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CONTRIBUTIONS TOWARD
A FLORA OF NEVADA. NO. 20

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MENTHACEAE OF NEVADA

by

O. M. FREEMAN

March 18, 1941.

Issued by

The Division of Plant Exploration and Introduction,
Bureau of Plant Industry,
U. S. Department of Agriculture,
Washington, D. C.

- - -

Work Projects Administration of Nevada,
Projects, O. P. 65-2-04-13, W. P. 658;
O. P. 165-2-04-21, W. P. 752.

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Collaborator

University of Nevada.

Address all queries concerning this publication to the Division
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MENTHACEAE OF NEVADA

By O. M. Freeman

Herbs or shrubs, stems usually square, leaves opposite, exstipulate and mostly glandular-aromatic, corolla mostly 2-lipped but sometimes nearly regular, stamens didynamous, sometimes 2 of these aborted or wanting. Ovary deeply 4-lobed, forming a fruit of 4 seedlike, single-seeded nutlets, surrounding the base of the single style, in the bottom of the gamosepalous calyx. Upper lip of the gamopetalous corolla usually 2-lobed, the lower 3-lobed. Stamens borne on the corolla tube; anthers mostly 2-celled but sometimes one of these modified and non-pollen bearing. Style usually 2-lobed at the summit.

KEY TO GENERA

1. Calyx 2-lipped, the lips entire.
 2. Shrubby plant up to 1 meter high, calyx inflated in fruit.
 3. Salazaria.
 2. Herbs; calyx with a projection on the back - 4. Scutellaria.
1. Calyx 2-lipped or nearly regular, when 2-lipped, these are lobed and erect or spreading.
 3. Calyx bearing 10 spinulose recurved teeth - - 5. Marrubium.
 3. Calyx with various lobing but not with 10 spinulose recurved teeth.

MEMORANDUM FOR THE RECORD

BY: J. M. [Name]

1. [Faded text paragraph]

KEY TO DATA

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4. Calyx more or less irregular.

5. Fertile stamens 2.

6. Stamens with a single normal anther cell, the
connective elongated - - - - - 13. Salvia.

6. Stamens with 2 anther cells, the connective
not elongated - - - - - 14. Hedeoma.

5. Fertile stamens 4.

7. Calyx with the uppermost tooth much the largest,
the other four teeth nearly equal.

8. Dracocephalum.

7. Calyx with the upper lip flat and 3-toothed,
the lower 2-cleft - - - - - 9. Prunella.

4. Calyx regular or nearly so.

8. Corolla regular or nearly so.

9. Corolla tube very slender or filiform and more
or less bent - - - - - 2. Trichostema.

9. Corolla tube funnel-form, straight or nearly so.

10. Nutlets truncate at the summit, as long or
longer than the calyx tube; flowers in
dense axillary whorls - - - 16. Lycopus.

10. Nutlets rounded at the summit, included in
the tubular calyx; flowers in axillary
clusters or interrupted spikes.

17. Mentha.

8. Corolla 2-lipped.

11. Flowers in dense terminal clusters subtended by

CHAPTER I

1. The first step in the history of the United States

2. The second step in the history of the United States

3. The third step in the history of the United States

4. The fourth step in the history of the United States

CHAPTER II

5. The fifth step in the history of the United States

6. The sixth step in the history of the United States

7. The seventh step in the history of the United States

8. The eighth step in the history of the United States

9. The ninth step in the history of the United States

10. The tenth step in the history of the United States

11. The eleventh step in the history of the United States

12. The twelfth step in the history of the United States

13. The thirteenth step in the history of the United States

14. The fourteenth step in the history of the United States

15. The fifteenth step in the history of the United States

16. The sixteenth step in the history of the United States

17. The seventeenth step in the history of the United States

18. The eighteenth step in the history of the United States

19. The nineteenth step in the history of the United States

20. The twentieth step in the history of the United States

21. The twenty-first step in the history of the United States

CHAPTER III

22. The twenty-second step in the history of the United States

broad membranous bracts - - - 15. Monardella.

11. Flowers variously disposed but not in dense terminal clusters subtended by broad membranous bracts.

12. Leaves palmately cleft or parted; flowers in axillary glomerules.

11. Leonurus.

12. Leaves toothed or crenate.

13. Leaves subtending the upper flower clusters clasping, crenate-toothed or cut - - - 10. Lamium.

13. Leaves subtending the upper flowers, petioled or merely sessile.

14. Calyx 5- or 10-ribbed, more or less campanulate. Inflorescence raceme-like.

15. Upper lip of corolla very short, the lower 3-lobed. Villous-hirsute perennial; leaves ovate-oblong to lanceolate, corolla pink or white; nutlets united - - - 1. Teucrium.

15. Upper lip of the corolla nearly equaling the lower; nutlets distinct.

12. Stachys.

14. Calyx 15-ribbed, tubular or narrowly campanulate; leaves cordate-ovate, toothed.

16. Calyx densely white-pubescent, the teeth long spinulose; corolla white; flowers in axillary cymes - - - - 7. Nepeta.

16. Calyx sparingly pubescent, the teeth not long-spinulose; corolla pink to violet; flowers in spike-like panicles.

6. Agastache.

1. TEUCRIUM L. Germander.

Ours an upright perennial herb, 3 to 9 dm. high. Calyx 5-toothed. The 4 upper lobes of the corolla nearly equal and the 4 stamens exerted from a deep slit between the two upper lobes. Anther cells united.

