd-pinnate, mostly 7-9-foliolate, the leaflets narrowly to broadly elliptical, mostly 1-2 cm. long, the stipules membranaceous or subscarious, small and lanceolate. Flowers yellowish, 10-13 mm. long, in pedunclate, subcapitate umbels. Pods straight, 3-6 cm. long.

This variety differs from var. oblongifolius chiefly in having broader leaflets. Nevada plants tend to be somewhat intermediate.

Moist places, Transition and Canadian zones. Oregon southward and eastward to W Nevada, SE Arizona, Chihuahua, and Baja California.

3. LOTUS PURSHIANUS (Benth.) Clements & Clements, Ry. Mt. Fl. 183. 1914. (Map 24)

Lotus sericeus Pursh. Fl. Am. Sept. 489. 1814. Not DC. 1813.; Trigonella americana Nutt., Gen. 2:120. 1818.; Hosackia purshiana Benth., Bot. Reg. 15: under pl. 1257. 1829.; H. unifoliata Hook., Fl. Bor. Am. 1:135. 1833.; Lotus unifoliatus Benth., Trans. Linn. Soc. 17:368. 1837.; Hosackia elata Nutt. in T. & G., Fl. N. Am. 1:327. 1838.; H. elata var. glabra Nutt. l.c.; H. floribunda Nutt. l.c.; H. pilosa Nutt. l.c.; H. mollis Nutt. l.c.; Lotus americanus Bisch. Del. Sem. Hort. Heidelb. 1839; Linnaea 14: Litt. 132. 1840. Not Vellozo, 1827.; Acmispon gracilis Heller, Muhlenbergia 9:61. 1913.; A. mollis Heller, l.c.:62; A. sparsiflorus Heller, l.c.:63; A. aestivalis Heller, l.c.; A. pilosus Heller, l.c.:64; A. glabratus Heller, l.c.:65; Lotus americanus var. minutiflorus Ottley, Univ. Calif. Publ. Bot. 10:220. 1923.

Pubescent annual up to 6 dm. high, with usually erect or ascending branching stems. Leaves subsessile, 3-foliolate, the terminal leaflet petiolulate, the leaflets broadly lanceolate to elliptical, mostly 10-15 mm. long, the stipules reduced to a pair of minute dark glands. Flowers whitish or tinged with pink, 5-8 mm. long, subsessile or short-pedunculate, subtended by a foliaceous bract. Pods striaght, about 2 cm. long.

A highly variable and widespread species of dry prairies, hills, and roadsides up to about 7000 ft. in the Upper Sonoran zone of W Nevada. W Minnesota to British Columbia, and southward to W Missouri, No Mexico and Baja California.

4. LOTUS HUMISTRATUS Greene, Pittonia 2:139. 1890. (Map 25)

Hosackia brachycarpa Benth., P. Hartw. 306. 1848. Not Lotus brachy-

carpus Hochst. ex Steud. 1841; Lotus trispermus Greene, Erythea 1:258. 1893; Anisolotus brachycarpus Rydb., Bull. Torr. Club 33:144. 1906; A. trispermus Woot. & Standl., Contr. U. S. Nat. Herb. 16:135. 1913.

Soft-villous, prostrate or sprawling annual, the branching stems up to 20 cm. long. Leaves 3-5-foliolate, the leaflets narrowly to broadly elliptical or obovate, 4-8 mm. long, the stipules a pair of very minute dark glands which are often obscured by the pubescence. Flowers yellow or orange, 5-6 mm. long, subsessile, solitary. Pods straight, oblong, about 10 mm. long, 3-4 mm. wide.

Dry granitic or sandy soils, Lower Sonoran zone, up to about 3700 ft. The only collection seen from S Clark Co., but said to be common there. New Mexico to California, No Mexico, and Baja California.

5. LOTUS TOMENTELLUS Greene, Pittonia 2:140. 1890. (Map 26)

Hosackia tomentella Abrams, Ill. Fl. Pacif. States 2:543. 1944.

Subsucculent, strigose, prostrate annual, the branching stems up to 15 cm. long. Leaves 5-7-foliolate, the leaflets on a flattened axis, cuneate-obovate, often truncate or emarginate at the apex, 3-10 mm. long, the stipules a pair of glands. Flowers yellowish or turning reddish, about 5 mm. long, solitary or paired on a short peduncle. Pod straight, about 2 cm. long and 2-2.5 mm. wide.

Dry sandy or gravelly desert soils, Lower Sonoran zone, the only Nevada collection seen from Lake Mead, Clark Co. Deserts of SE California and N Baja California, eastward to extreme S Nevada and W Arizona.

6. LOTUS SALSUGINOSUS Greene, Pittonia 2:142. 1890. var. BREVIVEXILLUS Ottley, Univ. Calif. Publ. Bot. 10:217. 1923. (Map 27)

Lotus humilis Greene, Pittonia 2:140. 1890; Hosackia humilis Abrams,

Ill. Fl. Pacif. States 2:545. 1944.

Sparsely strigose to glabrate, sprawling annual with branching stems up to 15 cm. long. Leaves 3-5-foliolate, the leaflets obovate, rounded and often mucronulate at the apex, 4-10 mm. long, the stipules a pair of glands. Flowers 1-3 on short peduncles, yellowish, 3-5 mm. long, the keel exceeding the wings and banner. Pod straight, mostly 1-1.5 cm. long, about 2 mm. wide, somewhat constricted between the seeds.

This variety differs from var. salsuginosus, chiefly of coastal California and Baja California in having smaller plants and flowers.

Alluvial desert soils, Lower Sonoran zone, Clark Co. S. California to W Arizona, extreme S Nevada, No Mexico and Baja California.

7. LOTUS RIGIDUS (Benth.) Greene, Pittonia 2:142. 1890. (Map 28)

Hosackia rigida Benth., Pl. Hartw. 305. 1848; Lotus argensis Coville, Contr. U. S. Nat. Herb. 4:83. 1893; Anisolotus rigidus Rydb., Bull. Torr. Club 33:144. 1906.

Suffrutescent and stiffly erect or ascending perennial up to 5 dm. high, the stems several from the base and with internodes elongated and several times longer than the leaves. Leaflets 3-5, subdigitate, linear-oblong or oblong-oblanceolate, up to 15 mm. long, strigose. Stipules a pair of dark glands. Flowers 15-25 mm. long, light yellowish, tinged with rose, 1-3 on the end of a peduncle 6-12 cm. long. Pod striaght, terete, 2-5 cm. long, 3-5 mm. wide.

Dry desert areas, often in sandstones, 1000-5000 ft., Lower Sonoran and Upper Sonoran zones of S Nevada. SE California southward to Baja California, and northeastward through S Nevada to S Utah and W Arizona.

In S Nevada, where the ranges of L. rigidus and L. utahensis meet, there is a large assemblage of forms that are intermediate between these two species. These plants, which are putative hybrids, have been called by the following names: Anisolotus longebracteatus Rydb., Fl. Ry. Mts. 479. 1917, and Hosackia rigida var. nummularia M. E. Jones, Proc. Calif. Acad. II, 5:633. 1895 (Anisolotus nummularius Wooten & Standl., Contr. U. S. Nat. Herb. 16:135. 1913, and Lotus nummularius Tidestr., Contr. U. S. Nat. Herb. 25:303. 1925, not Reichb. ex Steud. 1841, also Lotus nummulus Dayton, Proc. Biol. Soc. Wash. 40:119. 1927.). Those plants referred to Lotus wrightii var. multicaulis Ottley, Univ. Calif. Publ. Bot. 10:211. 1923, are also these hybrids as far as Nevada collections are concerned.

8. LOTUS UTAHENSIS Ottley, Brittonia 5:108. 1944. (Map 29)

Erect or ascending perennial up to 4 dm. high, the branching stems somewhat suffrutescent but slender and flexuous, many from the crown of a woody taproot, their internodes not greatly elongated. Leaves sessile or subsessile, subdigitate, mostly 3-6-foliolate, the leaflets oblanceolate to oblong, mostly 5-15 mm. long, appressed-pubescent. Stipules a pair of dark glands. Flowers 10-16 mm. long, yellow, 2-3 on the end of a peduncle 4-6 cm. long. Pod straight, mostly 2-3 cm. long and 2-3.5 mm. wide.

Plains, hillsides, and canyons of the pinyon-juniper belt, Upper Sonoran zone, mostly 5000-7200 ft., in E Lincoln Co. W and SW Utah to SE Nevada and NW Arizona.

This species apparently hybridizes with L. rigidus in Nevada and elsewhere. See under that species.

9. LOTUS DOUGLASII (Benth.) Greene, Pittonia 2:149. 1890. var. NEVADENSIS (S. Wats.) Ottley, Univ. Calif. Publ. Bot. 1:234. 1923. (Map 30)

Hosackia decumbens var. nevadensis S. Wats., Bot. Calif. 1:138. 1876.; Syrmatium nevadense Greene, Bull. Calif. Acad. 2:148. 1886.; Lotus nevadensis Greene, Pittonia 2:149. 1890.; Hosackia nevadensis Parish, Plant World 20:220. 1917.

Prostrate or sprawling, appressed pubescent perennial from a woody taproot, the flexuous, wiry stems up to 5 dm. long. Leaves pinnately 3-5-foliolate, the leaflets broadly oblanceolate to obovate, acute or rounded at the apex, 5-10 mm. long, tomentose above and below, the stipules a pair of dark glands. Flowers 6-8 mm. long, yellow and often tinged with red, several from the summit of a peduncle up to 25 mm. long. Pod arcuate, about 6 mm. long overall, the upper half consisting of a tapering beak.

This variety differs from the more northerly ranging var. douglasii in having smaller flowers and more appressed instead of spreading pubescence.

