CONTRIBUTIONS TOWARD A FLORA OF NEVADA

NO. 46

AMARANTHACEAE OF NEVADA

by

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Amaranthus graecizans L., with front and side view of seed. (About 3/5 natural size.) From a drawing by Helen Joslin.

AMARANTHACEAE OF NEVADA

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Contributions Toward A Flora of Nevada, No. 46

Annual or perennial, coarse weedy herbs, with alternate or opposite, entire leaves; flowers inconspicuous, monoecious, dioecious or polygamous, subtended by more or less imbricate bracts; calyx of 2-5 scarious or herbaceous sepals; corolla absent; stamens 2-5, opposite the sepals, 1- or 2-celled (after dehiscence); pistil single, 1-celled; style one, terminal or lacking; fruit a membranous utricle or pyxis, circumscissle, irregularly dehiscent or indehiscent. Represented in Nevada by only two genera.

KEY TO GENERA

Plants green with alternate leaves; anthers 4-celled, appearing 2-celled after dehiscence, filaments distinct. . . . . 1. AMARANTHUS

Plants with mostly opposite leaves; anthers 2-celled, appearing 1-celled after dehiscence, filaments united at base. . .2. TIDESTROMIA

1. AMARANTHUS (Tourn.) L., Sp. Pl. 989. 1753. "Pigweed"

Annual weedy herbs, especially near irrigated or cultivated places; leaves alternate, flat, pinnately veined, entire or undulate; flowers in dense spikes or clusters, each subtended by 3, conspicuous

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* Reed Herbarium, Baltimore, Maryland.

red, green or purple bracts; anthers 4-celled (appearing 2-celled after dehiscence), opening lengthwise, the same number as the sepals; filaments distinct; ovary 1-celled, with 2 or 3 styles or stigmas; ovule single; utricles circumscissle, irregularly splitting or indehiscent; seeds lenticular, shining, erect, compressed, smooth; embryo annular with inferior radicle.

1. Sepals clawed, the perianth segments of pistillate flowers broadly spatulate, the blade considerably wider than the claw; flowers in terminal and axillary spikes.
   2. Plants monoecious; sepals fimbriate; utricle circumscissle; leaf-blades linear or linear-lanceolate. . .1. A. FIMBRIATUS
   2. Plants dioecious; sepals not fimbriate; utricle indehiscent; leaf-blades lanceolate-ovate or obovate; bracts lanceolate, not exceeding the flowers. . . . . 2. A. ARENICOLA
1. Sepals not clawed, the perianth segments of pistillate flowers linear, lanceolate, oblong or sometimes narrowly spatulate but the blade little wider than the claw; plants monoecious, the staminate flowers sometimes scarce.
   3. Plants tall, simple, usually not branched at very base; flowers, at least the upper ones, in simple or paniculate spikes, some of these terminal; stamens 3-5; perianth parts 5.
      4. Spikes stout, 8-20 mm. thick, strict; sepals or pistillate flowers over 2 mm. long, usually equaling or longer than the fruit; main bracts usually 4-6 mm. long. 3. A. RETROFLEXUS

4. Spikes slender, 6-12 mm. thick; usually drooping; sepals of pistillate flowers seldom over 2 mm. long, usually shorter than the fruit; main bracts usually 2-3.5 mm. long. . . . . .4. A. HYBRIDUS

3. Plants low, much-branched from the base, the branches all prostrate or ascending; flowers in glomerate axillary spike-like panicles, shorter than the leaves; stamens 3, or 1-2; perianth parts 3-5, or 1 and minute, or lacking.

5. Plants erect or ascending, much-branched, the branches often incurved; sepals of pistillate flowers 3, well-developed, 2-4 times longer than the perianth; seed 0.6-0.8 mm. wide.

6. Plant densely viscid-pubescent; leaf-blades crispate 5. A. PUBESCENS

6. Plant glabrous or sparingly pubescent; leaf-blades flat or nearly so. . . . . 6. A. ALBUS

5. Plants prostrate; sepals of pistillate flowers not 3 or well-developed.

7. Sepals 4-5; seeds 1.5 mm. wide; stems often coarse; bracts lanceolate, a little longer than the sepals 7. A. GRAECIZANS

7. Sepals 2-3, reduced to minute scales except one; stems slender. . . . . .8. A. CALIFORNICUS

1. AMARANTHUS FIMBRIATUS (Torr.) Benth. ex Wats., Bot. Calif. 2:42. 1880. "Fringed amaranth." (Map 1)

Sarratia berlandieri var. fimbriata Torr., Bot. Mex. Bound. 179,

1859; Amblogyne fimbriata A. Gray, Proc. Amer. Acad. 5:167. 1861.