1. TEUCRIUM OCCIDENTALE A. Gray, Syn. Fl. 2(1): 349. 1878.

Stem hairy; leaves ovate-lanceolate, white-hairy beneath; calyx and bracts bearing viscid glandular hairs.

California to Canada and eastward. Although Nevada is

within the range of this plant, no specimen from that State has been seen by the writer.

2. TRICHOSTEMA L.

Herbs with entire leaves; flowers in axillary cymes. Calyx nearly equally 5-cleft. Corolla with nearly equal oblong lobes, tube in our two species slender and curved. Stamens with long curved capillary filaments; anther-cells divergent.

KEY TO SPECIES

- Plant soft-villous, seldom glandular; leaves oblong oval; calyx lobes narrow; corolla 7 mm. long - - - - - 1. T. oblongum.
- Plant glandular-villous; leaves ovate-lanceolate; calyx-lobes broad; corolla 4 mm. long - - - - - 2. T. simulatum.

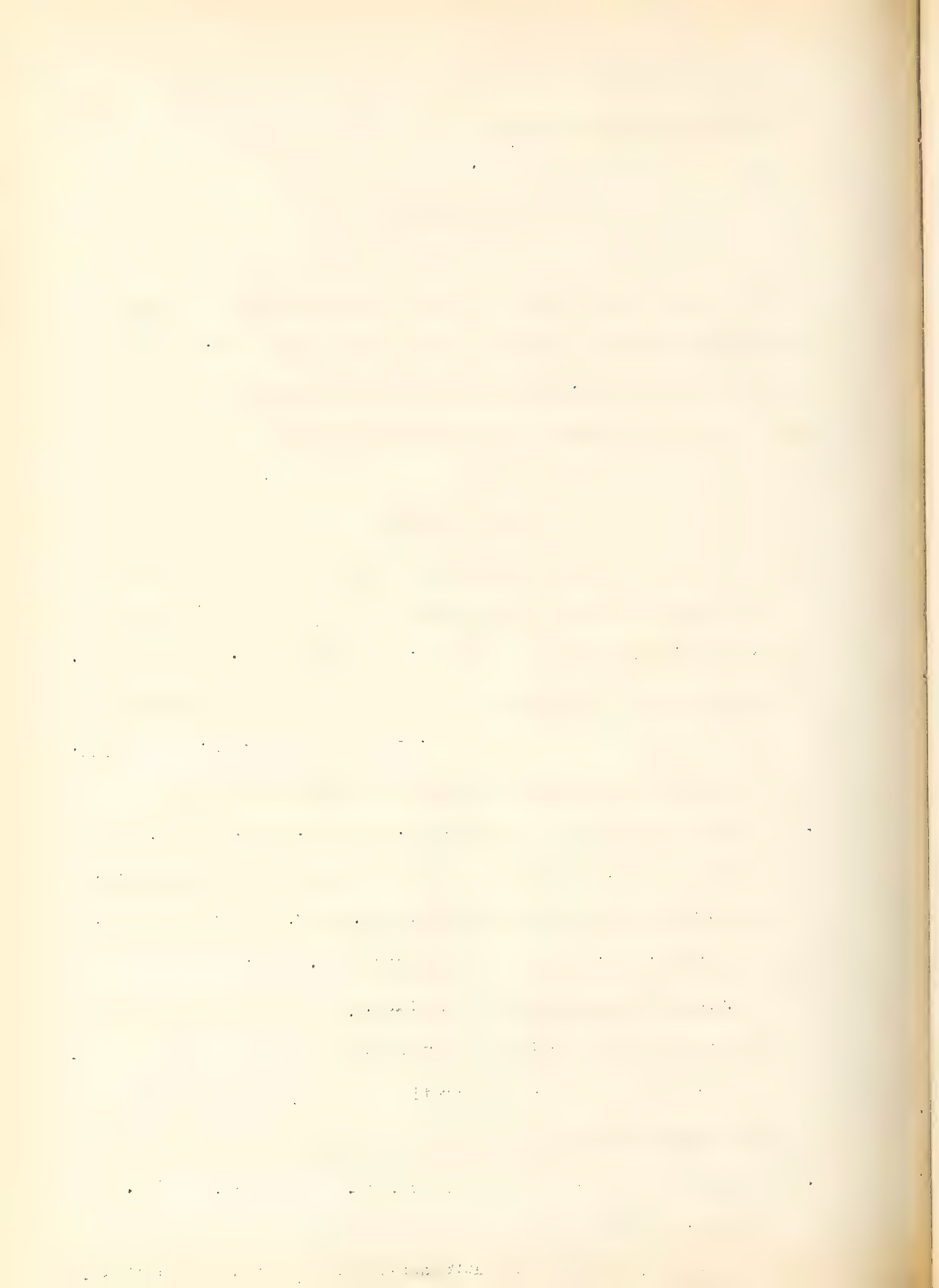
1. TRICHOSTEMA OBLONGUM Benth. Labiat. Gen. Sp. 659. 1835.

Weak annual, 1 to 3 dm. high, simple or branched. Leaves pubescent, oval or oblong, 2 to 3.5 cm. long. The many-flowered cymes glomerate and short pedunculate. Calyx villous, the narrow lobes longer than the tube.

Nevada to California and northward to Idaho and Washington. No specimen from Nevada seen by the writer.