Open coniferous forests and slopes up to about 8000 ft., Upper Sonoran and Transition zones of the Sierra Nevada. The type came from the vicinity (probably in the hills west) of Carson City, Ormsby Co. Sierra Nevada of California and adjacent Nevada, and occasionally in other mountains of N and S California.

7. ROBINIA L., Sp. Pl. 722. 1753. "Locust"

Trees or large shrubs with odd-pinnate leaves having several to many entire leaflets, the stipules small and often spiny, the stipels subulate or spinescent. Flowers white or pinkish-purple, showy, in many-flowered

racemes. Calyx-tube campanulate, the teeth broad and short, the upper two slightly united. Corolla papilionaceous, the standard suborbicular and reflexed, the wings oblong and curved, the keel obtuse. Stamens 10, diadelphous. Pods leathery, oblong, flat, several-many-seeded.

About 20 species of North America.

Key to species

Flowers white; branchlets and leaves glabrous or nearly so; introduced species . . . . . .1. R. PSEUDOACACIA

Flowers pinkish-purple; branchlets and leaves puberulent; native species 2. R. NEOMEXICANA

1. ROBINIA PSEUDOACACIA L., Sp. Pl. 722. 1753. "Black Locust"

Trees to 25 m. high, with rough black bark. Leaflets 7-19, oval or elliptic, 2-4 cm. long. Stipels subulate. Flowers white, 2-2.5 cm. long, fragrant, in many-flowered drooping racemes. Pod flat, smooth, 5-10 cm. long, 1-1.5 cm. broad.

Native of the E and SE United States and widely cultivated and naturalized elsewhere. A commonly planted shade tree.

2. ROBINIA NEOMEXICANA A. Gray, Mem. Am. Acad. n. ser. 5:314. 1855 "New-Mexican Locust" (Map 31)

Robinia neo-mexicana var. luxurians Dieck ex Goeze, Gard. Chron. Ser. 3, 12:669. 1892; R. luxurians Schneid. in Silva & Schneid., Uns. Freil.-Laubh. Ed. 2, 357, fig. 417 1922; R. subvelutina Rydb., N. Am. Fl. 24:227. 1924; R. neomexicana var. subvelutina Kearney & Peebles, Jour. Wash. Acad. Sci. 29:484. 1939.

Large shrubs or small trees up to 8 m. high, with branchlets and leaves puberulent. Leaflets 9-19, elliptic to oblong, 2-3 cm. long. Stipels

spinescent. Flowers pinkish-purple, 2-2.5 cm. long, in many-flowered drooping racemes. Pods flat, hirsutulous and often glandular-hispid, 6-10 cm. long, 7-10 mm. broad.

Along streams and in canyons, often forming thickets, Upper Sonoran zone, southeastern Nevada. S Colorado to SE Nevada, and southward to Trans-Pecos Texas, New Mexico, Arizona, and No Mexico.

8. PETERIA A. Gray, Pl. Wright. 1:50. 1852.

Perennial herbs from a lignescent caudex arising from a deep-seated tuberous root. Leaves odd-pinnate with many leaflets, the stipules a pair of divaricate prickles. Flowers racemose, ochroleucous or white, drying yellowish or pinkish, the calyx cylindric-campanulate and unequally 5-lobed, the corolla papilionaceous and its petals very slender-clawed, the banner obovate-oblong, arched, folded lengthwise and its sides reflexed, the wings oblong to obovate, and the keel petals obliquely obovate, obtuse. Stamens 10, diadelphous. Pod linear or narrowly oblong, straight, flat, dehiscent, few- to several-seeded.

An American genus of 4 species of warm regions.

1. PETERIA THOMPSONAE S. Wats., Am. Nat. 7:300. 1873. (Map 32)

Peteria nevadensis Tidestr., Proc. Biol. Soc. Wash. 36:183. 1923.

Stems 2-4 dm. high, erect or ascending. Leaflets 13-21, oval, 6-15 mm. long, 4-8 mm. wide. Stipular spines 2-5 mm. long. Calyx glandular-pubescent, the tube 4-8 mm. long, the lobes 4-9 mm. long, narrowly lanceolate. Corolla 15-20 mm. long. Pods 5-7 cm. long, about 5 mm. wide.

Dry washes, Upper Sonoran zone, S Nevada. S half of Utah and Nevada and adjacent NW Arizona; also known from SW Idaho.

The type of P. nevadensis Tidestr. came from a mesa NE of Las Vegas, Clark Co. It does not differ significantly, nor do other Nevada collections, from the type of P. thompsonae S. Wats. which came from Kanab, Kane Co., Utah.

9. SPHAEROPHYSA DC., Mem. Leg. 288. 1825.

Herbaceous perennial from rhizomes, the tall stems erect and with ascending branches. Leaves odd-pinnate with several to many leaflets, the stipules small. Flowers brick-red, showy, in axillary racemes. Calyx with 2 bractlets at its base (these in addition to the single small bracts at the base of the pedicels), the tube campanulate, and the 5 teeth broad and somewhat unequal. Corolla papilionaceous. Stamens 10, diadelphous. Pods bladdery-inflated, papery, oval, with a stipe longer than the calyx, several - to many-seeded.

A genus of 2 species in northern and central Asia.

1. SPHAEROPHYSA SALSULA (Pall.) DC., Proc. 2:271. 1825.

Phaca salsula Pall., Reise 3:747. 1776; Swainsona salsula Taubert in Engl. & Prantl, Pflanzenfam. III, 3:281. 1894.

Stems up to 1 m. or more high. Leaflets mostly 9-21, entire, elliptic to obovate-oblong, 5-10 mm. long, rounded, truncate, or retuse at the apex, glabrous above, strigose beneath. Bractlets about 1 mm. long. Calyx-tube about 3 mm. long, the triangular teeth about 1 mm. long. Corolla 12-15 mm. long, brick-red, the standard and keel becoming yellowish toward the base. Pods about 2 cm. long, with a stipe 5-6 mm. long, sulcate above (ventrally).

Fields, meadows, and roadsides, often with Alfalfa. Nevada collect-

ions seen all from 6-9 mi. N of Fallon, Churchill Co. Introduced from Asia and becoming fairly common locally from the Rocky Mountains westward.

This plant has been referred by some to the genus Swainsona which is limited to Australia.

10. ASTRAGALUS (Tourn.) L.

This genus has been treated by R. C. Barneby in Cont. Fl. Nevada No. 38, pp. 1-80. February 10, 1956.

11. OXYTROPIS DC.

This genus has been treated by R. C. Barneby in Contr. Fl. Nevada No. 38, pp. 80-83. February 10, 1956.

12. GLYCYRRHIZA L., Sp. Pl. 741. 1753. "Licorice"

Erect perennial herbs with glandular-dotted, odd-pinnate leaves. Flowers white or blue, in dense axillary spike-like racemes. Calyx subequally 5-toothed. Corolla papilionaceous, the petals acute. Stamens 10, diadelphous for about half their length, the anthers alternately larger and smaller. Pod indehiscent, oblong, nearly terete, few-seeded, covered with hooked prickles or merely glandular.

About 15 species of wide distribution in temperate regions, only one of which is native to the United States.

Key to species

Flowers white; pods covered with hooked prickles; leaflets not more than 15 mm. wide; native species . . . . . 1. G. LEPIDOTA

Flowers blue; pods merely glandular; leaflets 20 mm. wide or more; introduced species . . . . . 2. G. GLABRA

1. GLYCYRRHIZA LEPIDOTA Pursh, Fl. Am. Sept. 480. 1814. (Map 33)

Stems up to 1 m. high. Leaflets mostly lanceolate, acute, 2-4 cm. long, 7-15 mm. broad. Flowers white or pale cream-colored, 10-13 mm. long. Pods 15-20 mm. long, densely covered with hooked prickles.

The common form in Nevada is var. lepidota having glabrous to minutely puberulent stems and peduncles. One collection from near Winnemucca, Homboldt Co., has stipitate-glandular hairs on the stems and peduncles and may be referred to var. glutinosa (Nutt.) S. Wats. in Brewer & Wats., Bot. Calif. 1:144. 1876. This latter variety ranges from Idaho westward.

Valleys, stream banks, and waste places, Transition and Upper Sonoran zones. Minnesota to Alberta and Washington, and southward to Arkansas, Texas and California.

2. GLYCYRRHIZA GLABRA L., Sp. Pl. 742. 1753.

Tall erect plants with leaflets ovate to elliptical, mostly 4-6 cm. long and up to 3 cm. broad. Flowers pale blue. Pods glandular but without the hooked prickles of the preceding species.

Occasionally cultivated in Nevada (Churchill Co.), and possibly becoming established. This is the source of commercial licorice. Native of the Mediterranean region.

13. PSORALEA L., Sp. Pl. 762. 1753. "Scurf-pea"

Perennial herbs from rhizomes or tuberous roots, the herbage dark-glandular-punctate. Leaves digitately 3-5-foliolate or pinnately 3-foliolate, the leaflets entire. Flowers in axillary peduncled spikes or spike-like racemes, the calyx-tube campanulate and the lobes subequal or

the lower longer, the corolla papilionaceous, bluish or purplish, sometimes pale, the stamens 9-10, usually diadelphous. Pods short, turgid or a little flattened, dehiscent or indehiscent, 1-seeded.

About 150 species, of Africa, Australia, western North America, and extending into South America.