Stems several from the base, 3-10 dm. high, glabrous, purplish, especially the inflorescence; leaves linear, narrowed below into a short petiole, 2.5-5 cm. long; blades 3-7 cm. long; flowers in a loose spike, usually terminal; bracts shorter than the perianth, narrow, acute; sepals of the staminate flowers oblong, those of the pistillate ones broadly fan-shaped with a narrow thickened base and a fimbriate margin, 2-3 mm. long; stamens 2 or 3; stigmas 3; utricle circumscissle near the apex; seed dark-brown or black, 0.8 mm. diam.

Range: Sandy places. Aug. - Sept. Utah and Nevada to Texas, California (Mohave and Colorado Deserts) and Mexico, Lower California.

Nevada: Clark and Lincoln Cos.

Representative specimens: CLARK CO.: Searchlight. J. Sterling. (NES-14505); LINCOLN CO.: N of Crystal Springs Area, 4350 ft. R. D. Hermansen 234H (NA-75471); Rainbow Canyon, 15 mi. S Caliente, Meadow Valley Wash, Train 2446 (NA-73380); NEVADA. Wheeler, 1872. (US).

2. AMARANTHUS ARENICOLA Johnston, Journ. Arn. Arb. 29:193. 1948. Amaranthus torreyi (A. Gray) Benth. in Wats., Bot. Calif. 2:42. 1880; Uline & Bray, Bot. Gaz. 19:272. 1894; Rydberg, Flora Rocky Mountains, 253. 1922; Harrington, Man. Plants Colorado, 217. 1954. Sarratia berlandieri Torr., Bot. Mex Bound. Surv. 179. 1859; not S. berlandieri Moq., 1849; Amblogyne torreyi A. Gray, Proc. Amer. Acad. 5:167. 1861.

Stems stout, erect, whitish, glabrous, striate, simple or branched at the base, branched above; petioles slender, 5-7 mm. long;

leaf-blades oval-oblong to oblong, oblanceolate or oblong-linear, 1.5-8 cm. long, rounded to acutish at the apex, obtuse to attenuate at the base, yellowish-green, glabrous; flowers dioecious, in slender, dense or interrupted terminal spikes; bracts lanceolate, acuminate, with spine-like tips, usually shorter than the flowers; sepals of the staminate flowers oblong, 2-3 mm. long, scarious, often tinged with pink, obtuse or acute, the midnerve usually excurrent; sepals of the pistillate flowers narrowly spatulate, slightly indurate at the base, 2 mm. long, obtuse, 1-nerved, the nerve excurrent; stamens 5; style-branches 3; utricle subglobose, circumscissle; seed about 1 mm. diam., dark reddish-brown.

Range: Kansas, Oklahoma, Iowa to Texas, W to Colorado, Nevada and New Mexico.

Nevada: Dr. Geo. Vasey. 1868. (Annotated as "probably Nebraska", in United States National Herbarium (65861).

3. AMARANTHUS RETROFLEXUS L., Sp. Pl. 991. 1753. "Rough pigweed". (Map 3)

Amaranthus powellii Wats., Proc. Amer. Acad. 10:347. 1875.

Stems stout, erect, simple or usually branched, 3-15 dm. tall, roughish-puberulent below and more or less villous-pubescent above; leaves long-petioled, 1.5-8 cm. long, slender, usually villous, at least pubescent along the veins beneath, dull green, ovate or rhombic-ovate, undulate, the veins white beneath; flowers monoecious, in dense, terminal or axillary, usually paniculate, densely crowded, erect spikes 5-20 cm. long and 8-20 mm. thick, dense clusters also present in the axils of the upper leaves; bracts ovate, tapering into a stout subulate

green tip, usually twice as long as the sepals, at least in age, 1-nerved, sparsely villous; sepals of the staminate flowers ovate-oblong to lanceolate, acute or acutish, scarious, 1-nerved, the nerve shortly excurrent; sepals of the pistillate flowers 3 mm. long, linear-oblong, rounded to truncate at the apex, usually emarginate, often mucronate, scarious and whitish except for the whitish midnerve, the bases thickened in age; stamens 5; style-branches 3, rather short; utricle subglobose, more or less rugulose on the upper half, circumscissle at the middle, shorter than the sepals; seed round, 1 mm. broad, dark reddish-brown, lustrous. Standley, N. Amer. Flora 21(2):113. 1917.

