2 Plants perennial; calyx neither conspicuously nerved nor enclosing the fruit; corolla variously colored, the petals 5–11 cm long; native to e. U.S.; common rose-mallow, swamp rose-mallow, crimson-eyed rose-mallow ..... *H. moscheutos* L.

2 Plants woody shrubs, 1.5–2.5 m tall; native to e. Asia; shrub althaea, rose-of-Sharon ..... *H. syriacus* L.

1. Hibiscus trionum L.

Hibiscus trionum L., Sp. Pl. 2: 697. 1753. *Kremia trionum* (L.) Scop., Fl. Carniol., ed. 2. 2: 44. 1772. *Trionum trionum* (L.) Wooton & Standl., Contr. U.S. Natl. Herb. 19: 417. 1915. ("Habitat in Italia, Africa.")

Flower-of-an-hour.

Annual herb, 1–5.5 dm tall, from a taproot; *herbage* stellate pubescent to glabrate, the petioles sometimes densely pubescent; *stems* erect, branched, the lower branches spreading to decumbent; *leaves* all cauline, the best developed ones in the upper part of the vegetative stem with petioles 2–5 cm long, the blade (2) 3–5 cm long, palmately deeply 3-parted or -lobed, each segment pinnately lobed, the middle segment longest, symmetrical, the lateral segments asymmetrical and often with large basal outer lobes sometimes appearing as a 3rd pair of primary lobes, all leaves usually glabrous above and sparingly pubescent below; *stipules* small, linear; *inflorescence* of solitary flowers in the leaf axils; *pedicels* 2–5 cm long, divaricately ascending, often bent upwards near the apex; *involucel* of 10–13 linear bractlets, ciliate with simple hairs; *calyx* 10–12 mm long at anthesis, expanding to 18–25 mm in fruit, this inflated and papery with 20 conspicuous dark purple veins, the lobes less than half the length of the calyx, triangular-ovate; *petals* 15–25 mm long, oblong-obovate, rounded apically, cream to pale yellow with a dark maroon base, the margins maroon on back and these darkened parts pubescent; *staminal column* 6–7 mm long, with a dome-shaped base, glabrous, bearing anthers towards the summit; *styles* fused most of their length, branching into 5 styles with capitate, hairy stigmas; *capsule* included in the accrescent calyx, of 5 loculicidal carpels, 10–14 mm high, ovoid, villous; *seeds* many in each locule, 1.8–2.1 mm long, glabrous; $2n = 28, 56$.

Disturbed places, often a weed in gardens, cultivated fields, and orchards, 800–1700 m; native to Africa, s. Europe, Middle East, India, and s. China; widespread in N. Amer.; scattered localities in the valleys of Utah and s. Idaho; not yet reported from Nev. May–Oct.

2. SPHAERALCEA A. St.-Hil. Globemallow

Annual or perennial herbs or shrubs; *herbage* stellate pubescent; *stems* single or few to many, prostrate, decumbent, ascending, or erect; *leaves* petioled, basal and cauline, the cauline ones alternate, the blade narrowly lanceolate, ovate, or orbicular, entire to deeply dissected or compound; *stipules* inconspicuous; *inflorescence* of solitary flowers or thyrsoid in the leaf axils or in terminal panicles; *pedicels* usually shorter than the calyces; *involucel* of 3 filiform to linear bractlets subtending the calyx, or none in most *S. coccinea; calyx lobes* 5, slightly or much longer than the tube, usually pubescent; *petals* 5, obovate, red-orange (grenadine), lavender, yellow, or rarely white; *staminal column* included, glabrous or usually stellate pubescent; *styles* with capitate stigmas; *fruit* an oblate, globose, or truncate-conic schizocarp formed by a ring of 9–17 (20) apically beaked or beakless mericarps, each mericarp 1- or 2 (3)-seeded, the upper part dehiscent, with smooth lateral walls and the lower part indehiscent with reticulate-veined lateral walls, the mericarps often remaining attached after maturity by a thread-like extension of the dorsal nerve; *seeds* gray, black, or brown; $x = 5$.

A genus of about 40 species of temp. and warm Amer., 27 species in N. Amer. from s. Can. through w. U.S. to n. Mex., disjunct in temp. S. Amer., often in dry habitats. (Name from the Greek *sphaira,* sphere, globe, in reference to the fruit, and the generic name *Alcea* L.)

Sphaeralcea is a difficult genus, with very weak character differences separating some of the species. Polyploidy and hybridization contribute to the problem, with hybridization frequently obscuring the distinctions between species. It is not always easy to confidently place a name on a given specimen.

According to the Utah Native Plant Society, several species of *Sphaeralcea* have horticultural potential along the Wasatch Front.

References:

Atwood, N. D., and S. L. Welsh. 2002. Overview of *Sphaeralcea* (Malvaceae) in southern Utah and northern Arizona, U.S.A., and description of a new species. Novon 12: 159–166.

Diggs, G. M., Jr., B. L. Lipscomb, and R. J. O'Kennon. 1999. *Sphaeralcea coccinea*. Page 820. *In*: Shinners & Mahler's illustrated flora of north central Texas. Sida, Bot. Misc. 16.

Holmgren, N. H. 2002. *Sphaeralcea caespitosa* var. *williamsiae*, var. nov. (Malvaceae). Sida 20: 47–54.

Kearney, T. H. 1935. The North American species of *Sphaeralcea* subgenus *Eusphaeralcea*. Univ. Calif. Publ. Bot. 19: 1–127.

La Duke, J. C., and D. K. Northington. 1978. The systematics of *Sphaeralcea coccinea* (Nutt.) Rydb. (Malvaceae). Southw. Naturalist 23: 651–660.

1 Leaves not or only shallowly lobed.

2 Calyx 8–18 mm long; petals (13) 15–23 mm long; schizocarp 6–8.5 mm in diam.

3 Plants 2–8 dm tall; calyx (8) 9–16 mm long; schizocarp 6–8.5 mm in diam; s. Calif., s. and w. Nev. (disjuncts in Elko and Washoe Cos.), s. Utah (disjunct in Box Elder Co.), southward ..... 1. *S. ambigua*

3 Plants 0.3–1.6 (2.5) dm tall; calyx 10–18 mm long; schizocarp 7.5–8.5 mm in diam; ne. Nye Co., Nev., and sw. Millard Co. and nw. Beaver Co., Utah ..... 2. *S. caespitosa*

2 Calyx 4.7–8 (9) mm long; petals 8–14 (18) mm long; schizocarp 4–6 (7) mm in diam.

4 Leaves grayish-green, usually densely pubescent and relatively thick, prominently veined beneath, the margins weakly crenate-dentate, at least in the distal ⅔; se. Calif., s. and e. Nev., s. and e.

HIBISCUS

1. Hibiscus trionum

Utah, s. and w. Colo., southward and eastward.

5 Leaves about as wide as long, deltate-ovate to suborbicular, 1.5–4 (4.5) cm long and about as wide, palmately veined ..... 3. *S. parvifolia*

5 Leaves decidedly longer than wide, lanceolate, 2–6 cm long and 1–3 cm wide, pinnately veined ..... 4. *S. angustifolia*

4 Leaves green, moderately to sparsely pubescent and relatively thin, not so prominently veined beneath, the margins coarsely and irregularly crenate; n. and c. Nev. and n. and c. Utah, northward ..... 5. *S. munroana*

1 Leaves deeply lobed, cleft more than halfway to the base, in many cleft to the base.

6 Inflorescence thyrsoid or paniculate with 2 or more flowers at a node; mericarps distinctly higher than wide, the indehiscent reticulate lower part consisting of less than half of its height.

7 Herbage bright green and sparsely pubescent; plants (3.5) 5–10 dm tall.

8 Calyx densely pubescent, noticeably more pubescent than the herbage, (6) 7–10 mm long; Ariz., se. Calif., and sw. Utah (Iron, Kane, and Washington Cos.) ..... 6. *S. rusbyi*

8 Calyx glabrous to sparsely pubescent, as is the herbage, 4.5–13 mm long.

9 Calyx 4.5–7.5 mm long, the lobes 2.5–4 mm long, deltate-ovate, obtuse to acute; petals 8.5–12 (16) mm long; endemic to Utah (Garfield, Kane, San Juan, and Wayne Cos.) ..... 9. *S. moorei*

9 Calyx 8–13 mm long, the lobes 5.5–8.2 mm long, lanceolate, acuminate; petals 16–20 mm long; endemic to nw. Mohave Co., Ariz., and adjacent Washington Co., Utah ..... 10. *S. gierischii*

7 Herbage grayish-green and moderately to densely pubescent; plants 1.5–5 (10) dm tall.

10 Petals 11–22 mm long; leaf blades 1.5–5 cm long, the midlobe or middle leaflet 10–20 mm wide.
11 Pubescence of coarse stellate hairs with rays 0.4–0.6 mm long; Smoky Mt. and the Burning Hills portions of the Kaiparowits Plateau, Kane Co., Utah ..... 8. *S. fumariensis*
11 Pubescence of relatively delicate stellate hairs with slender rays 0.2–0.4 mm long; widespread in our range ..... 7. *S. grossulariifolia*
10 Petals 7–10 mm long; leaf blades 0.7–2 (3) cm long, the midlobe or midleaflet not more than 5 mm wide; s. San Juan Co., Utah, southward ..... 11. *S. digitata*
6 Inflorescence racemose with 1 flower at a node, rarely with 2 or 3 at 1 or 2 nodes; mericarps nearly as wide as high, the indehiscent reticulate lower part consisting of more than ⅓ of its height; the leaves simple to 3-foliolate.
12 Leaf or leaflets linear to narrowly oblanceolate, entire.
13 Leaves grayish to silvery-lepidote, the stellate hairs dense, overlapping, completely covering the surface, with the rays fused most of their length; se. Utah (Emery, Garfield, Grand, San Juan, and Wayne Cos.), southward and eastward, and disjunct in Eureka Co., Nev. ..... 12. *S. leptophylla*
13 Leaves yellowish-green, the stellate hairs sparse, exposing much of the surface, with the rays free to near the base; endemic to Utah (mostly e. of the Green River in nw. San Juan Co., sw. Grand Co., and disjunct in w. Wayne Co.) ..... 13. *S. janeae*
12 Leaflets or lobes oblanceolate, 3–5-foliolate.
14 Main leaves deeply 3-lobed or 3-foliolate, the lobes or leaflets entire or the middle one sometimes ternately lobed; endemic to Utah (Emery, Grand, and Wayne Cos.) ..... 14. *S. psoralioides*
14 Main leaves deeply 5-parted or pedately 3-foliolate with the lateral leaflets so deeply divided as to give the appearance of being 5-foliolate, the middle leaflet ternate to pinnatifid, sometimes bipinnatifid, and at least the inner lobe of the lateral leaflets ternate to pinnatifid; throughout most of Utah, northward, eastward, and southward ..... 15. *S. coccinea*