Key to species

Leaves mostly 5-foliolate, with silvery-pubescent leaflets, the largest up to 3 cm. broad; plants subacaulescent from a deep tuberous root
1. P. CASTOREA

Leaves 3-foliolate, with green and strigose to glabrate leaflets, the largest less than 2 cm. broad; plants with well developed leafy stems from rhizomes

Leaflets of at least the lower leaves broadly obovate to broadly oblanceolate; pods densely white-pilose . . . . . 2. P. SCABRA

Leaflets all linear to narrowly oblanceolate; pods sparsely strigose to nearly glabrous . . . . . .3. P. LANCEOLATA

1. PSORALEA CASTOREA S. Wats., Proc. Am. Acad. 14:291. 1879. (Map 34)

Psoralea castorea S. Wats. ex Palmer, Am. Nat. 12:601. 1878. Nomen nudum.; Lotodes castoreum Kuntze, Rev. Gen. 194. 1891.; Pediomelium castoreum Rydb., N. Am. Fl. 24:22. 1919.

Herbaceous perennial from a deep tuberous root, the erect stem mostly underground, the aerial portion short, with crowded racemes and leaves, the herbage silvery-pubescent. Leaves digitately 4-5-foliolate, the leaflets broadly cuneate-obovate, up to 3 cm. broad. Racemes dense, up to 5 cm. long, with obovate to broadly oblanceolate bracts, the calyx with the four upper lobes subulate, the lowest one oblanceolate, the corolla about 15 mm. long, a little longer than the calyx. Body of pod ovoid, with a flattened attenuate beak longer than the body.

Dry sandy desert areas, Lower Sonoran zone, Clark and Lincoln Cos. Mojave Desert of California to S Utah and NW Arizona.

2. PSORALEA SCABRA Nutt. in T. & G., Fl. N. Am. 1:300. 1838. (Map 35)
Lotodes ellipticum var. latifolium Kuntze, Rev. Gen. 193. 1891. Not Psoralea latifolia Torr. 1828.; Psoralea purshii Vail, Bull. Torr. Club 21:94. 1894.; P. lanceolata purshii Piper, in Piper & Beattie, Fl. Palouse Reg. 106. 1901.; P. lanceolata scabra Piper, Contr. U. S. Nat. Herb. 11:364. 1906.; Psoralidium purshii Rydb., N. Am. Fl. 24:14. 1919.

Caulescent, branching perennial from rhizomes, with usually erect or ascending stems up to about 4 dm. high, the herbage green, strigose, and conspicuously black-punctate-glandular. Leaves 3-foliolate, pinnate or subdigitate, the leaflets of at least the lower leaves broadly oblanceolate to obovate, up to about 15 mm. broad, those of the upper leaves often narrower. Racemes dense, 1-3 cm. long, with minute bracts, the calyx about 2 mm. long and densely strigose, the corolla about 5 mm. long, pale or purplish. Pods subglobose, about 5 mm. broad, densely white-villous.

Dry sandy soil, often in sand dunes, Upper Sonoran zone, up to about 5000 ft., in NW Nevada. E Washington to SE Idaho and Nevada.

This is often treated as a variety or subspecies of Psoralea lanceolata Pursh, but it is probably sufficiently distinct in appearance and range to warrant specific rank. It is apparently the common form found in Nevada.

3. PSORALEA LANCEOLATA Pursh, Fl. Am. Sept. 475. 1814. (Map 36)
Psoralea elliptica Pursh, Fl. Am. Sept. 741. 1814.; P. arenaria Nutt.,

Gen. 2:103. 1818 ; P. laxiflora Nutt. in T. & G., Fl. N. Am. 1:299. 1838 ; P. micrantha A. Gray, U. S. Rept. Expl. Miss. Pacif. 4:77. 1857.; Lotodes ellipticum Kuntze, Rev. Gen. 193. 1891 ; L. ellipticum angustissimum Kuntze, l.c.; Psoralidium lanceolatum Rydb., N. Am. Fl. 24:13. 1919 ; P. micranthum Rydb., l.c.

Highly variable and similar to Psoralea scabra Nutt., but the leaflets narrower, oblanceolate to narrowly linear, and the pods with only a few straggling hairs or glabrate.

The single collection seen from Nevada came from sandhills near Winnemucca, Humboldt Co., Upper Sonoran zone. To be expected in NE Nevada. Saskatchewan, Alberta, and Washington southward to Missouri, Texas and N Arizona.

14. DALEA Juss., Gen. 355. 1789. "Indigo-bush"

Herbs, shrubs, or small trees, with spinescent or unarmed branches. Leaves odd-pinnate with several leaflets or sometimes simple, usually glandular-punctate, the stipules minute. Flowers small, white, reddish, or purple in ours, in spikes or spikelike racemes or occasionally solitary, the calyx with teeth subequal or the upper somewhat broader, the corolla papilionaceous, the banner clawed and usually shorter than the wings and keel-petals which are sometimes adnate to the stamen tube. Stamens usually 9-10, monadephous. Pod small, indehiscent.

An American genus of about 150-200 species, from the Mississippi Valley to the southwestern United States and southward into Mexico and South America.

Key to species

1. Plants arborescent, 1-5 m. high, with long stout spines, usually leafless, the leaves when present few and simple, falling before the flowers open . . . . . .1. D. SPINOSA

1. Plants herbaceous or shrubby, sometimes spiny, but with numerous pinnate leaves

2. Flowers solitary on the spinose branches; stems and leaves yellow-green, sparsely strigose . . . . . .2. D. KINGII

2. Flowers in spikelike racemes or spikes; stems and leaves grayish-green, often densely pubescent

3. Plants prostrate annuals or biennials, the stems 2 dm. long or less; corolla white or pinkish, hidden by the long-silky-plumose calyx-teeth . . . . . .3. D. MOLLIS

3. Plants erect and shrubby, the stems more than 2 dm. long; corolla purple, well-exserted from the variously pubescent but not plumose calyx-teeth

4. Inflorescence becoming 4-10 cm. long or more, loosely flowered; calyx with short, straight, appressed hairs; stems very inconspicuously or not at all glandular, the pubescence not retrorse . . . . . 4. D. FREMONTII

4. Inflorescence less than 2 cm. long, subcapitate, the flowers congested; calyx with loose, spreading hairs; stems conspicuously dotted with flattened, orange or amber-colored glands, the pubescence retrorse . . . . . 5. D. POLYADENIA

1. DALEA SPINOSA A. Gray, Mem. Am. Acad. II. 5:315. 1855. "Smoke tree" (Map 37)

Asagraea spinosa Baillon, Adansonia 9:233. 1870.; Parosela spinosa Heller, Cat. N. Am. Pl. ed. 2, 7. 1900.; Psorodendron spinosum Rydb., N. Am. Fl. 24:45. 1919.

Small trees 2-8 m. high, the branchlets all spinescent, glandular-dotted, and silvery with fine matted pubescence. Leaves few, simple, oblanceolate, 6-9 mm. long, soon deciduous to leave the plants leafless. Racemes few-flowered, the corolla dark purple, 9-10 mm. long, the petals all attached on the hypanthium. Pods ovate, 1-2-seeded.

Desert washes, up to about 1000 ft., Lower Sonoran zone. Colorado Desert of Arizona, extreme S Nevada, and S California southward to Sonora and Baja California.

2. DALEA KINGII S. Wats., Bot. King Expl. 64. pl. 10, f. 1-3. 1871. (Map 38)

Parosela kingii Heller, Cat. N. Am. Pl. ed. 2. 6. 1900.; Psorodendron kingii Rydb. N. Am. Fl. 24:42. 1919.

A divaricately branched, spreading, spinescent, yellow-green undershrub up to 3 dm. high, from a long, slender, reddish rhizome, the stems sparingly strigose and dotted with small orange glands. Leaves mostly pinnately 5-9-foliolate, strigose when young but becoming glabrate, the leaflets suborbicular to ovate or broadly oblong, obtuse, up to 12 mm. long. Flowers solitary and very short-pedicellate on the branchlets, purplish, 8-10 mm. long, the calyx sparingly strigose and conspicuously glandular-dotted, the upper teeth broader than the lower. Pods (not seen) oblong, pubescent, about 4-5 mm. long.

A narrow endemic confined to dry sandy plains, foothills, and sand dunes, often with sagebrush, 4000-6000 ft., Upper Sonoran zone, in the E part of Humboldt Co., Nevada. The type came from near Hot Spring Peak.

3. DALEA MOLLIS Benth., Pl. Hartw. 306. 1848.
var. MOLLISSIMA (Rydb.) Munz, Man. S. Calif. Bot. 263. 1935. (Map 39)

Parosela mollissima Rydb., N. Am. Fl. 24:64. 1919-1920.; Dalea neomexicana subsp. mollissima Wiggins, Contr. Dudley Herb. 3:52. 1940.

A soft-pubescent, prostrate annual or biennial with several black-glandular-dotted stems up to 4 dm. long from the summit of a slender taproot. Leaves odd-pinnate, 11-15-foliolate, the leaflets cuneate-obovate,

often retuse at the apex, 4-8 mm. long, sparingly pilose to glabrate above and villous beneath. Inflorescence a many-flowered spikelike, silky raceme up to 3 cm. long, the calyx-teeth filiform, 3.5-4.5 mm. long, and long-plumose, obscuring the small, white or pink-tinged corolla. Pods about 3 mm. long, villous.

It would seem to the writer to be better to maintain D. mollis as a single well-defined and variable species with wide-ranging varieties as originally conceived by Gray, than to split the obviously closely related components into two species, D. mollis and D. neo-mexicana, as has been done by Cory, and these each with an additional subspecies as proposed by Wiggins.

Sandy desert washes and canyons, up to about 3000 ft., Lower Sonoran zone. Colorado Desert of S Nevada, Arizona, and S California, and southward into northern Baja California. The type came from Las Vegas, Clark Co., Nevada.