Range: A common weed from S Canada, through United States to northern Mexico; naturalized in Europe, Asia and Africa.

Nevada: Churchill, Humboldt, Lander, Lincoln, Washoe Cos.

Representative specimens: CHURCHILL CO.: roadsides, 4 mi. N Fallon, 4000 ft., Allen 307. (NA-79271); HUMBOLDT CO.: Quinn River Crossing, Griffiths & Morris 122 (US-402577); LANDER CO.: along moderately dry roadside, Battle Mt., 1350 m., Hitchcock 599 (US-692921); LINCOLN CO.: weed, highway near Caliente, 4400 ft., Hermansen 253H (NA-75469); WASHOE CO.: weed, Campus, Univ. Nevada, Reno, Archer 5841 (NA-79230); Reno. Lehenbauer 1550 (Reno 5029) and 1551 (Reno 5028).

Many specimens labeled A. powellii Wats. seem to be a more glabrous form of Amaranthus retroflexus. Both Abrams (Ill. Flora Pac. States, 2:98. 1944) and Harrington (Man. Plants Colorado, 217, 1954) place it in the synonymy of that species. However, many specimens from Nevada have been distributed under this name. They are annotated below for convenience, in case A. powellii should prove to be a dis-

tinct variety.

Nevada: Clark, Lander, Mineral, Nye and Storey Cos.

Representative specimens: CLARK CO.: roadsides, Charleston Park, Charleston Mts., 2270 m., Clokey 7915 (NA-100256); LANDER CO.: Trout Creek, Goodner & Henning 1098 (NA-79261); MINERAL CO.: dry rocky soil, common, 15 mi. N Hawthorne, in Cottonwood Canyon, Henning 256 (NA-79249); NYE CO.: 24-25 mi. S of Route US. 50, near Route Nev. 8A, Goodner & Henning 1157 (Reno - 5022); North Fork of Twin River Canyon, 10 mi. S Millet, Henning 105 (NA-79250); STOREY CO.: in depression where water has stood, 5 mi. S Virginia City, in American Flat Canyon, 5000 ft., Allen 501 (NA-79272).

4. AMARANTHUS HYBRIDUS L., Sp. Pl. 990. 1753. "Green amaranth". (Map 2)

Stems stout, erect 6-25 dm. tall, usually branched, glabrous to rough-pubescent and usually somewhat villous above; leaves long-petioled, blades rhombo-ovate, ovate to lanceolate, acute or rounded at apex, cuneate or rounded at base, pubescent or glabrous, darker green above; flowers monoecious, in spikes, these rather slender and 6-12 mm. wide, in terminal panicles and also axillary; bracts about twice as long as the oblong, scarious sepals, spinulose-tipped; sepals of staminate flowers narrowly oblong to ovate, acute, the midnerve excurrent; sepals of the pistillate flowers 1.5-2 mm. long, oblong or linear-oblong, acute, the nerve usually excurrent; fruit subglobose, circumcissle; seed round, about 1 mm. diam.

Waste places. A weed widely distributed in North America, from Rhode Island to Florida, west to Alberta and California; throughout

the world.

Nevada, WASHOE CO.: along S Center Street, Reno. Lehenbauer 1536. (NA-44758; Reno - 5017).

5. AMARANTHUS PUBESCENS (Uline & Bray) Rydb., Bull. Torr. Club. 39:313. 1912; Standley, N. Amer. Flora 21:115-116. 1917.

Amaranthus graecizans pubescens Uline & Bray, Bot. Gaz. 19:317. 1894; Amaranthus viscidulus Thellung, in Asch. & Graebn., Syn. Mittel-Eur. Fl. 5:289. 1914; not A. viscidulus Greene, 1898.

Stems stout, ascending or prostrate, much-branched, 1-3 dm. long, whitish, densely viscid-puberulent; petioles stout, 2-10 mm. long; leaf-blades elliptic to oval to obovate, 7-15 mm. long, obtuse or acutish, the midvein excurrent as a spinose awn, cuneate at the base, usually puberulent, at least beneath, thick, conspicuously crispate, strongly nerved, the nerves white beneath; flowers monoecious, in small dense axillary clusters longer than the petioles; bracts lanceolate or ovate, twice as long as the flowers, with rigid spinose divaricate tips; sepals 3, those of the staminate flowers scarious, oblong, acute, those of the pistillate flowers oblong to elliptic or linear, obtuse or acutish, thick, 1-nerved, green; stamens 3; style-branches 2 or 3; utricle globose, about equaling the sepals, circumscissle, thick-walled, slightly rugose; seed round, 0.8 mm. diam., dark reddish-brown or black, lustrous. Standley, l.c.:116.