1. Sphaeralcea ambigua A. Gray

Sphaeralcea ambigua A. Gray, Proc. Amer. Acad. Arts 22: 292. 1887. *Sphaeroma ambiguum* (A. Gray) Kuntze, Revis. Gen. Pl. 1: 74. 1891. (*J. S. Newberry s.n., J. C. Ives Exploration, "Big Cañon of the Colorado" River, probably Mohave Co., Ariz., 7 Mar 1858*; lectotype by T. H. Kearney, Univ. Calif. Publ. Bot. 19: 44. 1935, at GH!; isolectotype: US!) = var. *ambigua*.

Sphaeralcea rosacea Munz & I. M. Johnst., Bull. Torrey Bot. Club 49: 353. 1922 [1923]. *Sphaeralcea ambigua* subsp. *rosacea* (Munz & I. M. Johnst.) Kearney, Univ. Calif. Publ. Bot. 19: 46. 1935. *Sphaeralcea ambigua* var. *rosacea* (Munz & I. M. Johnst.) Kearney, J. Wash. Acad. Sci. 29: 486. 1939. (*A. B. Chittenden s.n.*, Palm Springs, Riverside Co., Calif., 2 Apr 1917; holotype: CAS!) = var. *rosacea*.

Sphaeralcea pulchella Jeps., Man. Fl. Pl. Calif. 635. 1925; not Phil., 1892. *Sphaeralcea ambigua* subsp. *monticola* Kearney, Univ. Calif. Publ. Bot. 19: 47. 1935. *Sphaeralcea ambigua* var. *pulchella* (Jeps.) Jeps., Fl. Calif. 2: 503. 1936. *Sphaeralcea ambigua* var. *monticola* (Kearney) Kearney, J. Wash. Acad. Sci. 29: 486. 1939. (*W. L. Jepson 7064*, Hanaupah Canyon, Panamint Range, 4000 ft, Inyo Co., Calif.; holotype: JEPS.) = var. *ambigua*.

Apricot globemallow, Mojave globemallow.

Perennial herb, 2–8 dm tall, from a thick crown or a woody, short-branched caudex surmounting a taproot; *herbage* yellowish-, grayish-, or whitish-green (especially whitish on young stems and leaves), densely pubescent with stellate hairs, the rays of the hairs spreading in several different planes; *stems* few to several, ascending or erect, simple to short-branched; *leaves* all cauline, the petiole 1–4.5 (6) cm long, the blade thickish, 1.5–4.5 (6) cm long and about as wide, deltate-ovate to suborbicular, the base cordate to truncate, crenate or crenate-dentate and often shallowly 3–5-lobed, the lobes rounded or obtuse, palmately veined from the base and pinnately veined above, the veins usually prominent beneath and slightly sunken above; *stipules* filiform to lanceolate, deciduous; *inflorescence* an open, often loose panicle, usually relatively few-flowered, the lower flowers sometimes solitary in the leaf axils and the upper often in thyrsoid clusters, the rachis, pedicels, and calyces pubescent as on the herbage; *pedicels* 1–10 cm long, sometimes stout, divaricately ascending; *involucel* of filiform bractlets; *calyx* (8) 9–16 mm long, the lobes lanceolate or narrowly ovate, acute to acuminate, densely pubescent; *petals* (13) 15–23 mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine) or sometimes pink to lavender (in var. *rosacea*); *staminal column* (3.5) 4–5 (6) mm long, glabrous or sparsely stellate pubescent, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 8–12 (14) mericarps forming a ring 6–8.5 mm in diam, each mericarp (1) 2-seeded, 3.2–4.7 (5.5) mm high, 1.8–3 (4.6) mm wide, the indehiscent lower part ⅛–⅓ of the height, weakly to conspicuously reticulate on the sides, the reticulate ridges extending to the margin, the dehiscent upper part smooth-sided, acute to mucronate apically, vertically furrowed and pubescent on the dorsal surface; *seeds* 1.5–2 mm long, reniform, dark brown to black, minutely puberulent; $2n = 10, 20, 30$.

A variety of soil types, mostly in the valleys and deserts among creosote bush, shadscale, rabbitbrush, sagebrush, and juniper communities, 600–2400 m; s. Calif. (as far n. as Mono and Tulare Cos.), s. and w. Nev. (with disjuncts in Elko and Washoe Cos.), s. Utah (Kane, sw. San Juan, and Washington Cos., and disjunct in the Pilot Range, Box Elder Co.), s. through w. and s. Ariz. to n. Mex. Late Mar–Sept (Nov).

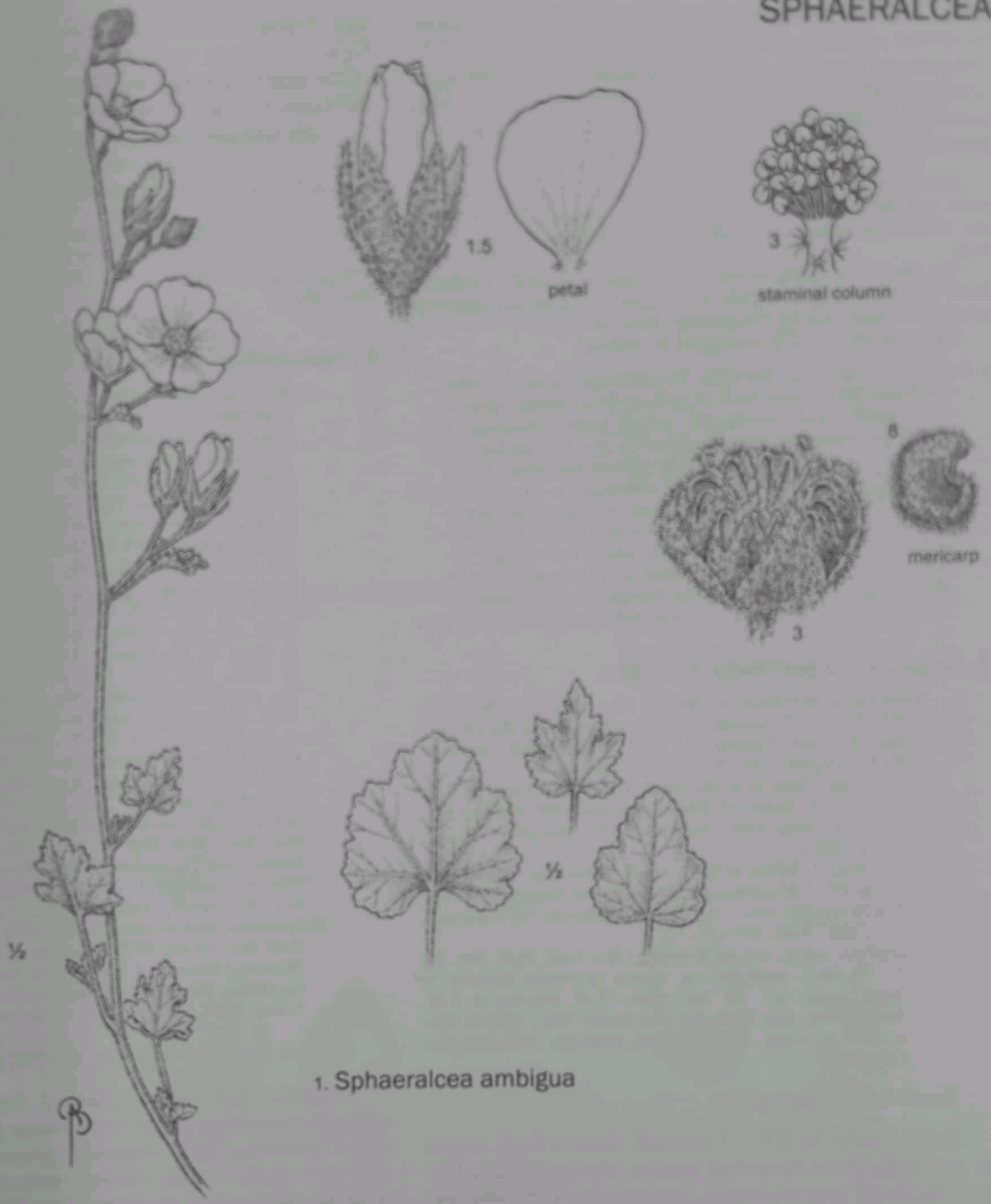
Two varieties in our range can be distinguished by the following characters.