2. TRICHOSTEMA SIMULATUM Jepson, Man. Fl. Plants Cal. p. 862. 1925.

Similar to the above, but conspicuously glandular villous.



Probably occurs in Washoe County, Nevada, extending westward and northwestward to Siskiyou County, California. No specimen from Nevada seen by the writer.

3. SALAZARIA Torr.

Shrub with divaricate spinescent branchlets. Calyx with 2 short truncate entire lips, enlarged and bladderlike in fruit. Fertile stamens 4. Corolla 2-lipped, purplish; the upper lip erect, galeate; lower lip with a broad central lobe with recurved sides.

1. SALAZARIA MEXICANA Torr. U. S. & Mex. Bound. Bot. 133. pl.

39. 1859.

Intricately branched bush, 6 to 12 dm. high. Leaves glabrous, ovate or oblong. Corolla 17 to 22 mm. long.

Desert areas: Southern Nevada, Clark, Lincoln and Esmeralda Counties, and California. Also in Mexico.

4. SCUTELLARIA L. Skullcap.

Ours perennial herbs, the flowers solitary in the leaf axils; calyx campanulate, closed after the corolla falls; corolla with an exserted tube, dilated at the throat. Stamens 4, ascending under the upper lip. Lower stamens with 1-celled anthers, the upper 2-celled.

KEY TO SPECIES

1. Leaves crenate, oblong to oblong-lanceolate, truncate or
 cordate at base - - - - - 1. S. galericulata,
1. Leaves entire or sometimes with the lowermost shallowly and
 remotely crenate, not truncate or cordate at the base.
2. Corolla usually yellowish; leaves obovate to oblong; stems
 mostly less than 15 cm. high, pubescent with downwardly
 curved hairs and usually eglandular - - - - 2. S. nana.
2. Corolla blue or violet; leaves ovate to elliptical, ob-
 tuse, the base rounded or abruptly cuneate, stems
 mostly more than 15 cm. high, pubescent with upwardly
 curved hairs, capitate glands often present.
3. S. antirrhinoides.

1. SCUTELLARIA GALERICULATA L. Sp. Pl. 599. 1753.

Scutellaria epilobiifolia Hamilton in Ann. Soc. Linn.

Lyon 1: 32, 1832.

Plant 3 to 9 dm. high, puberulent to pubescent, Leaves
 oblong-lanceolate to ovate lanceolate, short-petioled, or
 the upper sessile, apex acute, dentate or the upper entire,
 the base rounded or subcordate. Flowers solitary in the
 axils, about 25 mm. long.

Swampy places and along streams. Throughout most of
 temperate North America except the far South. No specimen
 from Nevada seen by the writer but it is to be looked for in
 the northern and eastern parts of the State.

2. SCUTELLARIA NANA A. Gray, Proc. Amer. Acad. 11: 100. 1876.

Scutellaria footeana Mulford, Bot. Gaz. 19: 118. 1894.

Plant cinereous with short curving retrorse hairs, the stems mostly less than 15 cm. high, branches crowded. Leaves oblong-elliptical to spatulate, 10 to 15 mm. long, narrowed to a nearly sessile base, thickish, rounded at the apex, usually crowded and erect along the stems. Corolla yellowish (usually yellow on dried specimens), about 18 mm. long, lips equal and throat dilated.

Moist plains and hills, Oregon, Wyoming, Idaho, California and Nevada, where known from Washoe, Elko, White Pine, and Nye Counties.

3. SCUTELLARIA ANTIRRHINOIDES Benth. in Edwards' Bot. Reg. 18:

sub. pl. 1493. 1832.

Scutellaria viarum Heller, Muhlenbergia 1: 32. 1904.

Scutellaria sanhedrensis Heller, Muhlenbergia 1: 31,
1904.

Scutellaria nevadensis Eastwood, Bull. Torr. Bot. Club 30:
492. 1903.

Stems several from the base, the fine close pubescence of upwardly curved hairs; the ovate-elliptical leaves with short petioles, 5 to 15 mm. long; corollas up to 22 mm. long, the nearly straight tube enlarged above the calyx and flaring upward. Moist or dry soil.

Idaho, Nevada and Utah; westward and southwestward to

California. Specimens from Lander, Humboldt, White Pine, Elko, and Eureka Counties, Nevada, have been examined by the writer. Reported also from Lincoln and Pershing Counties.

5. MARRUBIUM L. Horehound.

Whitish lanate perennials, branched at the base. Leaves crenate, or cut and more or less rugose. Flowers in dense axillary whorls. Calyx teeth mostly spiny-pointed, spreading or recurved at maturity. Corolla labiate, the upper lip erect and notched, the lower 3-cleft. Stamens 4.

1. MARRUBIUM VULGARE L. Sp. Pl. 583. 1753.

Stems erect or ascending, leaf blades broad-ovate, petioled and crenate. Calyx with 10 teeth which are recurved at maturity. Waste places throughout most of North America. Naturalized from Europe. Often an abundant weed on sheep ranges where it spreads rapidly because of the hooked calyx lobes which catch into the sheep wool.

Nevada: Washoe, Lander and Storey Counties. Probably more abundant in the State than is indicated by the herbarium material available for examination.

6. AGASTACHE Clayt.

Tall perennial herbs with white, pink or purplish flowers borne in dense or interrupted terminal spikes or racemes. Calyx flaring-tubular, 15-nerved, 5-toothed. The upper pair of the 4 exerted stamens declined, the lower and shorter pair ascending.