4. DALEA FREMONTII Torr. in A. Gray, Mem. Am. Acad. II. 5:316. 1855. (Map 40)

A spinescent shrub up to 2 m. high, with rigid, woody branches which are little if at all glandular. Leaves mostly 5-11-foliolate, the leaflets oblong or lanceolate to linear, 6-20 mm. long, appressed-pubescent. Racemes 7-12 cm. long, the flowers well spaced, not crowded, the calyx-teeth subulate or usually broadly lanceolate to triangular, similar or usually dissimilar, equaling the tube or usually a little shorter, with short, straight, appressed hairs, the corolla dark purple, about 1 cm. long. Pods ovate, laterally flattened, about 8 mm. long.

Desert plains and slopes, with cresote-bush and sagebrush, up to about 4000 ft., Lower Sonoran zone.

Three varieties occur in Nevada which are fairly distinct and which may be distinguished by the following key.

Key to varieties

Calyx-teeth dissimilar, triangular to broadly lanceolate, shorter than the tube; leaflets oblong to linear

Leaflets mostly oblong, about 6 mm. long. . . . . 4a. var. FREMONTII

Leaflets linear to narrowly lanceolate, 6-20 mm. long 4b. var. MINUTIFOLIA

Calyx-teeth all alike, lance-subulate, as long as the tube; leaflets linear to narrowly lanceolate, 6-20 mm. long. . . . . .4c. var. PUBESCENS

4a var. FREMONTII

Parosela fremontii Vail, Bull. Torr. Club 24:16. 1897.; P. wheeleri Vail, l.c. 24:17. 1897.; Psorodendron fremontii Rydb., N. Am. Fl. 24: 43. 1919.; Parosela fremontii var. wheeleri Rob. & Macbr., Contr. Gray Herb. II. 65:16. 1922.; Dalea arborescens var. wheeleri Tidestr. in Tidestr. & Kittell, Fl. Ariz. & N. Mex. 179. 1941.

Inyo County, California, eastward through S Nevada to Utah.

4b. var. MINUTIFOLIA (Parish) Benson, Man. S. W. Desert Trees and Shrubs 374. 1945.

Dalea johnsonii S. Wats., Bot. King Expl. 64. 1871.; Parosela johnsonii Vail, Bull. Torr. Club 24:16. 1897.; P. johnsonii var. minutifolia Parish, Bot. Gaz. 55:308. 1913.; Psorodendron johnsonii Rydb., N. Am. Fl. 24:43. 1919.; Parosela fremontii var. johnsonii Jeps., Man. Fl. Pl. Calif. 558. 1925.; Dalea fremontii var. johnsonii Munz, Man. S. Calif. Bot. 598. 1935.

Death Valley and Mojave Desert through S Nevada to SW Utah, and southward to Arizona.

4c. var. PUBESCENS (Parish) Benson, Am. Jour. Bot. 30:239. 1943.

Dalea amoena S. Wats., Am. Nat. 7:300. 1873; Parosela amoena Vail, Bull. Torr. Club 24:17. 1897; P. johnsonii var. pubescens Parish, Bot. Gaz. 55:308. 1913; Psorodendron amoenum Rydb., N. Am. Fl. 24: 44. 1919; Dalea amoena var. pubescens Peebles, Jour. Wash. Acad. Sci. 30:413. 1940; D. fremontii var. amoena Tidestr. in Tidestr. & Kittell, F. Ariz. & N. Mex. 180. 1941.

S Nevada and S Utah to NW Arizona.

The first two varieties given above are about equally common in Nevada, often growing together, and often intergrading to some extent. The third variety is rare, only a single collection having been seen by the writer, but it appears to be very clear-cut, having quite distinctive calyx-teeth, but with leaflets similar to those found in var. minutiflora.

5. DALEA POLYADENIA Torr. in S. Wats., Bot. King Expl. 64. pl. 9. 1871. (Map 41)

Dalea polyadenia var. subnuda S. Wats., Bot. Calif. 2:441. 1880; Parosela polyadenia Heller, Cat. N. Am. Pl. ed. 2. 6. 1900; P. polyadenia var. subnuda Parish, Bot. Gaz. 55:305. 1913; Psorothamnus subnudus Rydb., N. Am. Fl. 24:46. 1919; P. polyadenius Rydb., l.c.

A spinescent shrub to 2.5 m. high, with numerous divaricate branches which are pale greenish, densely matted-pubescent with retrorse hairs, and conspicuously dotted with orange glands. Leaves odd-pinnate, 7-13-foliolate, the leaflets obovate to suborbicular, 3-5 mm. long, grayish, appressed-pubescent. Inflorescence subcapitate, 8-15 mm. long, with numerous crowded flowers. Calyx loosely tomentose, with slender teeth. Corolla lavender or magenta, 7-8 mm. long. Pods little if any longer than

the calyx.

Desert plains and hills, often with sagebrush, Upper Sonoran zone, mainly in W and S Nevada. Capitol Reef region of Utha through Nevada to Mona and Inyo Cos. and the Death Valley region of California. The type came from the border of the Truckee Desert, Nevada.

15. PETALOSTEMON Michx., Fl. Bor. Am. 2:48. t. 37. 1803.

Erect or decumbent perennial herbs, in ours, with glandular-dotted herbage. Leaves odd-pinnate with entire leaflets and minute narrow stipules. Flowers small, in many-flowered, crowded, terminal spikes. Calyx-tube campanulate, with 10 ribs, the lobes subequal, triangular to lanceolate. Corolla white, or in ours rose-purple, not papilionaceous, the true corolla consisting of the banner only, the other 4 apparent petals being petaloid staminodes which alternate with 5 fertile monadelphous stamens. Pod small, somewhat flattened, subglobose, papery, 1-2-seeded, enclosed by the persistent calyx.

About 40-50 species of North America.

The generic name was originally spelled "Petalostemum" by Michaux, the spelling given above being that of the list of Nomina generica conservanda et rejicienda (Appendix III) of the 1956 International Code of Botanical Nomanclature.

Key to species

Spikes of flowers oblong, 2-4 cm. long in fruit, 15 mm. thick or more; bracts longer than the calyces; leaflets usually 5, oblong to narrowly obovate . . . . . 1. P. ORNATUS

Spikes of flowers cylindric, mostly 4-9 cm. long in fruit, about 1 cm. thick; bracts about equaling the calyces; leaflets 3-7, oblong to oblanceolate . . . . . 2. P. SEARLSIAE

1. PETALOSTEMON ORNATUS Dougl. ex Hook., Fl. Bor. Am. 1:138. 1830. (Map 42)
Dalea ornata Eaton & Wright, N. Am. Bot. 219. 1840.; Kuhnistera ornata Kuntze, Rev. Gen. 192. 1891.

Stems 3-6 dm. high, several from a woody root-crown, glabrous. Leaves usually 5-foliolate, the leaflets oblong or broadly elliptic to narrowly obovate, rounded at the apex, glabrous above and glandular-dotted beneath, the margins usually not involute. Spikes 2-4 cm. long in fruit, 15 mm. or more thick, long-peduncled, the bract subtending each flower longer than the calyx. Corolla rose-purple, the banner rounded or truncate at the apex.

Dry, usually sandy soil, with sagebrush and ponderosa pine, Upper Sonoran to Transition zones. Idaho to SE Washington, and southward to the Sierra Nevada of W Nevada.

This and the next species are not readily distinguishable. It is believed that reports of P. ornatus from eastern Nevada are probably due to misidentifications and that such plants should be referred to P. searlsiae.

2. PETALOSTEMON SEARLSIAE A. Gray, Proc. Am. Acad. 8:380. 1873. (Map 43)
Kuhnistera searlsiae Kuntze, Rev. Gen. 192. 1891.

Stems 3-6 dm. high, often many from a woody root-crown, glabrous. Leaves 3-7-foliolate, the leaflets oblong to lanceolate, rounded to acute at the apex, cuneate at the base, glabrous and yellow-green above and glandular-dotted beneath, the margins usually involute. Spikes mostly 4-9 cm. long in fruit, about 1 cm. thick, long-peduncled, the bract subtending each flower about the same length as the calyx. Corolla rose-purple, the banner emarginate at the apex.

Dry gravelly or sandy soil, with sagebrush and juniper, Lower Sonoran, Upper Sonoran and probably Transition zones, to 7000 ft. Utah and Nevada to the Mojave Desert of California and adjacent Arizona. The type came from the Pahranagat Range, Lincoln Co., Nevada.

16. HEDYSARUM L., Sp. Pl. 745. 1753.

Perennial herbs with odd-pinnate leaves and persistent stipules which form a narrow sheath around the stem and project upward opposite the leaves. Flowers showy, in axillary pedunculate racemes, the corolla white, yellowish, or in ours carmine-pink, papilionaceous, the keel exceeding the other petals and truncate at the apex. Stamens diadelphous. Pod a loment, flattened, constricted between the seeds and readily breaking apart into articles at these constrictions.

About 70-90 species of arctic and north temperate regions of Eurasia and North America.

1. HEDYSARUM BOREALE Nutt., Gen. N. Am. Pl. 2:110. 1818.
var. OBOVATUM Rollins, Rhodora 42:235. 1940. (Map 44)

Stems several from a woody root, up to 6 dm. high, branching above. Herbage silvery with shaggy pubescence, the hairs about 1.5 mm. long. Leaflets obovate, mostly 10-15 mm. long. Flowers 12-16 mm. long, at first ascending but later reflexed. Loments spreading to pendent, with 2-5 suborbicular, rugose or reticulate articles 5-7 mm. wide.

This variety is known only from the vicinity of the Ruby and East Humboldt Mountains of Elko Co., Nevada, the type locality being Thorpe Creek, E of Lamoille. Other members of the species range from Alberta and Saskatchewan southward to Oklahoma and Arizona.