Range: Dry open slopes and plains. Nevada and S Colorado, S to New Mexico and Arizona.

Nevada: Cited from Nevada in Harrington, l.c.:217. 1954.

6. AMARANTHUS ALBUS L., Syst. ed. 10:1268. 1759; Harrington, Man. Plants Colorado, 217. 1954. (Map 5)

Amaranthus graecizans of manuals.

Stems stout and erect, bushy-branched, the branches divaricate or ascending, 20-60 cm. tall, whitish, glabrous or sparingly puberulent or villous; leaves 1-4 cm. long, slender petioled, oblong, spatulate or obovate, cuneate at the base, rounded or mucronate-cuspidate at the apex, glabrous and papillose or sparingly puberulent; flowers monoecious or polygamous, in dense or loose axillary clusters; bracts 2-4 times longer than the perianth, pungent-pointed and spreading; sepals 3, membranous; stamens 3; fruit subglobose, circumscissle, rugose, longer than the perianth; seed round, about 0.8 mm. diam.

Waste places and cultivated areas. Widely distributed throughout North America, Europe, Asia, Africa and South America.

Nevada: Douglas, Esmeralda, Mineral, Nye and Washoe Cos.

Representative specimens: DOUGLAS CO.: 5 mi. S McTarnahan Bridge, 4700 ft., Tillotson 253 (NA-99924); ESMERALDA CO.: Chiatovitch Creek, 2 mi. W Kellog Ranch, Archer 7193 (NA-79231); MINERAL CO.: Cottonwood Canyon, Wassuk Range, Archer 7151 (NA-79235); NYE CO.: weed around Golden Eagle Mill Foundation, 15 mi. NW Ione, 6200 ft., Beach 1032 (NA-290809); WASHOE CO.: Orr Irrigation Ditch, 4 mi. N Reno, Archer 5768 (Reno 5015); dry desert slopes, 1 mi. W Reno Hot Springs, Archer 5801 (NA-79232).

7. AMARANTHUS GRAECIZANS L., Sp. Pl. 990. 1753; Harrington, Man. Plants Colorado, 217. 1954; Gray, 8th ed., 603. 1950. (Frontispiece) (Map 4).

Amaranthus blitoides Wats., Wash. Proc. Amer. Acad. 12:273. 1877; Standley, N. Amer. Flora 21:115. 1917.

Stems stout, prostrate, much-branched, 1.5-6 dm. long, glabrous or sparsely pubescent, pale-green or whitish, rarely tinged with red, or purplish; leaves usually numerous, often crowded, especially near the ends of the branches, the petioles rather stout, 2-20 mm. long, the blades obovate to oval, spatulate, or elliptic, 0.8-4 cm. long, rounded to acutish at the apex, broadly cuneate to attenuate at the base, pale-green, glabrous, prominently veined, the veins whitish beneath, the smaller leaves often white-margined; flowers monoecious, in dense axillary clusters, these usually shorter but sometimes longer than the petioles; bracts oblong to lanceolate, equaling or slightly longer than the sepals, erect, attenuate at the apex to a short spinose tip, green; sepals 4 or 5, those of the staminate flowers scarious, oblong, acute, those of the pistillate flowers oblong or narrowly oblong, 2.5-3 mm. long, acuminate, 1-nerved, green, white-margined; stamens 3; style-branches 3; utricle subglobose, equaling or slightly longer than the sepals, smooth or nearly so, circumscissle, sometimes tinged with red; seed rotund, 1.3-1.5 mm. diam., black, rather dull. Standley, l.c.:115.

Washington to No. Mexico, E to Kansas and Texas; also established in E North America from S Canada southward.

Nevada: Humboldt, Lander, Lincoln, Mineral, Nye and Washoe Cos.