1. AGASTACHE URTICIFOLIA (Benth.) Kuntze, Rev. Gen. Pl. 511.

1891.

Lophanthus urticifolius Benth. in Lindl. Bot. Reg. 15:

sub. p. 1282. 1829.

Stems 0.5 to 1.5 m. tall; foliage and upper branches glabrous or puberulent. Calyx lobes thin, whitish to pink or purplish. Corolla pinkish to purplish.

Valleys and dry flats, Colorado to Montana and westward to California and British Columbia. Nevada: Washoe, Lander, Elko, Ormsby, Eureka and probably other counties.

7. NEPETA L. Catmint.

Perennial herbs with mostly branched stems. Leaves dentate or incised, white or bluish flowers in terminal spikes, axillary or cymose. Calyx 15-nerved, obscurely 2-lipped. Corolla 2-lipped, expanded above. The upper lip erect and the lower lip 3-lobed and spreading.

1. *NEPETA CATARIA* L. Sp. Pl. 570. 1753.

Stems erect, soft hairy; leaves petioled, oblong with cordate base; corolla whitish, spotted with purple. Flower clusters approximate at the ends of the stems and branches; sometimes forming interrupted spike-like racemes.

A common weed naturalized from Europe. Throughout most parts of North America. Nevada: Washoe, Lander, Storey, Elko, Lincoln and Ormsby Counties.

8. *DRACOCEPHALUM* (Tourn.) L. Dragonhead.

Our single species, an annual or biennial herb, 15 to 75 cm. high. Leaves mostly lanceolate and slender-petioled, those on the upper part of the stem with sharp-pointed acuminate teeth. The whorls of flowers which are subtended by awn-pointed leafy bracts are disposed in a terminal head or spike. The light blue corolla little exceeding the 5-toothed calyx, its upper lip notched, the lower lip 3-lobed, with the middle lobe largest and notched.

1. *DRACOCEPHALUM PARVIFLORUM* Nutt. Gen. 2: 35. 1818.

Moldavica parviflora (Nutt.) Britton in Britton & Brown,

Illustr. Fl. ed. 2. 3: 114. 1913.

Stony calcareous soil. New York to Southern Canada and westward to Arizona and northward to Alaska.

Nevada: Elko, White Pine, Nye, Lander and Lincoln Counties.

9. PRUNELLA L. Healall.

Perennial simple or branched herbs; leaves petioled and with small purple or white flowers in dense bracted heads or spikes. Calyx tubular or narrow bell-shaped, closed in fruit, the upper lip broad, the lower lip of 2 lanceolate teeth, the corolla tube inflated and 2-lipped, upper lip arched, the lower spreading, 3-lobed. Stamens 4, 2-toothed at the apex of the longer pair, one tooth bearing the anther, the other sterile.

1. PRUNELLA VULGARIS L. Sp. Pl. 600. 1753.

Leaves ovate to oblong-lanceolate, entire or with short teeth; stem leaves mostly glabrous, basal leaves sparsely hairy. Bracts of the inflorescence broadly ovate-orbicular, cuspidate and ciliate.

One of the commonest and widely distributed weeds in North America where it is found in fields, lawns, waste places, and in open woods.

Nevada: Washoe, Elko, and Douglas Counties. Naturalized from the Old World.

10. LAMIUM (Tourn.) L. Deadnettle.

Ours a single annual or winter-annual with weak stems which are branched at the base. Leaves nearly orbicular, coarsely crenate, the lower petioled, the upper which subtend the flower clusters

are sessile-clasping. Corolla purplish, the tube slender, up to 1.5 cm. long, the lower lip 3-lobed with the lateral lobes very small, lighter in color and spotted, the upper lip with a tuft of hairs at the summit. The flowers of late fall and early spring are frequently cleistogamous.

1. *LAMIUM AMPLEXICAULE* L. Sp. Pl. 579. 1753.

A common weed in cultivated ground and waste places in most parts of Temperate North America. Naturalized from Europe. No specimen from Nevada seen by the writer but it is to be expected near buildings and in cultivated soil.

11. *LEONURUS* L. Motherwort.

Erect herbs with deeply-lobed petioled leaves. Calyx nearly equally 5-toothed, tubular-campanulate. Tube of the corolla about as long as the calyx. Corolla 2-lipped, the upper oblong and entire and the lower 3-lobed and spreading. Stamens 4, the longer pair ascending under the upper lip.

1. *LEONURUS CARDIACA* L. Sp. Pl. 584. 1753.

Puberulent perennial with stems 0.5 to 1.5 m. high. Leaves thin, slender petioled, the lower nearly round, and palmately 3- to 5-cleft, the floral leaves 3-cleft, wedge-shaped at the base. Flowers in dense whorls in the axils of the upper leaves. Corolla pale purple, but sometimes pink or white, the

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upper lip bearded.

Waste places, near buildings and in cultivated ground.

Throughout most of Temperate North America.

Nevada: Lander County. Naturalized from Europe. Also in Asia.

12. STACHYS (Tourn.) L. Hedge-nettle.

Annual or perennial herbs with erect or decumbent stems. Various pubescent or glabrous. Corolla with the upper lip erect or spreading, entire or nearly so; the lower lip 3-lobed and spreading, the middle lobe largest. Stamens 4, the anterior pair longer, all ascending under the upper lip. Flowers few to many in terminal racemes or spikes. Calyx campanulate or tubular-campanulate, 5-toothed, the teeth usually nearly equal.