17. ALHAGI Adans., Fam. Pl. 2:328. 1763. "Camel Thorn"

Intricately stiff-branched, spiny, glabrous, or nearly glabrous shrubs, the stems woody but dying to the ground in the winter. Leaves small, simple, entire, with small stipules. Flowers in axillary racemes or compound racemes, the clayx campanulate, with short subequal teeth, the corolla papilionaceous, purplish or reddish, with an obtuse, incurved keel. Stamens diadelphous. Pod a linear, somewhat flattened or subterete loment, constricted between the seeds.

A genus of 3 species of the E Mediterranean region and central and E Asia.

1. ALHAGI CAMELORUM Fisch., Hort. Gorenk. ed. 2. 72. 1812.

Plants with very numerous slender spines, the stems up to about 1 m. high. Leaves linear to elliptic-oblong, 8-15 mm. long. Flowers 8-9 mm. long.

Introduced from Eurasia, and now often becoming a serious weed from S California and Nevada to Arizona and Texas. Nevada records are from the vicinity of Fallon, Churchill Co.

18. VICIA L., Sp. Pl. 734. 1753. "Vetch"

Annual, biennial, or perennial herbs with weak, climbing or sprawling stems. Leaves pinnate, usually terminated by tendrils, the stipules smaller than the leaflets but usually conspicuous and foliaceous. Flowers purple or yellowish, sometimes pale, either in pedunculate racemes or only 1-2, sessile or subsessile and axillary in the upper leaves. Calyx with equal or unequal teeth. Corolla papilionaceous, the wings adherent to the keel. Stamens diadelphous, the anthers all alike. Style slender, with a subterminal tuft of hairs. Pods laterally flattened, dehiscent,

few-several seeded.

About 150 species, widely distributed.

Key to species

Flowers solitary or paired, sessile or subsessile in the upper leaf-axils
1. V. ANGUSTIFOLIA

Flowers several or many, in pedunculate racemes

Stems and leaves loosely villous . . . . . 2. V. VILLOSA

Stems and leaves glabrous or appressed-puberulent, not loosely villous
3. V. AMERICANA

1. VICIA ANGUSTIFOLIA L., Amoen. Acad. 4:105. 1759.

Glabrous or sparsely pubescent annual or winter annual with stems up to 6 dm. long. Leaves 6-12-foliolate, the leaflets mostly oblong to linear, 12-30 mm. long, truncate or emarginate at the apex. Flowers usually paired and sessile or subsessile in the upper leaf axils. Corolla violet, 12-18 mm. long. Pod linear-oblong, 4-6 cm. long, in age darkening to brown or black.

Native of Europe and occasionally becoming naturalized, the single Nevada collection seen having come from Franktown foothills, Washoe Co.

2. VICIA VILLOSA Roth, Tent. Fl. Germ. 2:182. 1789. "Woolly Vetch"

Conspicuously villous annual or biennial with stems up to about 7 dm. long. Leaves mostly 10-20-foliolate, the leaflets oblong to linear, mostly 10-20 mm. long, acute or obtuse and mucronate at the apex. Flowers in one-sided, peduncled racemes. Corolla purple, about 15 mm. long. Pod oblong, about 20-25 mm. long and 10 mm. wide.

Native of Europe and occasionally naturalized, the single Nevada collection seen having come from near Verdi, Washoe Co.

3. VICIA AMERICANA Muhl. ex Willd., Sp. Pl. 3:1096. 1803. "Common Vetch" (Map 45)

Glabrous to sparsely puberulent perennial with stems up to 1 m. or more long. Leaves mostly 8-12-foliolate, the leaflets highly variable in shape and size, from linear to elliptic, 10-40 mm. long, acute, rounded, truncate, or sometimes 3-toothed at the apex. Flowers in more or less one-sided peduncled racemes of up to 10 flowers each. Corolla blue-purple, sometimes pale, 15-25 mm. long. Pod oblong, acute at the apex, mostly 30-40 mm. long and 7-9 mm. wide.

Because of the highly variable nature of these plants, numerous names have been proposed for certain elements of the complex which were believed to be significant taxonomically or geographically. It is believed, however, that to segregate any of these elements is both impractical and unrealistic, since single plants or colonies may at times show the distinguishing features in various combinations. Those who wish to do so, however, may distinguish three intergrading and insignificant varieties: var. americana, with leaflets thin and elliptic; var. truncata (Nutt.) Brewer, with leaflets relatively thin, broad, and truncate or 3-toothed at the apex (V. oregana Nutt. etc.); and var. angustifolia Nees, with leaflets linear and acute, often thickened (V. linearis (Nutt.) Greene, V. sparsifolia Nutt. etc.).

Rather generally distributed throughout most of Nevada wherever there is sufficient moisture, from desert drainages to mountain meadows, mainly Transition and Upper Sonoran zones. New York and Ontario to S Alaska, and southward to Virginia, Missouri, New Mexico, Arizona and California.

19. LATHYRUS L., Sp. Pl. 729. 1753. "Sweet Pea"

Perennial herbs, in ours, with weak, climbing or sprawling stems. Leaves pinnate, terminated by tendrils in ours, the stipules smaller than the leaflets but conspicuous and foliaceous, often semisagittate. Flowers lavender or pinkish-red in ours, in axillary pedunculate racemes. Calyx with subequal or unequal teeth. Corolla papilionaceous, the wings slightly adherent to the keel. Stamens diadelphous, the anthers all alike. Style slender, bearded along the inner side near the apex. Pods more or less laterally flattened, dehiscent, few-several-seeded.

About 100 species in the north temperate region and extending into South America.

Key to species

Stems winged; leaflets 2, mostly 3-5 cm. broad; flowers pinkish-red; introduced . . . . . 1. L. LATIFOLIUS

Stems not winged; leaflets 4 or more, seldom more than 1 cm. broad; flowers lavender or violet to purplish or pink

Herbage glabrous or nearly so; leaflets linear or linear-lanceolate; stipules more or less toothed and not conspicuously 2-lobed 2. L. PAUCIFLORUS

Herbage pubescent; leaflets lanceolate to elliptic; stipules with an upper and lower lobe (semisagittate), not toothed

Flowers 13-16 mm. long; leaflets often coriaceous, not prominently apiculate . . . . . 3. L. LANSZWERTII

Flowers mostly 20-25 mm. long; leaflets not coriaceous, prominently apiculate . . . . . 4. L. BRACHYCALYX

1. LATHYRUS LATIFOLIUS L., Sp. Pl. 733. 1753.

Perennials with prominently winged stems up to 2 m. long. Leaves with 2 large, veiny, narrowly elliptic to obovate-lanceolate leaflets up

to about 10 cm. long and 5 cm. broad, the stipules semisagittate, the upper lobe 2-3 times longer than the lower lobe. Flowers pinkish-red, 15-20 mm. long. Pod 6-10 cm. long, 7-10 mm. broad.

Native of Europe and often cultivated as an ornamental, occasionally found in waste places. The single Nevada collection seen came from Reno, Washoe Co.

2. LATHYRUS PAUCIFLORUS Fernald, Bot. Gaz. 19:335. 1894.
ssp. BROWNII (Eastwood) Piper, Proc. Biol. Soc. Wash. 3:195. 1918.
(Map 46)

Lathyrus brownii Eastwood, Bull. Torr. Club 30:491. 1903; L. lanszwertii var. brownii Jepson, Fl. Calif. 389. 1936.

Glabrous or nearly glabrous perennials with angled but not winged stems up to 6 dm. long. Leaves with mostly 8-10 linear or linear-lanceolate to ovate or ovate-elliptic, rather leathery leaflets up to 8 cm. long (about 2-4 cm. long and 5-10 mm. broad in Nevada specimens seen), the stipules obliquely ovate-lanceolate, often irregularly toothed, usually not well differentiated into an upper and lower lobe. Flowers lilac or orchid, the wings and keel often paler, 13-17 mm. long. Pod 3-5 cm. long, 3-6 mm. broad.

Lower mountains and foothills, Arid Transition zone. E slopes of the mountains from south-central Oregon southward to Lake Tahoe and adjacent Nevada, and occasional southward to the Tehachapi Range, California.

Plants of ssp. brownii differ from those of ssp. pauciflorus in having smaller flowers and thicker leaflets. The latter apparently does not occur in Nevada.

3. LATHYRUS LANSZWERTII Kellogg, Proc. Calif. Acad. 2:150. f. 44. 1863. (Map 47)

Lathyrus coriaceus White, Bull. Torr. Club 21:452. 1894; L. oregonensis White, l.c. :456. 1894; L. goldsteinae Eastwood, l.c. 32:197. 1905.

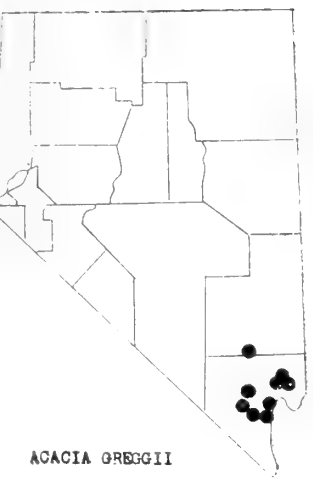
Perennials with angled but not winged stems up to about 6 dm. long, the herbage inconspicuously soft-puberulent. Leaves with mostly 4-10 somewhat coriaceous, elliptic to narrowly oblong leaflets about 3-4 cm. long and 5-12 mm. broad, rarely narrower, the stipules narrowly semisagittate. Flowers 13-16 mm. long, pale lavender to pinkish-orchid, the wings and keel paler to almost white. Pod 4-6 cm. long, 3-6 mm. broad.