1 Petals pink to lavender; n. Mex., w. and s. Ariz., s. Nev., and s. Calif., n. to the White Mts. of Inyo Co.; Parish mallow ..... var. *rosacea* (Munz & I. M. Johnst.) Kearney
1 Petals reddish-orange; distribution of the species ..... var. *ambigua*

2. Sphaeralcea caespitosa M. E. Jones

Sphaeralcea caespitosa M. E. Jones, Contr. W. Bot. 12: 4. 1908. (*M. E. Jones s.n.*, on very poor volcanic soil covering lava with a shallow coat, and in crevices of the rocks where there

SPHAERALCEA



1. Sphaeralcea ambigua

is a little soil, Wa Wa [Wah Wah Mts.], w. of Frisco, at Dry Station, 6000 ft, Beaver Co., Utah, 25 June 1906; holotype: POM!; isotypes: BM!, BRY!, GH!, NY!, ORE!, US!) = var. *caespitosa*.

S. caespitosa var. *williamsiae* N. H. Holmgren, Sida 20: 49. 2002. (*N. H. Holmgren & P. K. Holmgren 14322*, 34.5 air km sw. of Currant, just w. of Lockes (Black Rock Station), Railroad Valley, 38°33'13"N, 115°46'34"W, T8N R55E S15, 1480 m, Nye Co., Nev., 28 May 2001; holotype: NY!; isotypes: BRY!, RENO!, UTC!) = var. *williamsiae*.

Tufted globemallow.

Perennial herb, 0.3–1.6 (2.5) dm tall, from a woody, branched caudex surmounting a taproot; *herbage* grayish-green with a dense pubescence or pale greenish with a moderately dense pubescence, the hairs stellate, the rays of the hairs spreading in several different planes; *stems* few to several, ascending or erect, unbranched; *leaves* all cauline, the petiole 1–3.5 (7) cm long, the blade of the midstem leaves largest, 1.5–4.5 (5) cm long and about as wide, deltate, ovate, or suborbicular, the base cordate, truncate, or broadly cuneate, the margin coarsely crenate or dentate-crenate, and sometimes shallowly 3-lobed, palmately veined, the veins prominent beneath and slightly channeled above; *stipules* filiform or linear; *inflorescence* few-flowered, the lower flowers racemose or solitary in leaf axils, the upper ones often in thyrsoid clusters, the rachis, pedicels, and calyces pubescent on the herbage; *pedicels* 3.5–13 mm long, divaricately ascending, with stipular bracts at the base; *involucel* of pale brownish, filiform bractlets; *calyx* 10–18 mm long, the lobes lanceolate to ovate, acute, ⅔–¾ of the calyx length; *petals* 15–23 mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* 3.5–9 mm long, stellate pubescent, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 11–14 mericarps forming a ring 7.5–8.5 mm in diam, each mericarp 2-seeded, 3–5.5 mm

high, 2.2–4.6 mm wide, rounded dorsally and rounded to obtuse apically, coarsely reticulate on the sides of the indehiscent lower ⅓ and smooth-sided on the dehiscent upper ⅔, pubescent on the back; *seeds* 1.9–2.3 mm long, reniform, dark brown to black, minutely puberulent in patches.

Shallow, gravelly alluvial and valley fill soils, in greasewood, shadscale, rabbitbrush, or matchweed associations, 1400–2000 m; wc. Utah (sw. Millard and adjacent Beaver Cos.) and c. Nev. (ne. Nye Co.). May–Aug.

The diminutive stature of this species makes it an ideal rock garden plant, but, because of its narrow distribution, *S. caespitosa* should be grown from seeds, not by transplanting from the wild.

Two varieties can be distinguished as follows:

1 Calyx 13–18 mm long; petals 16–23 mm long; staminal column 3.5–6 mm long; leaves thickish, grayish-green, densely pubescent, usually with overlapping stellate hairs concealing or nearly concealing the surface; plants 0.3–1.5 (1.7) dm tall; endemic to the w. Utah desert in sw. Millard and adjacent nw. Beaver Cos.; 1600–2000 m; Jones' globemallow .. var. *caespitosa*

1 Calyx 10–14 mm long; petals 15–20 mm long; staminal column 6–9 mm long; mature leaves relatively thin, greenish, moderately pubescent with a considerable amount of surface exposed; plants 0.7–2.5 dm tall; endemic to Railroad Valley in ne. Nye Co., Nev.; 1400–1600 m; Margaret's globemallow .... var. *williamsiae* N. H. Holmgren

3. Sphaeralcea parvifolia A. Nelson

Sphaeralcea parvifolia A. Nelson, Proc. Biol. Soc. Wash. 17: 94. 1904. (*L. N. Goodding 916*, steep hillsides and rock crevices, Caliente, Lincoln Co., Nev., 22 May 1902; holotype: RM!; isotypes: GH!, NY!, POM!, US!)

S. marginata York in Rydb., Bull. Torrey Bot. Club 33: 145. 1906. (*C. F. Baker 93*, Grand Junction, 4590 ft, Mesa Co., Colo., 11 June 1901; holotype: NY!; isotypes: GH!, K!, POM!, US!)

S. arizonica A. Heller in Rydb., Bull. Torrey Bot. Club 40: 59. 1913. (*D. T. MacDougal 120*, vicinity of Flagstaff, 7000 ft, Coconino Co., Ariz., 16 June 1898; holotype: NY!; isotypes: GH!, PH!, RM!, US!)

S. ambigua subsp. *rugosa* Kearney, Univ. Calif. Publ. Bot. 19: 49. 1935. *S. ambigua* var. *rugosa* (Kearney) Kearney, J. Wash. Acad. Sci. 29: 486. 1939. (*T. H. Kearney & J. M. Webber 202*, near Idyllwild, San Jacinto Mts., 5000 ft, Riverside Co., Calif., 25 Aug 1933; holotype: US!; isotypes: GH!, NY!)

Small-leaf globemallow.

Perennial herb, 2.5–7.5 dm tall, from a thick crown or a woody, short-branched caudex surmounting a taproot; *herbage* grayish-green, moderately to densely pubescent with stellate hairs, the rays of the hairs spreading in several different planes; *stems* few to several, ascending or erect, unbranched or more often short-branched; *leaves* all cauline, the petiole 1.5–4 (6) cm long, the blade thickish, 1.5–4 (4.5) cm long and about as wide, deltate-ovate to suborbicular, the base subcordate, truncate, or broadly cuneate, crenate-dentate and often crisped, sometimes shallowly 3–5-lobed as well, rounded or obtuse apically, palmately veined, the veins prominent beneath and slightly channeled above; *stipules* lanceolate, deciduous; *inflorescence* relatively narrowly thyrsoid-glomerate; *pedicels* 2–10 mm long, ascending; *involucel* of filiform bracts; *calyx* 5–8 (9) mm long, the lobes ovate, obtuse, densely pubescent, especially at the base of the tube; *petals* 9–14 (17) mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* 3–5.5 mm long, glabrous, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of about 10 mericarps forming a ring 4–5.5 mm in diam, each mericarp usually 2-seeded, 2.8–4 mm high, 2–2.3 mm wide, the indehiscent lower part ¼–⅓ of the height, weakly to obscurely reticulate on the sides, the dehiscent upper part smooth-sided, acute to mucronate apically, pubescent on the back and on the margins; *seeds* 1.7–2 mm long, reniform, dark brown to black, minutely puberulent in patches; $2n = 10, 20$.

Washes, roadsides, and among greasewood, blackbrush, sagebrush, and juniper communities, 750–2450 m; s. Nev. (disjunct in s. Eureka Co.), s. ⅓ of Utah, w. Colo., nw. N.M., n. Ariz., and adjacent Calif. Mar–Oct.

4. Sphaeralcea angustifolia (Cav.) G. Don

Malva angustifolia Cav., Diss. 2: 64. 1786. *Sphaeralcea angustifolia* (Cav.) G. Don, Gen. Hist. 1: 465. 1831. *Sphaeroma angustifolium* (Cav.) Schltdl., Linnaea 11: 353. 1837. *Malvastrum angustifolium* (Cav.) Hemsl., Biol. Cent. Amer., Bot. 1(2): 99. 1879. *Malveopsis angustifolia* (Cav.) Kuntze, Revis. Gen. Pl. 1: 72. 1891. (*A. Palau s.n.*, "Habita in Mexico"; lectotype: specimen with the label "*Malva*" in Palau's hand, by J. C. La Duke & P. A. Fryxell, Anales Jard. Bot. Madrid 45: 163. 1988, specimen 266267 at MA.) = var. *angustifolia*.

Sida stellata Torr., Ann. Lyceum Nat. Hist. New York 2: 171. 1827; not Cav., 1785. *Sphaeralcea stellata* (Torr.) Torr. & A. Gray, Fl. N. Amer. 1: 228. 1838. *Malva stellata* (Torr.) D. Dietr., Syn. Pl. 4: 816. 1847. *Sphaeralcea angustifolia* var. *cuspidata* A. Gray, Proc. Amer. Acad. Arts 22: 293. 1887. *Sphaeralcea cuspidata* (A. Gray) Britton in Britton & A. Br., Ill. Fl. N. U.S. 3: 519. 1898. *Phymosia cuspidata* (A. Gray) Britton in Britton & A. Br., Ill. Fl. N. U.S., ed. 2, 2: 522. 1913. *Sphaeralcea angustifolia* subsp. *cuspidata* (A. Gray) Kearney, Univ. Calif. Publ. Bot. 19: 67. 1935. (*E. P. James s.n.* [*41*, number assigned by J. Torrey, Ann. Lyceum Nat. Hist. New York 2: 171. 1827], "Margins of small brooks, near the sources of the Arkansas" [at or near Fuchs Gap, se. Otero Co., Colo., 24 July 1820, fide G. J. Goodman & C. A. Lawson]; holotype: NY.) = var. *cuspidata*.