KEY TO SPECIES

- Plant lanate or soft-tomentose; leaves ovate or oblong, often cordate, crenate; corolla white - - - - - 1. S. albens.
- Plant hirsute or pubescent; leaves oblong-lanceolate, serrate; corolla rose-colored or purplish - - - - - 2. S. pilosa.

1. STACHYS ALBENS A. Gray, Proc. Amer. Acad. 7: 387. 1868.

Stem erect, 0.6 to 1.5 m. tall; leaves ovate to lanceolate, rounded or cordate at base, 4 to 10 cm. long, the lower with petioles up to 3 cm. long, diminishing successively at each

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node until nearly sessile at the lowest whorl of flowers. Flowers in a dense spike-like raceme, or the whorls sometimes remote. Calyx teeth about $3/5$ as long as the tube, awn-pointed. In wet soil along streams and near springs.

Nye County, Nevada, to the inner Coast Ranges of California.

2. STACHYS PILOSA Nutt. Journ. Acad. Phil. 7: 48. 1834.

Stachys scopulorum Greene, Pittonia 3: 342. 1898.

S. palustris pilosa (Nutt.) Epling, Rep. Spec. Nov. Fedde 60: 63. 1934.

Stem 4.5 dm. high (average), hirsute with weak spreading hairs somewhat glandular; leaves pubescent on both sides, serrate, 5 to 10 cm. long. Corolla rose to purplish and marked with darker spots.

Moist or wet soil. New Mexico to Washington and Minnesota and northward into Canada. Nevada: Washoe, Elko, and Lander Counties.

13. SALVIA L. Sage.

Annual or perennial herbs or shrubs. Stems and branches leafy or the leaves mostly basal. Leaf-blades ranging in type from entire, crenate or serrate to pinnate. Flowers solitary in the axils or disposed in racemes or spikes, these often paniculate. Calyx 2-lipped, the upper 3-toothed or the middle tooth minute or

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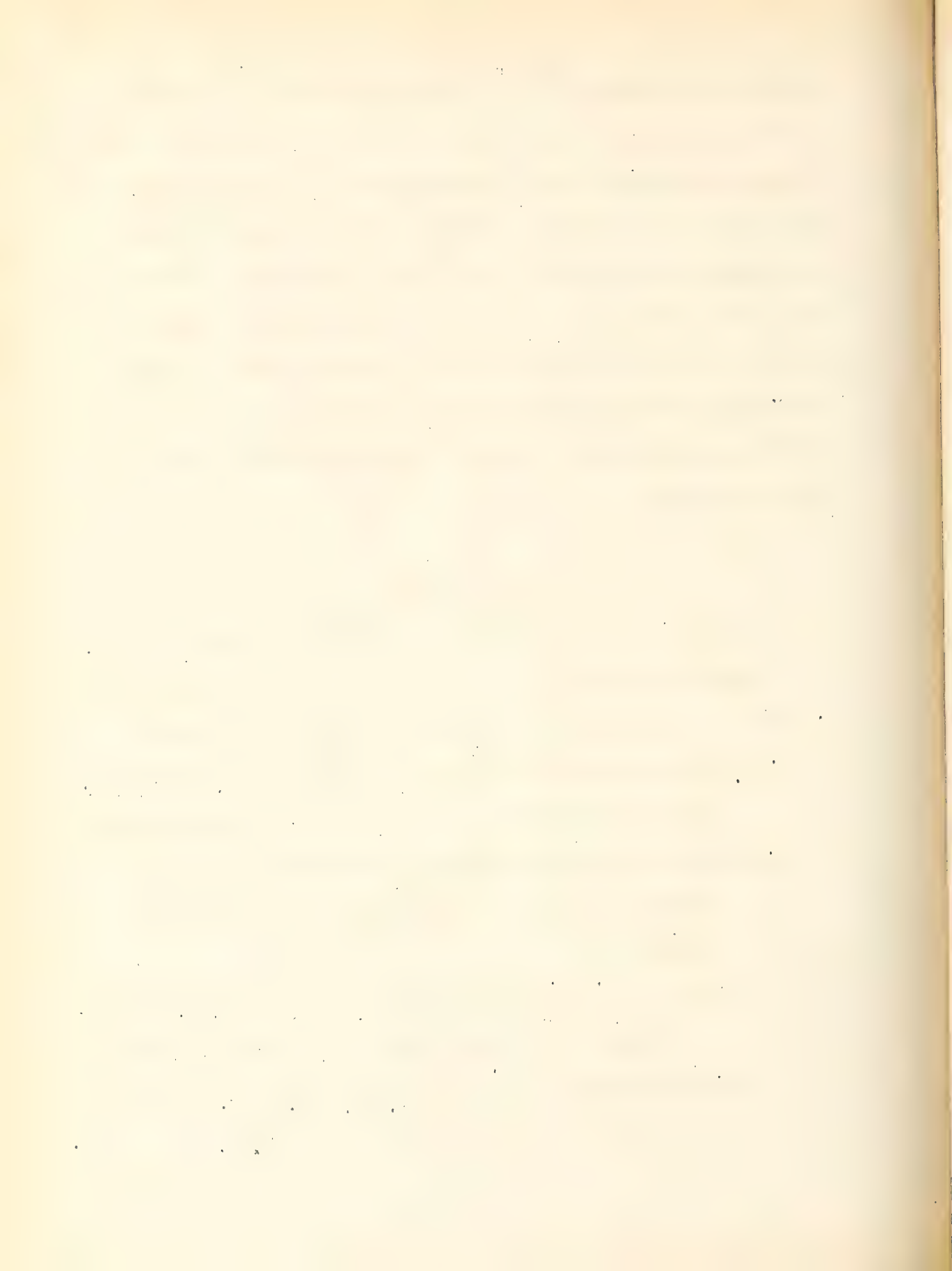
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obsolete; the lower 2-toothed or these united into one. Corolla 2-lipped, the upper lip sometimes notched at the summit, the lower lip usually 3-lobed. Anther-bearing stamens 2; filaments short, jointed with the elongated connective, the upper portion of which extends under the upper lip of the corolla and bears a 1-celled anther, the lower portion of which is usually reflexed toward the base of the corolla and is sterile or sometimes bears an imperfect anther. The reflexed portions of the connectives are sometimes parallel and approximate or these may be broadened and joined at their extremities.