Hillsides and brushy slopes, up to about 8000 ft., Arid Transition zone. Idaho to the Cascade and Sierra Nevada ranges of Washington, California and W Nevada; also in central Utah and the Wasatch Range. Kellogg's type, which came from Washoe, Nevada, is no longer extant, so Hitchcock (Univ. Wash. Publ. Biol. 15:28. 1952.) designated a substitute type which is Kennedy 1624, collected in Hunter Creek Canyon, Washoe Co., Nevada. An isotype is in the herbarium of the Nevada Agricultural Experiment Station.

4. LATHYRUS BRACHCALYX Rydb., Bull. Torr. Club 34:425. 1907. (Map 48)

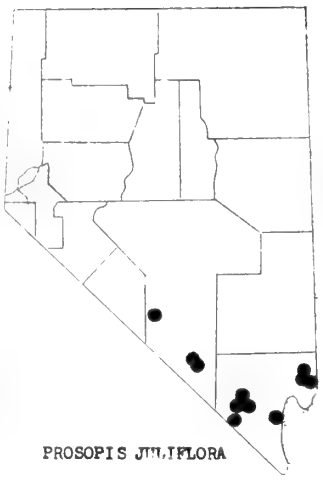
Erect perennial with angled but not winged stems up to about 3 dm. high, the herbage finely villous-pubescent. Leaves with mostly 8-12 elliptic to oblanceolate-elliptic, conspicuously apiculate leaflets usually 15-25 mm. long and about 4-6 mm. broad, the stipules semisagittate. Flowers about 2 cm. long, pinkish-lavender, fading bluish, the keel paler. Pod 3-7 cm. long, 5-8 mm. broad.

In pinyon-juniper woodland and sagebrush, often in sandy soil, up to about 6500 ft., Upper Sonoran zone. E Nevada to the Wasatch Range, Utah and southward in Utah to S Millard Co.