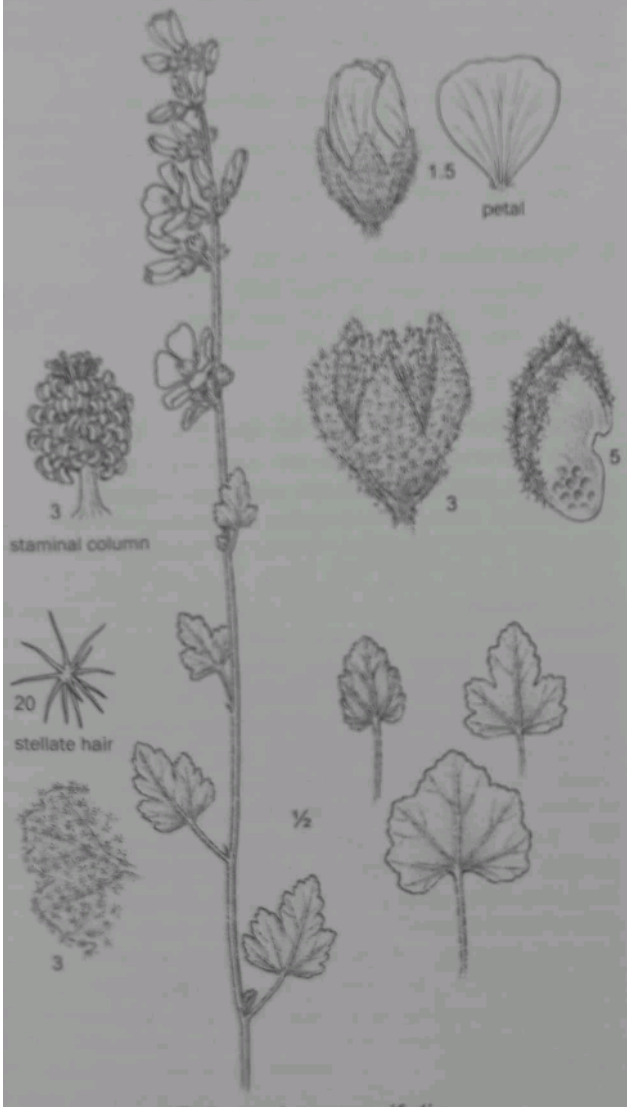
Sphaeralcea emoryi subsp. *nevadensis* Kearney, Univ. Calif. Publ. Bot. 19: 40. 1935. *Sphaeralcea emoryi* var. *nevadensis* (Kearney) Kearney, J. Wash. Acad. Sci. 29: 486. 1939. (*L. N. Goodding 702*, sandy wastes, St. Thomas, Clark Co., Nev., 3 May 1902; isotype: NY!) = var. *cuspidata*.

Narrow-leaf globemallow, copper globemallow.

Perennial herb, 2.5–7.5 dm tall, from a thick woody crown surmounting a taproot; *herbage* grayish-green, the stems becoming pale yellowish-green, densely pubescent with stellate hairs; *stems* few to several, ascending or erect, unbranched or more often branched; *leaves* all cauline, the petiole mostly 1–2 cm long, the blade thickish, 2–6 cm long, 1–3 cm wide, lanceolate, the base broadly cuneate to truncate, the margin of the upper ⅔ crenate-dentate, somewhat expanded into toothed hastate lobes near the base, rounded or obtuse apically, pinnately veined, the veins prominent beneath and slightly channeled above; *stipules* lanceolate, deciduous; *inflorescence* relatively narrowly thyrsoid-glomerate, bracteate; *pedicels* 2–4 mm long; *involucel* of filiform bractlets 3–4 mm long; *calyx* 5–7 mm long, the lobes about 4 mm long, ovate, obtuse, densely pubescent; *petals* 8.5–13 mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* about 3 mm long, coarsely pubescent, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of about 10 mericarps forming a ring 5–7 mm in diam, each mericarp 1-seeded, 3.5–5 mm high, 2–2.5 mm wide, the indehiscent lower part ¼ of the height, conspicuously reticulate on the sides with translucent lacu-

SPHAERALCEA

2. Sphaeralcea caespitosa var. caespitosa



3. Sphaeralcea parvifolia

4. Sphaeralcea angustifolia

nae, the dehiscent upper part smooth-sided, apiculate apically, pubescent on the back and on the margins; *seeds* about 1.5 mm long, reniform, dark brown, minutely puberulent; $2n = 10, 20$.

Roadsides in desert shrub communities, 750–1100 m; se. Calif., s. Nev., sw. Utah (Washington Co.), s. Colo., Nebr., and Kansas, s. through Ariz., N.M., and w. Texas to c. Mex. May–Nov.

Our plants may belong to var. cuspidata A. Gray, but this cannot be confirmed because the NY holotype is on loan and unavailable for my study. Plants from our range differ from the Mexican var. *angustifolia* in having leaf blades somewhat thicker with more prominent veins beneath, more pronounced hastate lobes at the base, and somewhat revolute margins, all of which are characters attributed to var. *cuspidata* by Kearney (1935).

Sphaeralcea angustifolia seems to be spreading in Washington County in recent years. The earliest Utah collection seen by me was taken from near St. George in 1931 (*T. G. Yuncker & W. H. Welch 5192*, at NY!). Sixty-eight years passed before narrow-leaf globemallow was again collected in Utah, and now it is known from at least four localities in Washington County.

5. **Sphaeralcea munroana** (Douglas ex Lindl.) Spach ex A. Gray

Malva munroana Douglas ex Lindl., Edward's Bot. Reg. 16: pl. 1306. 1830. *Nuttallia munroana* (Douglas ex Lindl.) Nutt., J. Acad. Nat. Sci. Philadelphia 7: 16. 1834. *Malvastrum munroanum* (Douglas ex Lindl.) A. Gray, Pl. Fendler. 21. 1849. *Sphaeralcea munroana* (Douglas ex Lindl.) Spach ex A. Gray, Proc. Amer. Acad. Arts 22: 292. 1887. *Malvaeopsis munroana* (Douglas ex Lindl.) Kuntze, Revis. Gen. Pl. 1: 72. 1891. (*D. Douglas s.n.*, "abundantly upon the barren plains of the Columbia" [protologue]; "common on the arid, barren, sandy deserts of the Columbia from the Great Falls to the Rocky Mountains" [holotype], July 1826; holotype: K!; isotype: BM!) = var. *munroana*.

Malva creeana Graham, Bot. Mag. 65: pl. 3698. 1838. *S. creeana* (Graham) Sprague & Sandwith, Bull. Misc. Inform. 1929: 204. 1929. (Illustration from a plant growing at Edinburgh Botanic Garden from an unknown source; no specimen.) = var. *subrhomboidea*.

S. subrhomboidea Rydb., Bull. Torrey Bot. Club 40: 59. 1913. *S. munroana* subsp. *subrhomboidea* (Rydb.) Kearney, Univ. Calif. Publ. Bot. 19: 85. 1935. *S. munroana* var. *subrhomboidea* (Rydb.) Kearney, J. Wash. Acad. Sci. 29: 486. 1939. (*E. C. Carlton & A. O. Garrett 6691*, near Midway, Wasatch Co., Utah, 6 July 1905; holotype: NY!; isotypes: GH!, RM!, US!) = var. *subrhomboidea*. See comments following the description.

White-stem globemallow, Munro's mallow.

Perennial herb, 2.5–9 dm tall, from a thick crown or a woody, short-branched caudex surmounting a thick taproot; *herbage:* the leaves green, moderately to sparsely pubescent with stellate hairs, the stems usually densely pubescent, the rays of the hairs in several different planes; *stems* few to several, ascending or erect, unbranched or often short-branched; *leaves* all cauline, the petiole 1.5–4.5 (5.5) cm long, the blade relatively thin, 1–4 cm long and about as wide, deltate-ovate, sometimes flabelliform, the base subcordate, truncate, or broadly cuneate, coarsely and often irregularly crenate, often moderately 3–5-lobed, the lobes rounded or obtuse apically, palmately veined, the veins not as prominent beneath as in the preceding species; *stipules* lanceolate, deciduous; *inflorescence* relatively narrowly thyrsoid-glomerate; *pedicels* stout, mostly shorter than the calyx; *involucel* of filiform bractlets; *calyx* 4.7–7 mm long, the lobes ovate, acute, sometimes 2 adjacent lobes remaining adherent through anthesis, densely pubescent, especially at the base of the tube; *petals* 8–14 (18) mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* 4.5–5.7 mm long, glabrous to sparsely stellate pubescent, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 10–12 mericarps forming a ring 4–5.2 mm in diam, each mericarp 1 (2)-seeded, 2–3 mm high, 1.8–2.5 mm wide, the indehiscent lower part about ⅓ of the height, weakly to obscurely reticulate on the sides, the dehiscent upper part smooth-sided, erect, rounded apically, pubescent on the back and on the margins; *seeds* about 1.7 mm long, reniform, dark brown, minutely puberulent.

Deserts, valleys, and foothills among rabbitbrush and sagebrush, 640–2400 m; sc. B.C., e. Wash., e. Oregon, Idaho, sw. Mont., and s. Wyo., s. to n. and c. Nev. and to n. and c. Utah; an unconfirmed report from nw. Calif. May–Oct.

Sphaeralcea munroana is often difficult to distinguish from *S. parvifolia*, as is apparent in the fuzzy distinctions used in the key. They appear to me to be no more than varietally different, but I hesitate to make the combination without further study.

Plants of *S. munroana* from southeastern Idaho and southwestern Wyoming are ephemeral in their flowering, with all the flower buds in the inflorescence opening over a short period of time. Plants from farther south, particularly those of *S. parvifolia*, appear to flower over a much longer period of time.

Some collections from the distributional range where *S. munroana* overlaps that of *S. grossulariifolia* appear to be first generation hybrids between the two, resulting in the distinctly lobed leaves seen in *S. munroana* var. *subrhomboidea*. It is tempting to treat these as hybrids, but, along the foot of the Wasatch Mountains and the neighboring Oquirrh Mountains, these plants appear to be regenerating themselves as interbreeding entities. They can be distinguished by the following key.