KEY TO SPECIES

1. Plant annual, leaves once or twice pinnatifid; flowers in pedunculate heads - - - - - 1. S. columbariae.
1. Plant an undershrub, 2 to 7 dm. high, leaves not pinnatifid.
 2. Flowers mostly in solitary heads, leaves oblong, acutish, crenulate and rugose - - - - - 2. S. mohavensis.
 2. Flowers in interrupted spikes, leaves obovate to oblong-spatulate, obtuse or retuse, usually entire and not rugose.
 3. Corolla 1.2-1.5 cm. long, the tube evenly hairy within; bracts 1 cm. or less long - - - - - 3. S. carnosae.
 3. Corolla about 2 cm. long, the tube with a transverse band of hairs; bracts 1.2-2.5 cm. long.
 4. S. pachyphylla.



1. *SALVIA COLUMBARIAE* Benth. Labiat. Gen. and Sp. 302. 1833.

Well developed plants with several stems from the base. These are 8 to 40 cm. high and bear 1 or 2 pairs of leaves and 1 or 2 whorls of flowers. Stems sometimes branched in strong plants. Leaves mostly basal, bipinnatifid, rugose, 3 to 7 cm. long and petioled. Bracts subtending the flower whorls are mostly broad ovate, acuminate and cuspidate tipped. Calyx oblique at the summit, the upper lip crowned with a sharp prickle, the lower lip crowned with two shorter prickles; corolla blue, about as long as the calyx; the upper lip emarginate, lower lip with a central 2-lobed division with small lateral lobes on each side.

Nevada: Washoe, Lincoln, Clark and Lyon Counties; California and southward to Arizona.

2. *SALVIA MOHAVENSIS* Greene, Pittonia 2: 235. 1892.

Stems 30 to 60 dm. high, puberulent; leaves oblong-ovate, acute or sometimes obtusish, reticulate below, 12 to 20 mm. long, the slender petioles about $1/3$ as long as the blades; flowers normally in terminal heads; bracts ovate or oval, whitish, about 12 mm. long; corolla blue, 2-lipped, the upper lip notched, the lower with 2 nearly equal lobes.

Eastern Mohave Desert, California, and Clark County, Nevada.

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3. SALVIA CARNOSA Dougl. ex Hall, Lindl. Bot. Reg. 17: pl. 1469.

1831.

Audibertia incana Benth. in Lindl. Bot. Reg. 17: pl. 1469.

1831.

Not Salvia incana Mart. & Gal. 1844.

Audibertiella argentea Rydb. Bull. Torrey Bot. Club 36:

683. 1909.

A broad shrub 20 to 70 cm. high, the upper parts of the stems leafy; leaves mostly obovate or spatulate, obtuse or re-tuse, mostly entire, cinereous as are also the stems; flowers in interrupted spikes, the subtending bracts thin, colored, obovate or oval; calyx 2-lipped, the upper lip broad, crowned with 3 short teeth, the lower composed of 2 obtuse lobes; corolla blue, about 12 mm. long, 2-lipped, the upper lip cleft, its lobes erect, the lower lip 3-lobed, the middle lobe larger than the lateral; stamens exserted.

Arizona to Utah, westward to California and northward to Washington. Nevada: Washoe, Storey, Lyon, Ormsby, Mineral, Esmeralda, Eureka, Nye, Clark, and Lincoln Counties.

SALVIA PACHYPHYLLA Epling in Munz, Man. South. Cal. Bot. 445.

1935.

Audibertia incana pachystachya A. Gray, Syn. Fl. ed. 2,

Suppl. to Vol. 21: 461. 1886.

Salvia carnosa compacta Hall, Univ. Cal. Pub. Bot. 1:

111. 1901.

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Leaves obovate to oblanceolate, petioles short, whorls of the inflorescence mostly crowded; bracts purple; calyx about 12 mm. long; corolla about 20 mm. long.

14. HEDEOMA Pers.

Ours perennial herbs with small leaves which are entire or sparingly and shallowly toothed. Flowers in axillary clusters; calyx 13-nerved, tubular, gibbous at the base, throat hairy and more or less constricted, 2-lipped, the lower lip 2-toothed and longer than the 3-toothed upper lip. Fertile stamens 2 and usually a pair of short sterile filaments or these wanting. Corolla 2-lipped, the throat little enlarged, the erect upper lip entire or 2-lobed, the lower lip with 3 spreading lobes.