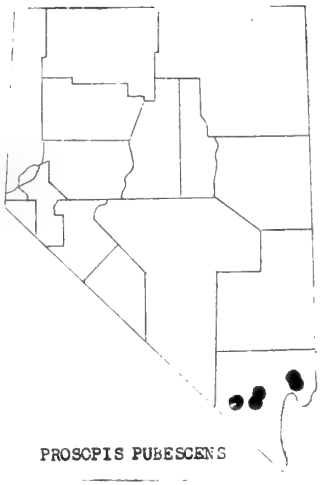
ACACIA GREGGII

MAP 1



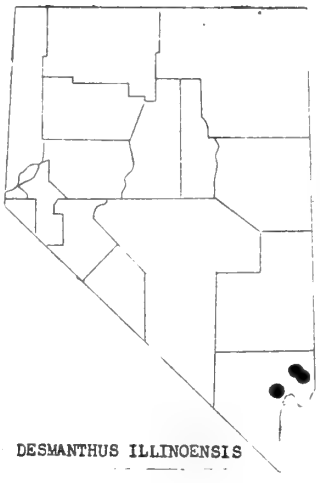
PROSOPIS JULIFLORA

MAP 2



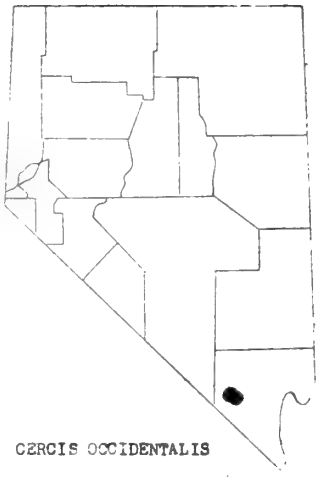
PROSOPIS PUBESCENS

MAP 3



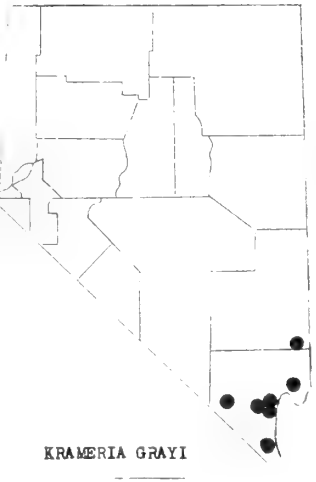
DESMANTHUS ILLINOENSIS

MAP 4



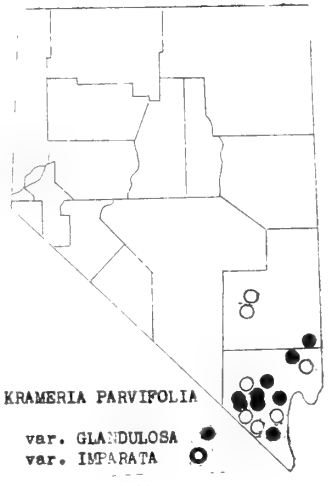
CERCIS OCCIDENTALIS

MAP 5



KRAMERIA GRAYI

MAP 6

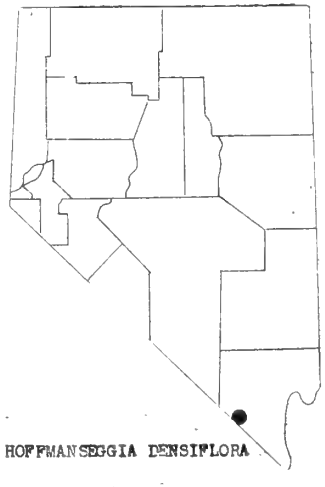


KRAMERIA PARVIFOLIA

var. GLANDULOSA

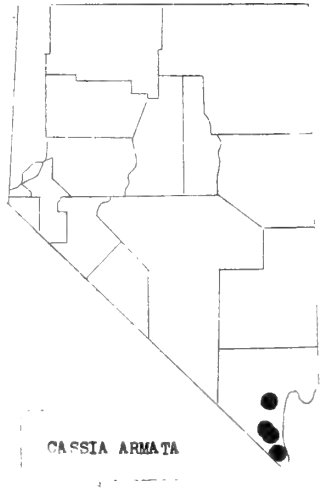
var. IMPARATA

MAP 7



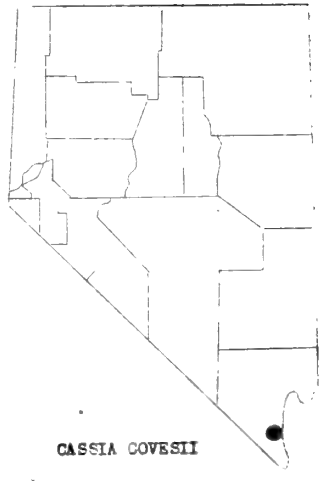
HOFFMANSEGGIA DENSIFLORA

MAP 8



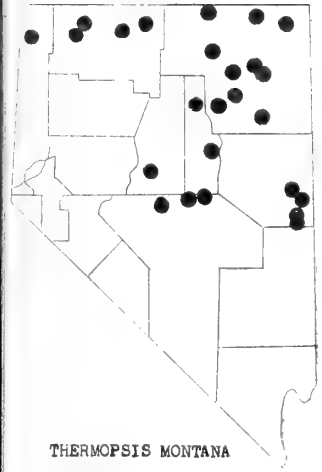
CASSIA ARMATA

MAP 9



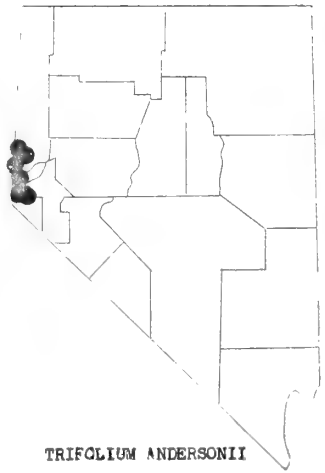
CASSIA COVESII

MAP 10



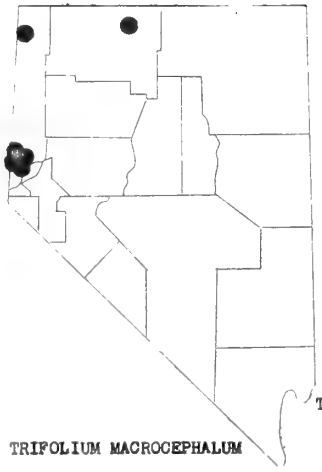
THERMOPSIS MONTANA

MAP 11



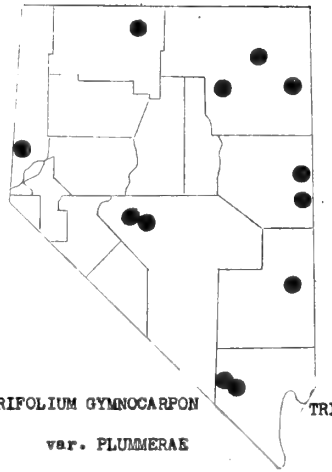
TRIFOLIUM ANDERSONII

MAP 12



TRIFOLIUM MACROCEPHALUM

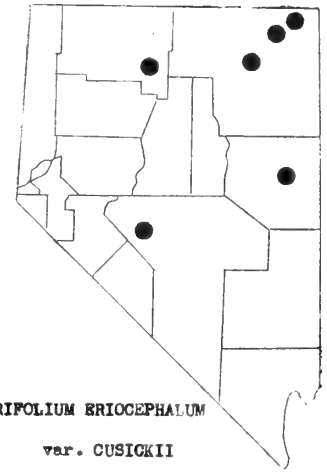
MAP 13



TRIFOLIUM GYMNOCARPON

var. PLUMMERAE

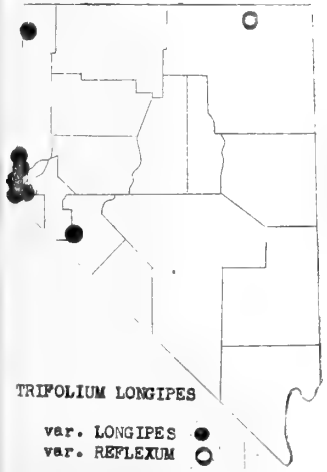
MAP 14



TRIFOLIUM ERIOCEPHALUM

var. CUSICKII

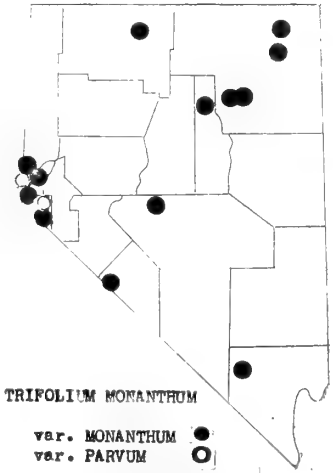
MAP 15



TRIFOLIUM LONGIPES

var. LONGIPES ●
var. REFLEXUM ○

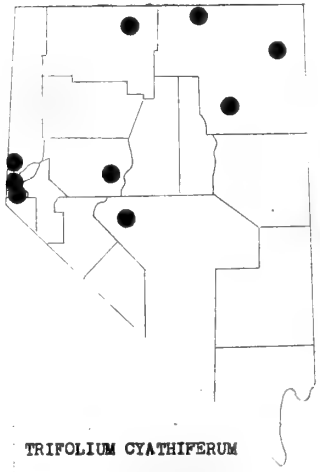
MAP 16



TRIFOLIUM MONANTHUM

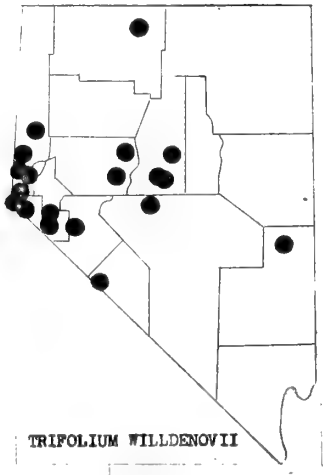
var. MONANTHUM ●
var. PARVUM ○

MAP 17



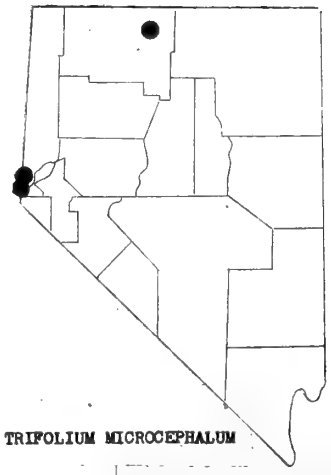
TRIFOLIUM CYATHIFERUM

MAP 18



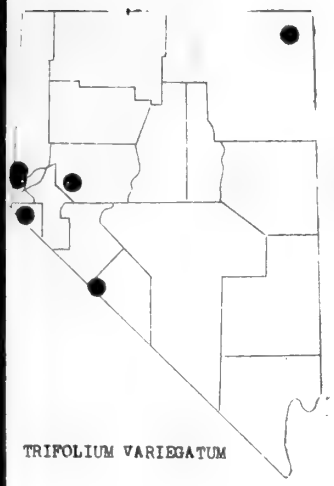
TRIFOLIUM WILLDENOVII

MAP 19



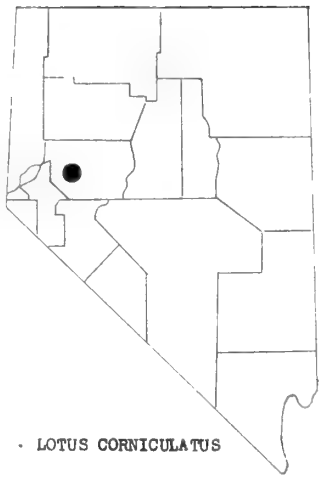
TRIFOLIUM MICROCEPHALUM

MAP 20



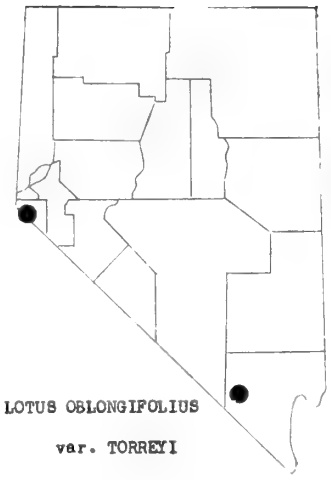
TRIFOLIUM VARIEGATUM

MAP 21



LOTUS CORNICULATUS

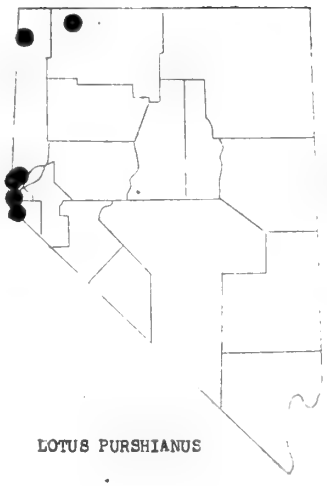
MAP 22



LOTUS OBLONGIFOLIUS

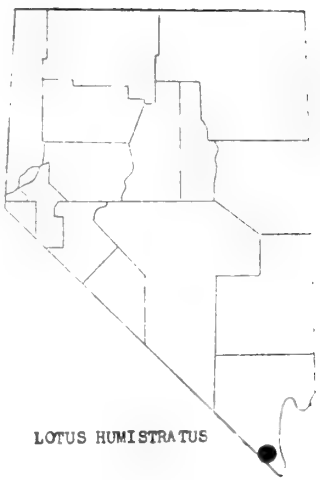
var. TORREYI

MAP 23



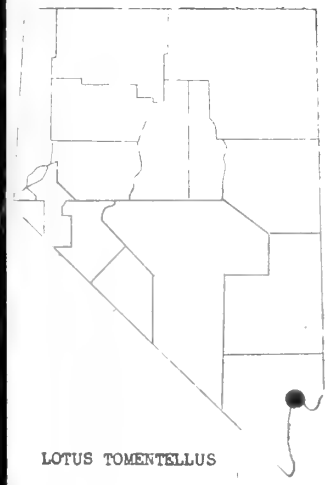
LOTUS PURSHIANUS