1 Leaves not or only slightly lobed; distribution of the species ..... var. *munroana*

1 Leaves distinctly 3-lobed, the cleft reaching about halfway to the base; foot of the Wasatch Mts. in n. Utah and adjacent Idaho and in the Oquirrh Mts. ..... var. *subrhomboidea* (Rydb.) Kearney

6. **Sphaeralcea rusbyi** A. Gray

Sphaeralcea rusbyi A. Gray, Proc. Amer. Acad. Arts 22: 293. 1887. (*H. H. Rusby 537*, near Prescott, Yavapai Co., Ariz., May 1883; holotype: NY!; isotype: GH!)

Rusby's globemallow.

Perennial herb, 3.5–10 dm tall, from a thick woody crown surmounting a taproot; *herbage* green, sparsely pubescent with stellate hairs with rays radiating in several planes; *stems* few to many, ascending or erect, usually with short branches; *leaves* all cauline, the petiole 1–3.5 (5.5) cm long, the blade 2–5 cm long, 2–4 cm wide, broadly ovate or deltate-ovate in outline, pedately 5-lobed, the lobes often secondarily pinnately lobed, especially the larger midlobe, which is sometimes again lobed, the ultimate lobes oblong or obovate, rounded; *stipules* early deciduous; *inflorescence* narrowly thyrsoid to open paniculate, relatively few-flowered; *pedicels* slender, 3–18 mm long, divaricately ascending; *involucel* of dark red, filiform bractlets; *calyx* (6) 7–10 mm long, the lobes deltate, acuminate, conspicuously more densely pubescent than the herbage; *petals* 10–17 mm long, the short claw ciliate, the blade obovate, orange or grenadine; *staminal column* 3–4 mm long, stellate pubescent, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* more or less globose, about 4.5 mm in diam, consisting of 10–12 mericarps, each mericarp 2-seeded, 4–4.5 mm high, 2.3–3 mm wide, the lower indehiscent part ¼–⅓ of the height, faintly reticulate on the sides and smooth on the back, the dehiscent upper part smooth-sided, erect, often with a small mucro on

6. Sphaeralcea rusbyi

5. Sphaeralcea munroana var. munroana

the inside, pubescent on the dorsal and apical surfaces; $2n = 10, 20$.

Deserts among creosote bush, blackbrush, and juniper vegetation, 250–2000 (2285) m; Ariz. (including Mohave Co.), se. Calif., and sw. Utah (Iron, Kane, and Washington Cos.). Late Mar–mid-Oct.

Our plants belong to var. *rusbyi*. Southwest of us, in the Mojave Desert mountains of southern California, is var. *eremicola* (Jeps.) Kearney, which is more densely pubescent and has larger flowers.

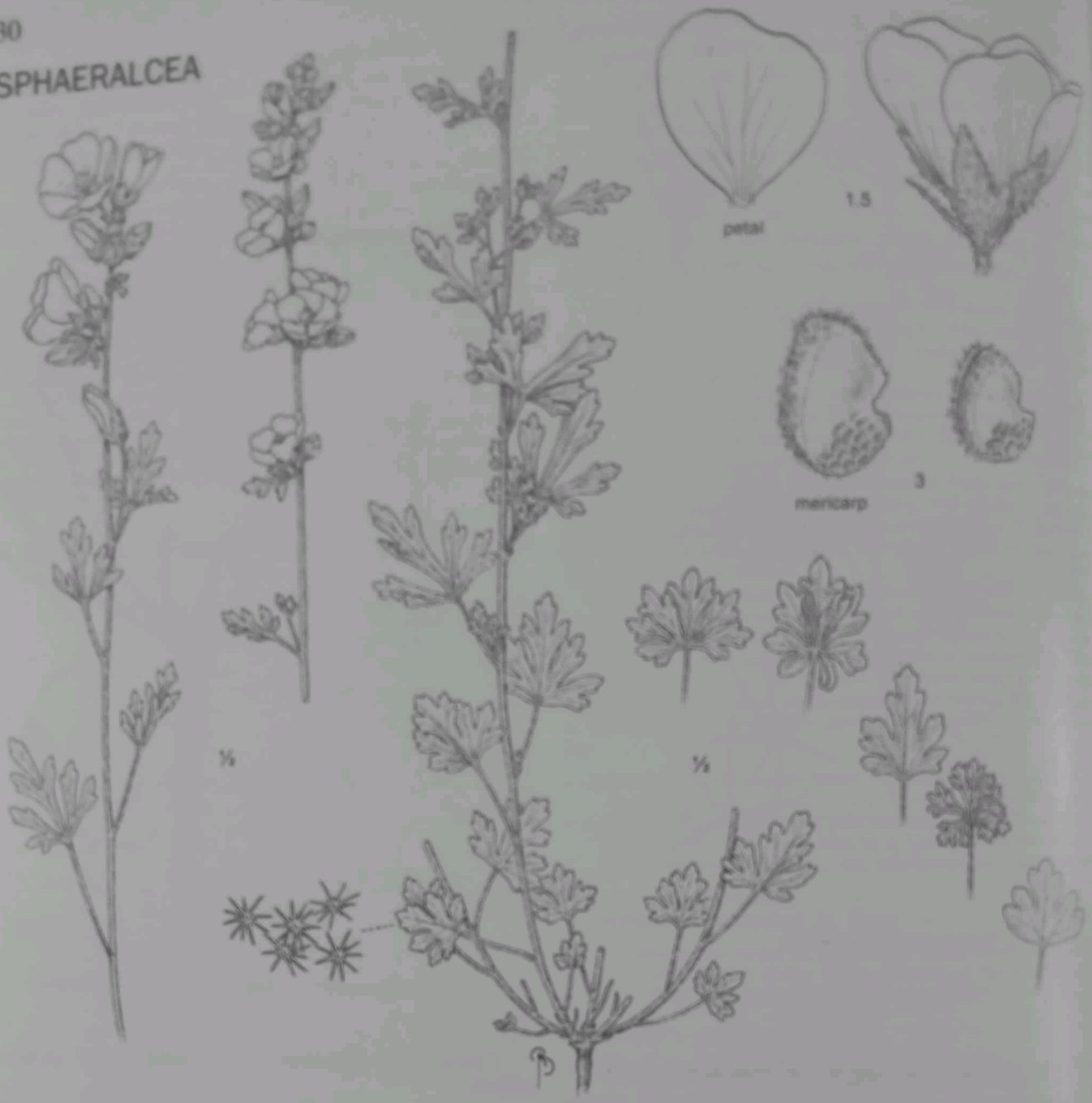
7. Sphaeralcea grossulariifolia (Hook. & Arn.) Rydb.

Sida grossulariaefolia Hook. & Arn., Bot. Beechey Voy. 326. 1838. *Malvastrum grossulariaefolium* (Hook. & Arn.) A. Gray, Pl. Fendler. 21. 1849. *Malvastrum coccineum* var. *grossulariaefolium* (Hook. & Arn.) Torr. in Stansb., Explor. Great Salt Lake 384. 1852. *Sphaeralcea grossulariifolia* (Hook. & Arn.) Rydb., Bull. Torrey Bot. Club 40: 58. 1913 (as "*grossulariaefolia*"). (*W. F. Tolmie s.n.*, or more likely *J. McLeod s.n.*, a friend of Tolmie and fur trapper with the Hudson's Bay Company, "Bamcoch River [probably Bannock Creek in Power Co.], Snake Country," Idaho, in 1837; holotype: K!; isotypes: GH!, NY!)

Sphaeralcea pedata Torr. ex A. Gray, Pl. Fendler. 23. 1849. *Sphaeralcea grossulariaefolia* subsp. *pedata* (Torr. ex A. Gray) Kearney, Univ. Calif. Publ. Bot. 19: 88. 1935. *Sphaeralcea grossulariaefolia* var. *pedata* (Torr. ex A. Gray) Kearney, J. Wash. Acad. Sci. 29: 486. 1939. (*J. C. Frémont 411*. Frémont's Third Exped., "Mooring [Moving?] Fork, 1st Camp, Utah," in 1845; holotype: NY!; isotypes: DS!, GH!, K!, US!)

Currant-leaf globemallow, gooseberry-leaf globemallow.

Perennial herb, 1.5–5 (10) dm tall, from a thick crown or a woody, short-branched caudex surmounting a thick taproot; *herbage* pubescence of stellate hairs with rays 0.2–0.4 mm long, the mature leaves green, moderately to sparsely pubescent, the rays of the hairs spreading in more than one plane, the stems usually densely pubescent with some stellate hairs with appressed rays mixed with stellate hairs with the rays radiating in different planes; *stems* few to several, ascending or erect, unbranched or often short-branched; *leaves* all cauline, the petiole (1) 1.5–5 (7) cm long, the blade more or less thin, 1.5–4 (5) cm long and about as wide, deltate or broadly ovate in outline, the base subcordate, truncate, or broadly cuneate, pedately 3–5-lobed, sometimes 3-foliolate and the deeply cleft lateral lobes appearing as if 5-foliolate, the lobes or leaflets coarsely and irregularly crenate or pinnately to bipinnately lobed, the midlobe symmetrically lobed, greater than 10 mm wide, the lateral lobes asymmetrically lobed, sometimes entire, the veins prominent beneath; *stipules* lanceolate, deciduous; *inflorescence* relatively narrowly thyrsoid-glomerate, pubescence as on the herbage; *pedicels* mostly shorter than the calyx, sometimes longer than the



7. Sphaeralcea grossulariifolia

calyx at the lower nodes; *involucel* of filiform bractlets; *calyx* 5–11 mm long, the lobes ovate to lanceolate, acute, sometimes 2 adjacent lobes remaining adherent through anthesis; *petals* 11–22 mm long, the short claw densely ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* 4–6 mm long, glabrous or stellate pubescent, bearing cream-colored anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 10–12 mericarps forming a ring 4.5–6.5 mm in diam, each mericarp 1 (2)-seeded, 2.5–3.5 (4) mm high, 2–3 mm wide, the indehiscent lower part ⅓–½ of the height, reticulate on the sides and margins, the dehiscent upper part smooth-sided, erect, obtuse apically, pubescent on the dorsal and apical surfaces; *seeds* about 2 mm long, reniform, dark brown, minutely puberulent; $2n = 20$.