KEY TO SPECIES

Calyx teeth not connivent, the upper reflexed; calyx tube 3-5 mm.

long; leaf blades mostly ovate acute - - - - - 1. H. nanum.

Calyx teeth connivent at maturity and nearly closing the tube

which is 5-7 mm. long; leaf blades mostly elliptical-oblong

or the upper nearly linear - - - - - 2. H. drummondii.

1. HEDEOMA NANUM (Torr.) Briq. in Engl. & Prantl, Pflanzenfam. 4

(3a): 294. 1896.

Hedeoma dentata nana Torr. U. S. & Mex. Bound. Surv. Bot.

130. 1859.

Hedeoma thymoides A. Gray, Syn. Fl. N. Am. 2: 368. 1878.

Stems erect or ascending, retrorse-pubescent, 10-30 cm. high; leaves ovate, mostly entire, 5-10 mm. long; short petio- late or nearly sessile; corolla tube little exceeding the ca- lyx, hairy within above the middle.

Rocky dry soils. Clark County, Nevada, to western Texas and southward.

1a. HEDEOMA NANUM subsp. CALIFORNICUM Stewart. Rep. Spec. Nov.

Fedde 115: 29. 1939.

Stems tufted, 10-15 cm. high, upper parts thinly covered with retrorse hairs; leaves 5-6 mm. long; calyx tube 3.5 mm. long and the corolla tube 4-5 mm. long.

Near Good Springs, Clark County, Nevada, adjacent Arizona and California.

2. HEDEOMA DRUMMONDII Benth., Lab. Gen. and Sp. 368. 1836.

H. ciliata Nutt. Journ. Acad. Sci. Phila. n.s. 1: 183.

1847.

H. sancta Small, Bull. N. Y. Bot. Gard. 1: 287. 1896.

H. serpyllifolia Small, Bull. N. Y. Bot. Gard. 1: 287.

1896.

H. longiflora Rydb. Bull. Torr. Bot. Club 36: 695. 1909.

H. camporum Rydb. Flora Rocky Mts. 750. 1917.

H. ovata A. Nels. Bull. Torr. Bot. Club 31: 245. 1904.

Perennial, the older plants with a woody base; stems

retorse pubescent, ascending or rarely procumbent, 10 to 30 cm. high; leaf blades 1 to 2 cm. long, short petioled, oblong or the lower oval, those subtending the flower clusters nearly linear, entire and pubescent; calyx 5-7 mm. long, hispid, enlarged below the middle, the teeth approximate and closing the opening or nearly so, the lower teeth nearly double the upper in length; corolla tube 4 to 8 mm. long.

Dry soil. Montana and Wyoming, southward to Arizona, New Mexico and Mexico. Enters our range in the eastern part of Lincoln County, Nevada. To be expected also in the eastern part of Clark County, Nevada.

15. MONARDELLA Benth.

Low annual or perennial herbs with fragrant odor; leaves entire or serrate; flowers in terminal heads on the stems or branches, these subtended by conspicuous involucrel bracts. Calyx nearly regular, mostly 13-15 nerved, narrowly tubular, nearly equally 5-toothed. Corolla commonly rose-purple, 2-lipped, the upper lip erect, 2-cleft, the lower 3-parted, all the lobes narrow and subequal. Fertile stamens 4, somewhat exserted.

KEY TO SPECIES

1. Plant annual; stems simple or branched above - 1. M. lanceolata.
1. Plant perennial; stems several from the base, usually simple.

2. Leaves lanceolate, stem and foliage greenish or glaucous-
 appearing - - - - - 2. M. odoratissima.
2. Leaves oblong-linear, stem and foliage silvery white.
 3. M. linoides.

1. MONARDELLA LANCEOLATA A. Gray, Proc. Amer. Acad. 11: 102.

1876.

Madronella lanceolata (A. Gray) Greene, Leaflets Bot. Obs.

1: 169. 1906.

Stems 10-50 cm. tall, puberulent or glabrous below; leaves lanceolate, sometimes broadly so, 1-5 cm. long, obtusish, narrowed to petioles 5-15 mm. long; bracts ovate-lanceolate, acute, the lower leaf-like, the upper thinner and often tinged with purple, calyx 6-8 mm. long, smooth or hairy, teeth ovate-triangular, acute, corolla 12-15 mm. long, slightly exserted.

Washoe, Ormsby and Douglas Counties, Nevada, and to California and Arizona.

2. MONARDELLA ODORATISSIMA Benth. Lab. Gen. & Sp. 332. 1834.

Monardella glauca Greene, Pittonia 4: 321. 1901.

M. parvifolia Greene, Pl. Baker 3: 22. 1901.

M. muriculata Greene, Pittonia 5: 84. 1902.

M. rubella Greene, Pittonia 5: 84. 1902.

M. pallida Heller, Muhlenbergia 1: 26. 1904.

Stems 15 to 40 cm. high, leaves and stems greenish or

pale, smooth or minutely pubescent; leaves ovate to lanceolate, entire, 1 to 3 cm. long, short-petioled or nearly sessile; bracts thin, pinkish or pinkish-purple, the lowest pair often leaflike; calyx about 8 mm. long, pubescent, the teeth acute; corolla tube pubescent, exerted from the calyx; stamens exerted from the corolla tube, the longer pair exceeding the corolla-lobes.