MAP 24



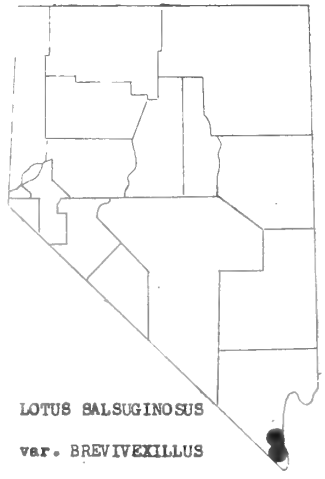
LOTUS HUMISTRATUS

MAP 25



LOTUS TOMENTELLUS

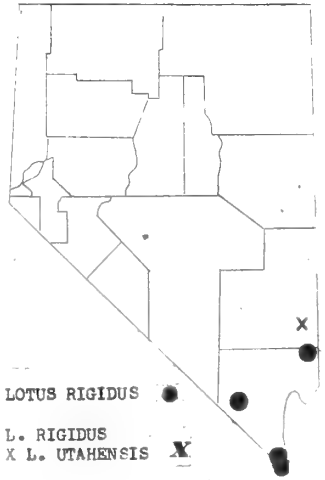
MAP 26



LOTUS SALSUGINOSUS

var. BREVIVEXILLUS

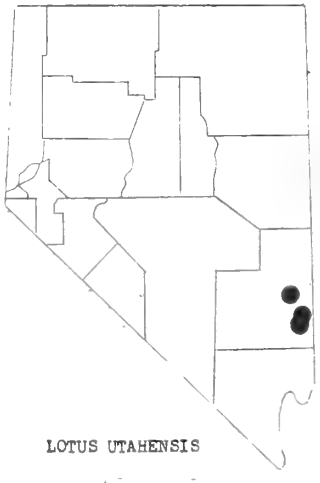
MAP 27



LOTUS RIGIDUS

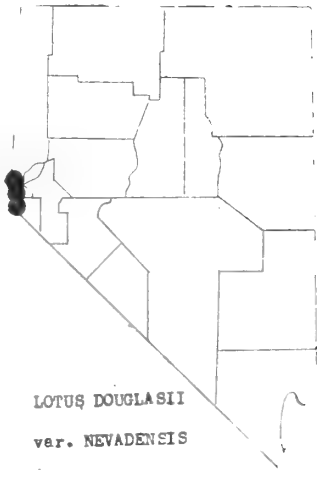
L. RIGIDUS
X L. UTAHENSIS X

MAP 28



LOTUS UTAHENSIS

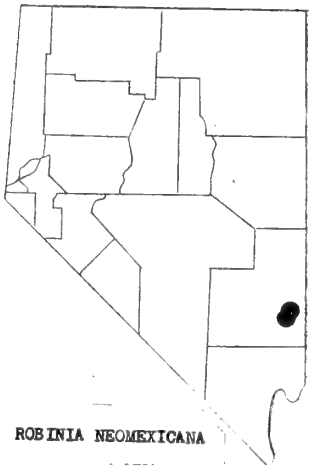
MAP 29



LOTUS DOUGLASII

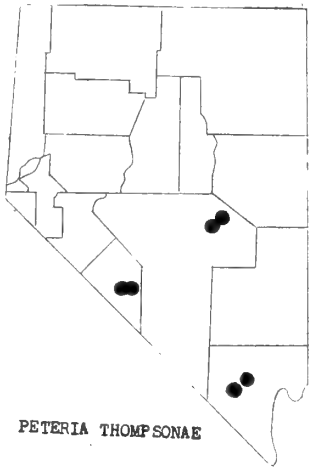
var. NEVADENSIS

MAP 30



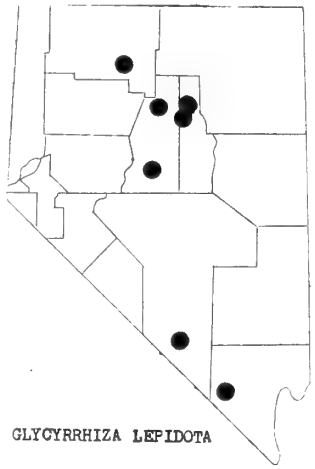
ROBINIA NEOMEXICANA

MAP 31



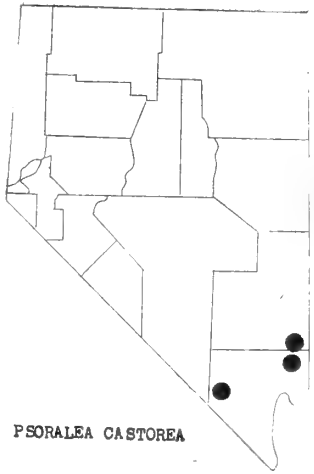
PETERIA THOMPSONAE

MAP 32



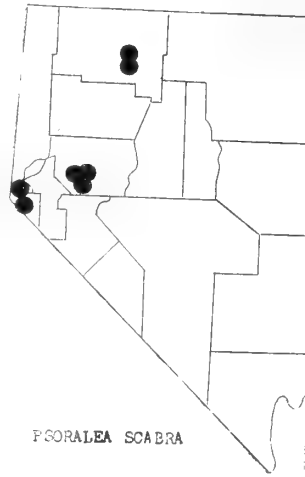
GLYCYRRHIZA LEPIDOTA

MAP 33



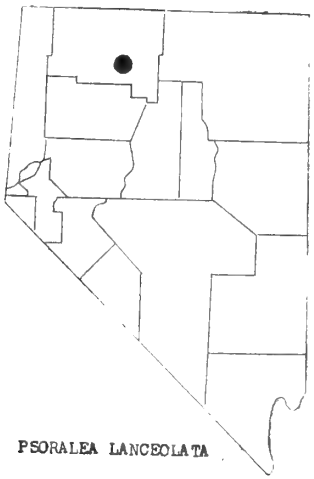
PSORALEA CASTOREA

MAP 34



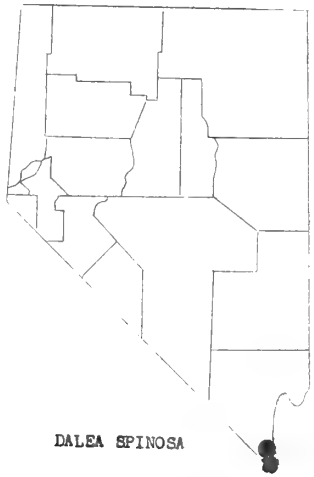
PSORALEA SCABRA

MAP 35



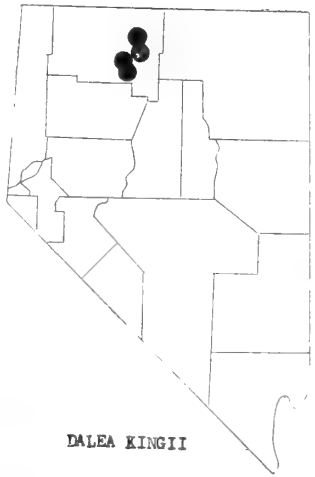
PSORALEA LANCEOLATA

MAP 36



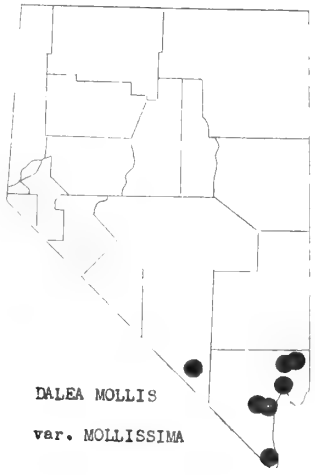
DALEA SPINOSA

MAP 37



DALEA KINGII

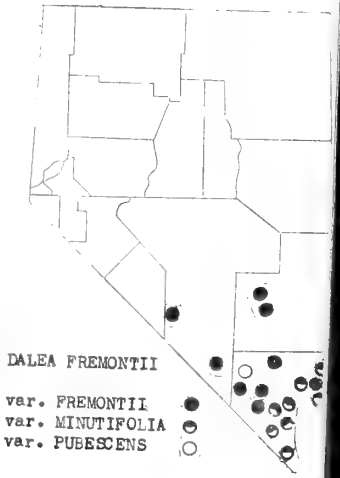
MAP 38



DALEA MOLLIS

var. MOLLISSIMA

MAP 39



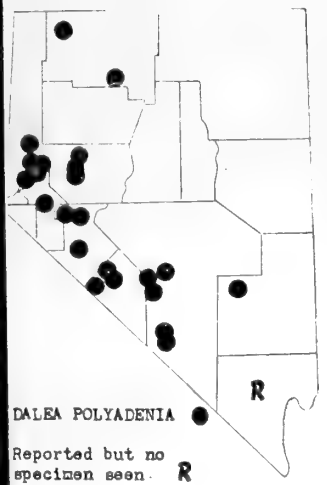
DALEA FREMONTII

var. FREMONTII

var. MINUTIFOLIA

var. PUBESCENS

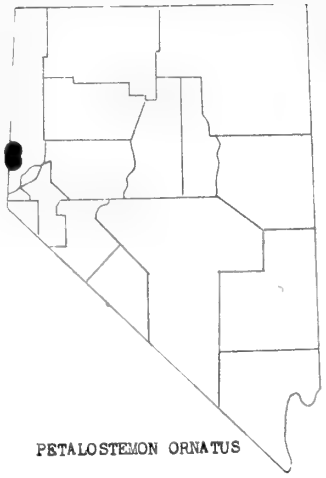
MAP 40



DALEA POLYADENIA

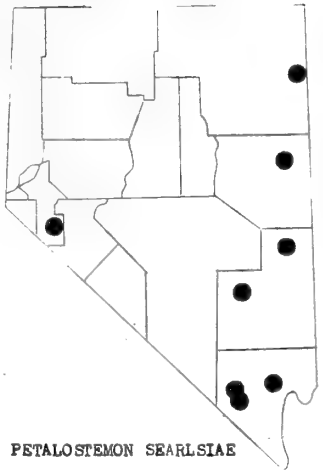
Reported but no specimen seen. R

MAP 41



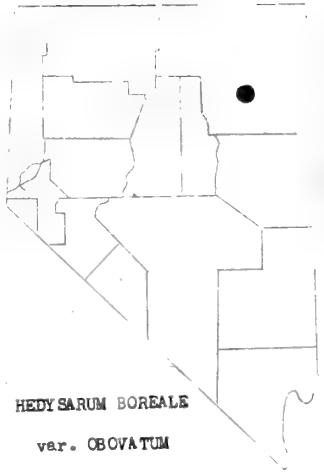
PETALOSTEMON ORNATUS

MAP 42



PETALOSTEMON SEARLSIAE

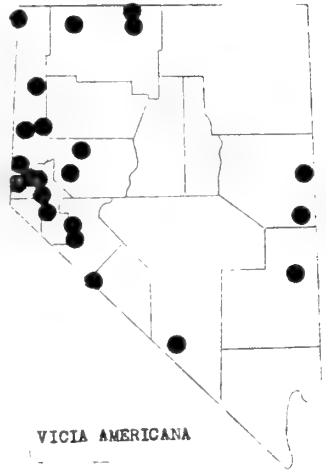
MAP 43



HEDYSARUM BOREALE

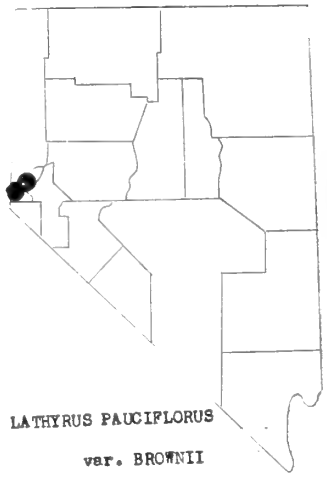
var. OBOVATUM

MAP 44



VICIA AMERICANA

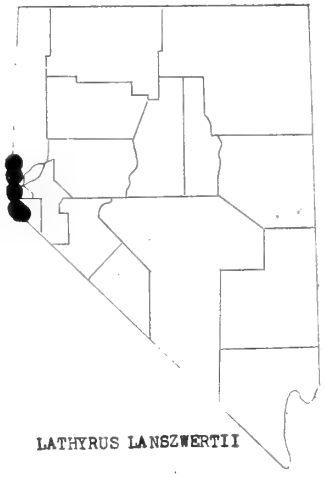
MAP 45



LATHYRUS PAUCIFLORUS

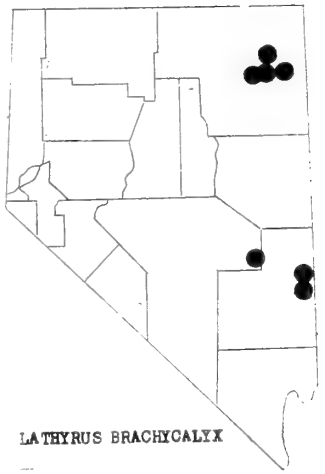
var. BROWNII

MAP 46



LATHYRUS LANSZWERTII

MAP 47



LATHYRUS BRACHYCALYX

MAP 48

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