Deserts, valleys, and foothills among blackbrush, greasewood, shadscale, rabbitbrush, and sagebrush vegetation, 800–2300 m; sc. Wash., e. Oregon, and c. and s. Idaho, s. to ne. Calif., Nev., Utah, sw. Colo., n. Ariz., and nw. N.M. Mid-Mar–early Oct.

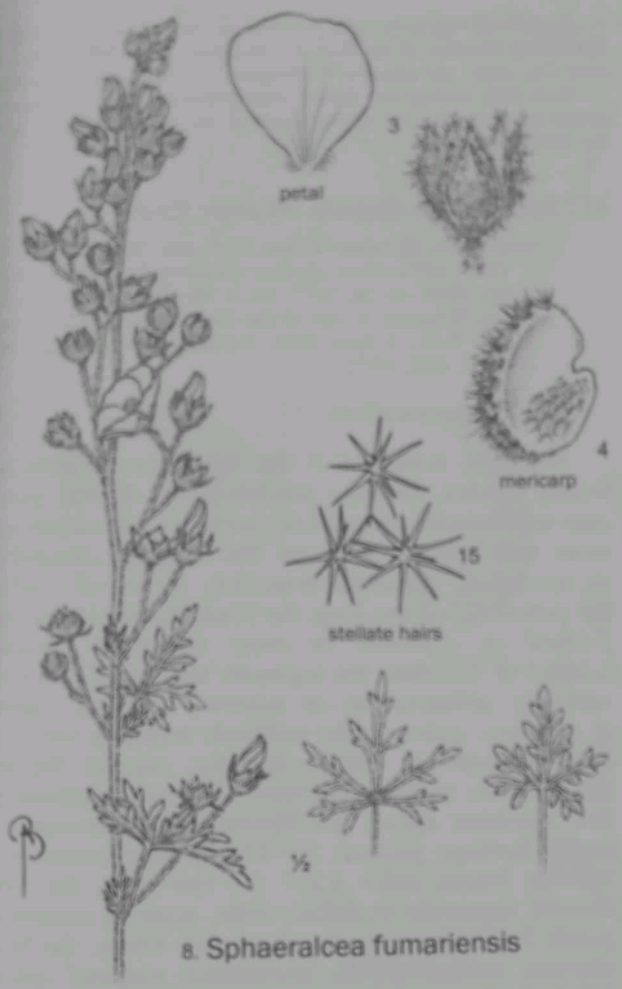
Of the eight stems on the holotype of *S. grossulariifolia* at K, only the stems on the far right and bottom are close to what I have been interpreting as this species. The other stems bear leaves resembling what I consider to be intermediate between this species and *S. munroana* and what I have recognized as *S. munroana* var. *subrhomboidea*. See discussion under *S. munroana*.

Sphaeralcea grossulariifolia is a complex species with considerable variation in the amount of dissection of the leaves. Much of this variation probably comes from introgression with other species where they come in contact, most notably with *S. munroana* and *S. parvifolia* and probably less conspicuously with *S. coccinea*. I am unable to detect any geographical patterns in these leaf-shape variants. In the southern part of its distribution, *S. grossulariifolia* is less common, and only occasionally does it appear to intergrade with the closely related species *S. rusbyi*, *S. moorei*, *S. fumariensis*, and *S. gierischii*.

8. Sphaeralcea fumariensis (S. L. Welsh & N. D. Atwood) N. D. Atwood & S. L. Welsh

Sphaeralcea grossulariifolia var. *fumariensis* S. L. Welsh & N. D. Atwood, Rhodora 103: 82. 2001. *S. fumariensis* (S. L. Welsh & N. D. Atwood) N. D. Atwood & S. L. Welsh, Novon 12: 160. 2002. (*S. L. Welsh & N. D. Atwood 26068*, e. side, Little Valley, n. of Lake Powell, T41S R6E S19, 4300 ft, Kane Co., Utah, 6 May 1998; holotype: BRY!; isotype: NY!)

Smoky Mountain globemallow.



8. Sphaeralcea fumariensis

SPHAERALCEA

9. Sphaeralcea moorei

Perennial herb, 2–5.5 dm tall, from a woody crown or a woody, short-branched caudex; *herbage* grayish-green, densely pubescent with coarse stellate hairs with rays 0.4–0.6 mm long, radiating in more than 1 plane, the hairs easily dislodged, the stems often reddish-purple near the base; *stems* few to several, ascending or erect, usually unbranched; *leaves* all cauline, the lower petioles 2–4.5 cm long, the blade 1.5–4 cm long and about as wide or wider, broadly ovate in outline, the base cordate, truncate, or broadly cuneate, pedately 3–5-lobed or -foliolate, the lobes or leaflets narrow and in turn narrowly pinnate to bipinnate, the lateral lobes (or leaflets) asymmetrically lobed, sometimes entire; *stipules* lanceolate, deciduous; *inflorescence* relatively narrowly thyrsoid-glomerate, the pubescence as on the herbage; *pedicels* shorter than to about as long as the calyx, sometimes the lower ones much longer than the calyx; *involucel* of filiform reddish bractlets; *calyx* 8–10 mm long, the lobes ovate to lanceolate, acute, sometimes 2 adjacent lobes remaining adherent through anthesis; *petals* 13–17 mm long, the short claw densely ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* about 5 mm long, glabrous, bearing cream-colored anthers; *styles* with capitate stigmas; *schizocarp* of 10–12 mericarps forming a ring, each mericarp 1 (2)-seeded, 3.3–4 mm high, 2–3 mm wide, the indehiscent lower part ⅗–½ of the height, reticulate on the sides and margins, the dehiscent upper part smooth-sided, erect, obtuse apically, pubescent on the dorsal and apical surfaces; *seeds* about 1.5–2 mm long, brown, puberulent.

Among blackbrush, shadscale, matchweed, and juniper vegetation, 1340–1650 m; Smoky Mountain and the Burning Hills portions of the Kaiparowits Plateau, e. Kane Co., Utah. May–June.

The Smoky Mountain globemallow belongs to a group of species that are closely related to and form a geographic replacement series with *S. grossulariifolia,* with *S. moorei* occurring to the east and *S. rusbyi* to the west. Plants identifiable as *S. grossulariifolia* are found occasionally at scattered locations within the range of these species.

9. Sphaeralcea moorei (S. L. Welsh) N. D. Atwood & S. L. Welsh

Sphaeralcea grossulariifolia var. *moorei* S. L. Welsh, Great Basin Naturalist 40: 35. 1980. *S. moorei* (S. L. Welsh) N. D. Atwood & S. L. Welsh, Novon 12: 163. 2002. (*S. L. Welsh & N. D. Atwood 11597,* Entrada sandstone, e. side of Last Chance Bay, Lake Powell, Kane Co., Utah, 2 May 1972; holotype: BRY!)

Moore's globemallow.

Perennial herb, 5–8 dm tall, from a thick crown or a short-branched caudex; *herbage:* mature leaves bright green, moderately to sparsely pubescent with stellate hairs with the rays spreading in different planes, the stems often glabrous; *stems* ascending or erect, often short-branched; *leaves* all cauline, the petiole 0.7–4 cm long, the blade relatively thin, 1–3.5 cm long and about as wide, broadly ovate in outline, the base truncate or broadly cuneate, 3-foliolate or -lobed, or pedately 5-lobed, the leaflets or lobes narrow, the midlobe or mid-blade pinnately 3–5-lobed, the lateral lobes or leaflets asymmetrically cleft, the larger inner or upper lobe often secondarily ternately lobed, the outer or lower lobe bifid

or usually entire; *stipules* deciduous before flowering; *inflorescence* an open, loose panicle with relatively few flowers; *pedicels* shorter than the calyx or, where only 1 flower exists at a node, to 2 or more cm long; *involucel* of filiform bractlets; *calyx* 4.5–7.5 mm long, the lobes 2.5–4 mm long, deltate-ovate, obtuse to acute, sometimes 2 adjacent lobes remaining adherent through anthesis, sparingly pubescent to glabrate; *petals* 8.5–12 (16) mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* 4–5.5 mm long, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of about 10 mericarps forming a ring 4.5–6 mm in diam, each mericarp 3–4.5 mm high, about 2 mm wide, the indehiscent lower part ⅓ of the height, reticulate on the sides and margins, the dehiscent upper part smooth-sided, erect, rounded and mucronate to acute apically, pubescent on the dorsal and apical surfaces.

Sandy riparian and hanging garden habitats, 1100–1850 m; near Lake Powell and along the San Juan and Colorado Rivers in s. San Juan Co. and in adjacent Garfield, Kane, and Wayne Cos., Utah. May–July.

There are transitional forms between *S. moorei* and *S. grossulariifolia* where the two come in contact, but that seems to be typical among even less closely related species of the genus. A specimen from Three Garden, Lake Powell (*S. L. Welsh 12420*, about 1 mi s. of Confluence with San Juan Arm, San Juan Co., Utah, at NY!), has weakly lobed leaves, which may indicate genes from *S. parvifolia*.

10. Sphaeralcea gierischii N. D. Atwood & S. L. Welsh

Sphaeralcea gierischii N. D. Atwood & S. L. Welsh, Novon 12: 161. 2002. (*D. Atwood & B. Furniss 25293* [*N. D. Atwood, B. Furniss & L. C. Higgins 25293*, according to the protologue], clay outcrops, 1.2 mi [ca 0.2 mi, according to the protologue] n. of Black Rock Gulch, w. of road, T41N R13W S24 [T40N R13W S3, according to the protologue], Mohave Co., Ariz., 24 Apr 2000; holotype: BRY!; isotypes: GH!, NY!, RM!, RSA!, UTC!)