Dry hills and mountains. California to Utah and northward to Washington. Nevada: Washoe, Humboldt, Storey, Ormsby, Lyon, Douglas, Mineral, Lander, White Pine, Lincoln, Clark, and Elko Counties.

3. *MONARDELLA LINOIDES* A. Gray, Proc. Amer. Acad. 11: 101. 1876.

Monardella linoides stricta Parish, Erythea 7: 96. 1899.

M. epilobioides Greene, Pittonia 5: 85. 1902.

Stems 30-50 cm. high, erect from a woody base or from a decumbent branch; pubescence dense, the hairs very short but sometimes mixed with longer ones, silvery, leaves entire, obtuse or subacute, short petiolate, 1-4 cm. long, silvery pubescent like the stems. Flower heads 2-3 cm. broad; bracts ovate-lanceolate, acute or acuminate, membranous, whitish to rose-purple; calyx about 8 mm. long, 13-nerved; corolla about 13 mm. long, the lobes narrowly oblong, obtuse at the tips.

California and Arizona. Reported also from Clark County, Nevada.

16. LYCOPUS L. Water Horehound.

Perennial herbs with sharply toothed or pinnatifid leaves, the floral ones little reduced and of the same form. Flowers small, in dense axillary clusters, white or nearly so. Calyx 4- or 5-toothed, campanulate. Corolla tubular-campanulate. Fertile stamens 2, the upper pair sterile or wanting. Nutlets with thickened margins and more or less truncate at their summits.

KEY TO SPECIES

- Leaves sinuate-pinnatifid, acuminate, petiolate; calyx teeth triangular-subulate; plants not stoloniferous - - 1. L. sinuatus.
 Leaves more or less sharply serrate, oblong-lanceolate, sessile or nearly so; calyx teeth subulate-lanceolate; plants stoloniferous - - - - - 2. L. lucidus.

1. LYCOPUS SINUATUS Ell., Bot. S. C. & Ga. 1: 26. 1817.

Lycopus americanus Muhl., in Barton, Fl. Phila. Prodr. 15.
 1815. (nomen subnudum.)

Glabrous or nearly so, stem erect, branched in well developed plants, 3 to 7 dm. high. Leaves lanceolate or oblong, tapering to slender petioles; calyx-teeth triangular-subulate; corolla little longer than the calyx; nutlets shorter than the calyx; the slender sterile filaments with broadened tips.

Swamps, wet meadows and along streams, throughout most of

Temperate North America. No specimens from Nevada seen by the writer.

2. LYCOPUS LUCIDUS Turcz. ex Benth., DC. Prodr. 12: 178. 1848.

Stems rigidly erect, 2 to 8 dm. high, thinly pubescent on the angles; leaves oblong lanceolate, sessile or nearly so, the larger ones 7 or 8 cm. long and about 1.5 cm. wide, those on the upper part of the stem subtending the flower clusters reduced but similar; calyx teeth subulate-lanceolate, about as long as the tube; corolla little exceeding the calyx.

Wet soil, west of the Mississippi River to California and British Columbia. Washoe County, Nevada. Also in Asia.

17. MENTHA L. Mint.

Odorous herbs, perennial by leafy stolons which develop after flowering; flowers small, in axillary clusters or interrupted spikes; white, pale blue or pinkish; calyx tubular or campanulate, the 5 teeth nearly equal; corolla tube short, included, the upper lip notched or entire and usually somewhat larger than the lobes of the lower lip; stamens 4, equal, sometimes imperfect.

KEY TO SPECIES

Whorls of flowers in terminal spikes; leaves sessile or nearly so.

1. M. spicata.

Whorls of flowers axillary; leaves tapering to a petiole.

2. M. canadensis.

1. MENTHA SPICATA L. Sp. Pl. 576. 1753. Spearmint.

Stems 3 to 7 dm. high, glabrous or nearly so; flower whorls in very narrow spikes, these more or less interrupted or approximate above; calyx campanulate, the teeth subulate; bracts linear-lanceolate to subulate.

Wet places or moist soil throughout most of Temperate North America. Nevada: Washoe, Storey, Mineral, Nye, and Lincoln Counties. Introduced from Europe.

2. MENTHA CANADENSIS L. Sp. Pl. 577. 1753.

Mentha canadensis glabrata Benth. in DC. Prodr. 12: 173.

1848.

M. arvensis penardi Briq. Bull. Herb. Boiss. 3: 215. 1895.

M. arvensis lanata Piper, Bull. Torrey Club 29: 223. 1902.

Stems 1.5 to 7.5 dm. high, densely tomentose or usually glabrate in ours, simple or branched; leaves ovate-lanceolate, acute at both ends except those of the stolons or lower part of the stem which are broadly cuneate or rounded at the base, glabrous or pubescent, the larger about 5 to 7 cm. long and 1.2 to 2.5 cm. wide; calyx tubular-campanulate, glabrate to densely pubescent, the teeth about $1/4$ as long as the tube.

Wet soil. California to the Atlantic and northward to

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Southern Canada. Nevada: Washoe, Ormsby, Douglas, Humboldt,
Churchill, Nye, Lander, Eureka, Elko, White Pine, Lincoln,
and Clark Counties.

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