Representative specimens: HUMBOLDT CO.: Winnemucca, Griffiths and Morris 46 (US-402544); LANDER CO.: Battle Mt., Kennedy (NES-14330); Battle Mt., 1350 m., Hitchcock 642 (US-692928); LINCOLN CO.: Cave

Valley, LaRivers & Hancock 793 (NA-79281); NYE CO.: dry alkali soil, 3-12 mi. S Darrough's Hot Springs, Goodner & Henning 1193 (NA-79262); MINERAL CO.: wet soil along stream, 1-3 mi. from mouth and up Cory Creek, Wassuk Range, 6000 ft., Archer 6864 (NA-79236); WASHOE CO.: Pyramid Lake, True 762 (NES-2470); streets and vacant lots of Reno, Archer 5346 (Reno - 4011); common, grazed by sheep, 2-4 mi. W Reno Hot Springs, along road to Lake Tahoe, Archer 5384 & 5355 (Reno - 5004 & 5009); Campus, Univ. Nev., Reno, Archer 5709 (Reno - 5006); 9 mi. W Reno on road to Verdi, near Truckee River, Archer 5726 (NA-79233); Tahoe Nat. Forest, 12 mi. W Reno Hot Springs, Sierra Nevada Range, 7200 ft., Archer 6645 (NA-79234); 3.5 mi. NNE Steamboat Springs, 4550 ft., Adams 96 (NA-302501).

8. AMARANTHUS CALIFORNICUS (Moq.) Wats., Bot. Calif. 2:42. 1880; Standley, N. Amer. Flora 21:115. 1917; Abrams, Ill. Flora Pac. States, 2:99. 1944. "California amaranth". (Map 2)
Mengea californica Moq., in DC. Prodr. 13(2):270. 1849; Amaranthus carneus Greene, Pittonia 2:105. 1890; Amaranthus albomarginatus Uline & Bray, Bot. Gaz. 19:318. 1894.

Stems prostrate, much-branched, forming mats 8-50 cm. diam., whitish and glabrous, sometimes tinged with red; leaves spatulate or obovate to oblanceolate, 5-20 mm. long, pale green and glabrous, often white-margined and with white nerves, sometimes purplish beneath; petioles slender, as long or longer than the blades; flowers monoecious, in small axillary clusters; bracts lanceolate, subulate-tipped, about equaling the calyx; sepals of the staminate flowers usually 3, lanceolate, scarious;

stamens 1 or 2; sepals of pistillate flowers 1-3, one narrowly lanceolate, the others much reduced and scale-like or lacking; utricle smooth; seeds rotund, 0.6-0.8 mm. diam., dark reddish-brown.

S Washington and Alberta S to Nevada and S California.

Nevada: Lander and Washoe Cos.

Representative specimens: LANDER CO.: moist ground, Battle Mt., 1350 m., Hitchcock 633 (US-692923); WASHOE CO.: W of Washoe, Peterson 440 (NES-14673).

2. TIDESTROMIA Standley, Jour. Wash. Acad. 6:70. 1916; N. Amer. Flora 21:130. 1917.

Cladothrix Nutt. (Moq. in DC., Prodr. 13(2):359, as syn. 1849); Wats., Bot. Calif. 2:43. 1880; not Cladothrix Cohn, 1875.

Annuals or perennials, erect or prostrate herbs, sometimes suffruticose at the base, branched, pubescent with branched hairs; leaves opposite, petiolate, the blades broad, entire; flowers minute, perfect, glomerate in the axils of the leaves, bracteate and bibracteolate, the bracts and bractlets hyaline, pubescent; perianth 5-parted, the segments equal, 1-nerved, membranaceous; stamens 5, hypogynous; filaments connate into a short cup, with or without intervening lobes or staminodia; stamens 2-celled, appearing 1-celled after dehiscence; ovary globose, style short, stigma capitate, simple or 2-lobed, ovule 1, suspended from the apex of a slender funicle; utricle slightly compressed, glabrous. Standley, l.c.: 130.

Annual, usually prostrate; staminodia very short or none

1. T. LANUGINOSA

Perennial, erect or ascending; staminodia acute, nearly half as long as the filaments. . . . . 2. T. OBLONGIFOLIA

1. TIDESTROMIA LANUGINOSA (Nutt.) Standley, Jour. Wash. Acad. 6:70. 1916; N. Amer. Flora 21:130. 1917. (Map 6)

Achyranthes lanuginosa Nutt., Trans. Amer. Phil. Soc. II. 5:166. 1820; Alternanthera lanuginosa Moq. in DC., Prodr. 13(2):359. 1849; Cladothrix lanuginosa Nutt. (Moq. in DC., Prodr. 13(2):360. as syn. 1849) Wats., Bot. Calif. 2:43. 1880.