Gierisch's globemallow.

Perennial herb or shrub, 7–10 dm tall; *herbage* glabrous to sparsely pubescent with stellate hairs with the rays radiating in different planes, the mature leaves bright green; *stems* erect, few to many, often branched; *leaves* all cauline, the petiole 2–4.5 cm long, the blade relatively thin, 2–5 cm long and about as wide, broadly ovate in outline, 3–5-parted to near the base, the base truncate to subcordate, the lobes, at least the midlobe, again pinnately 3–5-lobed, the lateral lobes entire or sometimes pinnately (1) 3-lobed; *inflorescence* an open, loose panicle of racemose branches with relatively few flowers; *pedicels* 2.5–20 mm long; *involucel* of red-purple, filiform bractlets; *calyx* 8–13 mm long, the lobes 5.5–8.2 mm long, lanceolate, acuminate, sometimes 2 adjacent lobes remaining adherent through anthesis, glabrous to sparingly pubescent externally, densely pubescent on the inside; *petals* 16–20 mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine); *styles* with capitate stigmas; *schizocarp* of 10–15 mericarps forming a ring 5.8–8.5 mm in diam, each mericarp about 5 mm high and about 3 mm wide, the indehiscent lower part ½ of the height, reticulate on the sides, the dehiscent upper part smooth-sided, erect, rounded or obtuse apically, densely pubescent on the dorsal and apical surfaces.

Gypsum or limestone soils in a creosote bush desert, mostly on the Harrisburg Member of the Kaibab Formation, 700–1300 m; ne. Mohave Co., Ariz., and adjacent Washington Co., Utah. Apr–early June.

Soon after coming into flower, some plants of *S. gierischii* are consumed by cattle, but the woody bases of the plants usually resprout the following year.

11. Sphaeralcea digitata (Greene) Rydb.

Malvastrum digitatum Greene, Leaft. Bot. Observ. Crit. 1: 15. 1905. *Sphaeralcea digitata* (Greene) Rydb., Bull. Torrey Bot. Club 40: 58. 1913. (*O. B. Metcalfe 941*, dry gravelly soil, Kingston, s. end of the Black Range, 6600 ft, Sierra Co., N.M., 3 June 1904; holotype: US!; isotypes: BM! CAS!, GH!, NY!)

Juniper globemallow.

Perennial herb, 2.5–5 dm tall, from a branched, woody caudex; *herbage* grayish-green, densely pubescent with minute stellate hairs with the rays radiating in more than one plane; *stems* few to many, decumbent to ascending, diffusely branched; *leaves* all cauline, the petiole 0.5–2 cm long, the blade 0.7–2 (3) cm long, 3-lobed or -foliolate or more commonly pedately 5-lobed or -foliolate, the segments less than 5 mm wide, narrowly oblanceolate or narrowly oblong, cuneate at the base, entire or the midblade ternately lobed, all lobes rounded to obtuse apically; *stipules* filiform; *inflorescence* relatively narrowly thyrsoid-glomerate below, racemose above, few-flowered, the pubescence as on the herbage; *pedicels* 2.5–11 mm long; *involucel* of filiform bracts; *calyx* 4.5–7 (8) mm long, the lobes broadly lanceolate to deltate-ovate, acute or acuminate; *petals* 7–10 mm long, the short claw ciliate, the blade obovate, reddish-orange (grenadine); *staminal column* 3.5–4 mm long, more or less stellate pubescent, bearing dark red or purple anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 8–12 mericarps forming a ring 4.5–5.5 mm in diam, each mericarp 1 (2)-seeded, 2.5–3.5 mm high, 2–2.5 mm wide, the indehiscent lower part ⅖–⅗ of the height, weakly reticulate on the sides, the dehiscent upper part smooth-sided, erect, obtuse-mucronate apically, pubescent on the dorsal and apical surfaces; *seeds* about 1.7 mm long, reniform, dark brown, minutely puberulent; $2n = 10$.

Dry, well-drained places; n. Mex., w. Texas, c. and w. N.M., e. Ariz., and se. Utah (San Juan Co.). May–Aug.

The only known records of *S. digitata* in our range are from two collections at NY (*P. A. Rydberg & A. O. Garrett 9907* and *9957*, along the San Juan River near Bluff, San Juan Co., Utah, 25–29 Aug 1911).

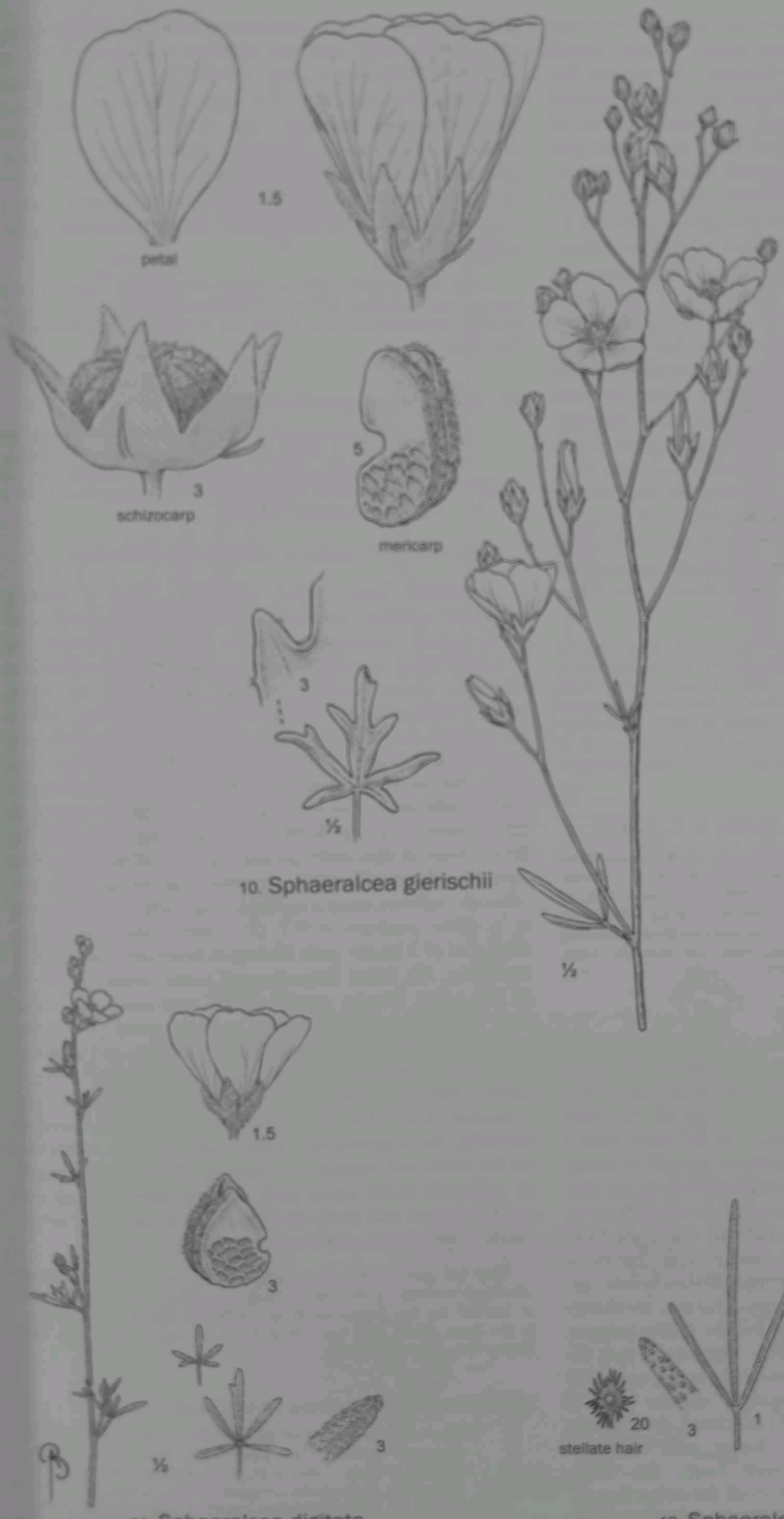
12. Sphaeralcea leptophylla (A. Gray) Rydb.

Malvastrum leptophyllum A. Gray, Pl. Wright. 1: 17. 1852. *Malveopsis leptophylla* (A. Gray) Kuntze, Revis. Gen. Pl. 1: 72. 1891. *Sphaeralcea leptophylla* (A. Gray) Rydb., Bull. Torrey Bot. Club 40: 59. 1913. (*C. Wright 882* [*371*], N.M., July 1851; holotype: GH!; isotypes: BM!, K!, NY!, US!)

Scaly globemallow, slender-leaf globemallow, rimrock globemallow.