Prostrate or decumbent annual, much-branched, the branches slender or stout, 1-5 dm. long, densely and finely stellate-pubescent or sometimes glabrate in age; petioles slender or stout, equaling or shorter than the blades; leaf-blades orbicular to oval or ovate-orbicular, 0.5-3 cm. long and about as broad, rounded or obtuse at the apex and base, densely stellate-pubescent on both surfaces, or, in age, often glabrate on the lower or both surfaces, the veins often prominent beneath; glomerules few-flowered, the subtending leaves sometimes indurate at the base in age; perianth 1-3 mm. long, 3 times as long as the bracts, the segments narrowly oblong to ovate-oblong, obtuse or acutish, yellowish, densely stellate-pubescent or glabrate; staminodia minute or lacking; seed 0.5 mm. long. Standley, l.c.:130.

Kansas to SE Utah and Nevada, S to W Texas and Mexico (Sinaloa and Zacatecas).

Nevada: CLARK CO.: scattered plants in gravelly places, N of

Boulder Dam, Covillea area, Heller 15832 (US-1974780).

2. TIDESTROMIA OBLONGIFOLIA (Wats.) Standley, Jour. Wash. Acad. 6:70. 1916; N. Amer. Flora 21:131. 1917. (Map 6)

Cladothrix lanuginosa Wats., Bot. Calif. 2:43, in part. 1880; not Achyranthes lanuginosa Nutt., 1820; Cladothrix oblongifolia Wats., Proc. Amer. Acad. 17:376. 1882; Cladothrix cryptantha Wats., l.c. 26:125. 1891.

Perennial, densely and closely pubescent throughout with short, much-branched hairs; stems erect, ascending or decumbent, slender or stout, much-branched, sometimes suffruticose at the base, 2-6 dm. long; leaves short-petioled, the blades ovate-orbicular, broadly ovate, or oblong, 0.8-4 cm. long, 0.3-2 cm. wide, obtuse at the apex, rounded to acute at the base, prominently veined; glomerules few-flowered, the small subtending leaves in age usually indurate and united at the base to form an involucre; perianth 1 mm. long, 2-3 times as long as the bracts, the lobes oblong or oblong-ovate, obtuse or acutish, densely pubescent above; staminodia acute, about half as long as the filaments; seed 0.5 mm. long. Standley, l.c.: 131.

SE California and Arizona to W Nevada.

Nevada: Clark and Lincoln Cos.

Representative specimens: CLARK CO.: sandy wash along California-Nevada Line on road to Searchlight, 1500 ft., Train 1440 (NA-79297); low shrub on lava, 2 mi. W Boulder Dam on highway to Boulder City, 2000 ft., Train 1622 (NA-79342); on limestone ledges, Larrea Belt, Indian Springs, Charleston Mts., 1000 m., Clokey 8009 (NA-100228); LINCOLN CO.: sandy roadbank, 14.8 mi. S Alamo, McVaugh 5979 (NA-166758).

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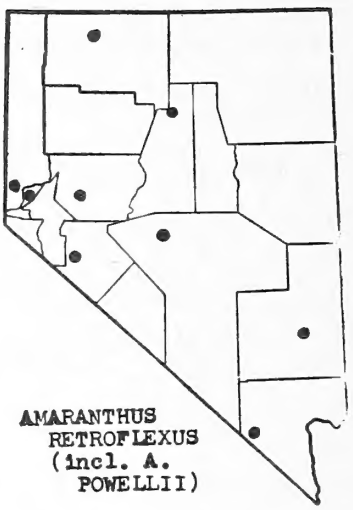
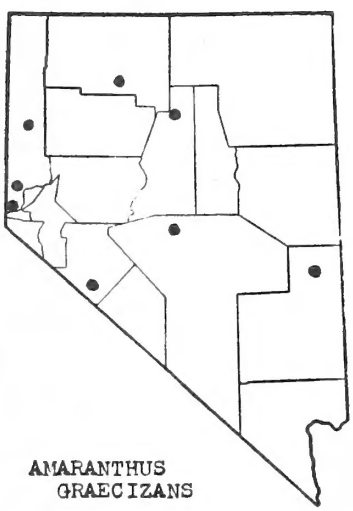
MAP 1

MAP 2



MAP 3



MAP 4

MAP 5

MAP 6