Perennial herb, 1.5–4 (7) dm tall, from a woody, branched caudex, surmounting a taproot; *herbage* grayish to silvery-lepidote, pubescence of closely appressed, stellate hairs, the rays of the hairs fused most of their length forming a toothed, semitransparent (sequin-like) disk; *stems* several to many, ascending or erect, often mixed with dead branches of the previous year, branched

SPHAERALCEA



10. Sphaeralcea gierischii

11. Sphaeralcea digitata

12. Sphaeralcea leptophylla

or unbranched; *leaves* all cauline, the petiole 3–14 mm long, the blade of the uppermost leaves simple, linear, the middle and lower leaves 3-foliolate, the leaflets linear, entire or rarely the middle leaflet ternately lobed and the lateral ones deeply 2-parted, involutely rolled or conduplicate-folded, 1.2–3 (4) cm long, the lateral pair divaricately ascending; *stipules* small, lanceolate to narrowly ovate, acute, early deciduous; *inflorescence* an elongating raceme with 1 flower at a node; *pedicels* 2–6 (18) mm long, ascending; *involucel* of 3 short, linear, pale brownish bractlets; *calyx* (4) 4.5–7 mm long, the lobes triangular-ovate, acute, about ⅓ of the calyx length; *petals* 8–13 mm long, the short claw ciliate, the blade obovate, orange; *staminal column* 3–5 mm long, sparsely stellate pubescent, the rays of the hairs free to the base and spreading in more than 1 plane, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 7–10 mericarps forming a ring (4) 4.5–6 mm in diam, each mericarp 1-seeded, 2.2–4 mm high and 1.8–2.5 mm wide, rounded dorsally, the indehiscent lower part coarsely reticulate on the sides and margins, this occupying all but a small patch of a smooth-sided upper part, densely pubescent on the upper surface and moderately pubescent dorsally; *seeds* about 2 mm long, reniform, dark brown to black; $2n = 20$.

Sandy and gravelly soils in mixed desert scrub, often on river benches and roadsides, 1100–1525 m; se. Utah (s. Emery, Garfield, e. Grand, San Juan, and Wayne Cos.), sw. Colo., n. and e. Ariz., N.M., and Trans-Pecos Texas; disjunct in Eureka Co., Nev., on and adjacent to Hot Springs Hill (*N. D. Atwood et al. 20841*, at BRY!). May–Sept.

Utah plants of *S. leptophylla* differ from those further south in having calyces with a slightly larger average size and stems more commonly branched above.

13. Sphaeralcea janeae (S. L. Welsh) S. L. Welsh

Sphaeralcea leptophylla var. *janeae* S. L. Welsh, Great Basin Naturalist 40: 36. 1980. *S. janeae* (S. L. Welsh) S. L. Welsh, Great Basin Naturalist 58: 389. 1998. (*S. L. Welsh 7064*, on sandy slopes in blackbrush community, along White Rim road, n. of Turks Head, [vicinity of Junction Butte, according to the type], Canyonlands Natl. Park, San Juan Co., Utah, 17 May 1968; holotype: BRY!)

Jane's globemallow.

Perennial herb, 1.5–4 (7) dm tall, from a woody, branched caudex, surmounting a taproot; *herbage* yellowish-green, sparsely pubescent with uniformly spaced, appressed, stellate hairs, the rays of the hairs free for most of their length, fused at the base with a raised rounded hub in the center; *stems* several to many, ascending or erect, mixed with dead branches of the previous year, usually branched; *leaves* all cauline, the petiole 1.5–6 (12) mm long, the blade of the uppermost leaves simple, linear, the lower and middle leaves 3-foliolate, the leaflets linear to narrowly oblanceolate, entire or rarely the lateral ones deeply 2-parted, involutely rolled or conduplicate-folded, the middle leaflet longest, 1–3 cm long, 0.8–3 (7.5) mm wide, the lateral pair divaricately spreading; *stipules* lanceolate, acute, early deciduous; *inflorescence* an elongating raceme with 1 flower per node; *pedicels* 2–8 (15) mm long, divaricately ascending; *involucel* of 3 short, linear, pale brownish bractlets; *calyx* 5.5–6.5 (8) mm long, the lobes triangular-ovate, attenuate, about ½ of the calyx length; *petals* 10–14 mm long, the claw short, densely ciliate, the blade obovate, orange; *staminal column* 3.5–4.5 mm long, sparsely stellate pubescent, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 8–12 mericarps forming a ring 4.5–6.5 mm in diam, each mericarp 1-seeded, 2.5–3.7 mm high and 2.5–3 mm wide, rounded dorsally, the indehiscent lower part coarsely reticulate on the sides and margins, this occupying all but a small patch of a smooth-sided dehiscent apex, the whole essentially indehiscent, densely pubescent on the upper surface and moderately pubescent dorsally.

Sandy and gravelly soils in mixed desert scrub, often on river benches and roadsides, 1200–1400 (1860) m; endemic to the Canyonlands Section of Utah, in sw. Grand, nw. San Juan, and w. Wayne Cos. May–July.

14. Sphaeralcea psoraloides S. L. Welsh

Sphaeralcea psoraloides S. L. Welsh, Great Basin Naturalist 40: 36. 1980. (*S. L. Welsh 11348*, on Entrada siltstone, Grass *Ephedra* community, Salt Wash, about 17 mi due wnw. of Hanksville, T27S R8E S24, 4800 ft, Wayne Co., Utah, 1 June 1976; holotype: BRY!)

Psoralea globemallow, scurfpea globemallow.

Perennial herb, 1.5–3 dm tall, from a woody, branched caudex; *herbage* yellowish-green, pubescent with closely appressed, stellate hairs, the rays of the hairs radiating in a single plane, much of the leaf surface exposed; *stems* usually several, ascending or erect, mostly unbranched (branched in robust plants); leaves all cauline, the petiole 8–22 mm long, the blade deeply 3-parted to usually 3-foliolate, the leaflets (or lobes) entire or the midblade ternately lobed and the lateral blades with 1 lobe from the outer margin, the larger midblade 1.5–3.5 cm long, the leaflets oblanceolate to linear, the lateral ones divaricately ascending, the veins prominent beneath, channeled above; *stipules* lanceolate, early deciduous; *inflorescence* a raceme, 1 or rarely 2 (3) flowers at a node; *pedicels* 4.5–7 (11) mm long, ascending; *involucel* of 3 linear, pale brownish bractlets; *calyx* 4.5–8 mm long, the lobes lanceolate to ovate, acute, about ½ of the calyx length; *petals* 10–17 mm long, the short claw ciliate, the blade obovate, orange; *staminal column* 3–3.5 mm long, pubescent, bearing anthers at the apex; *styles* with capitate stigmas; *schizocarp* of 9–13 mericarps forming a ring 4–5.5 mm in diam, each mericarp 1-seeded, 2–2.5 mm high and about as wide, rounded dorsally, the indehiscent lower part coarsely reticulate on the sides and margins, occupying all but a small patch of a smooth-sided upper part, densely pubescent on the upper surface and moderately pubescent dorsally; *seeds* about 2 mm long, reniform, dark brown to black.

Clay and gravel soils, often under alkaline conditions, 1220–1900 (2040) m; endemic to the Canyonlands Section of Utah, at the e. and se. base of the San Rafael Swell and on the San Rafael Desert and e. to the Book Cliffs, near the Green River, in Emery, w. Grand, and Wayne Cos., Utah. May–July.

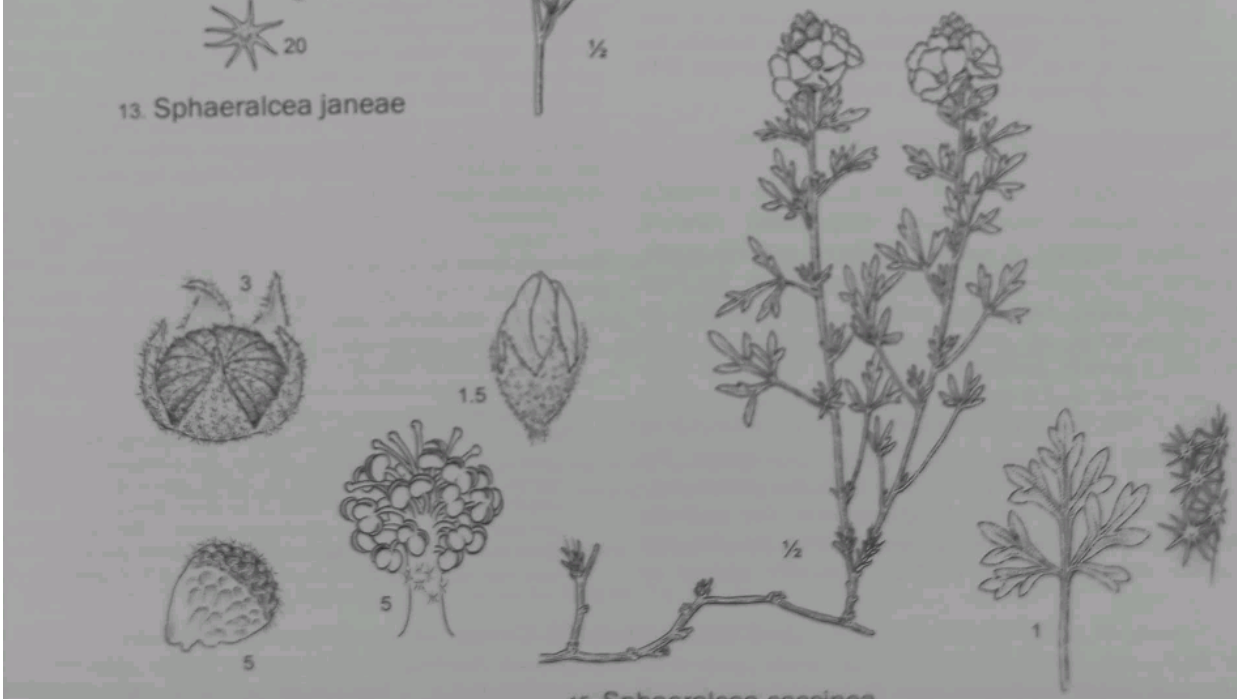
15. Sphaeralcea coccinea (Nutt.) Rydb.

Malva coccinea Nutt., Cat. Pl. Upper Louisiana no. 51. 1813. *Cristaria coccinea* (Nutt.) Pursh, Fl. Amer. Sept. 2: 453. 1814; not Sonn., 1782. *Sida coccinea* (Nutt.) DC., Prodr. 1: 465. 1824. *Malvastrum coccineum* (Nutt.) A. Gray, Pl. Fendler. 21, 24. 1849. *Malveopsis coccinea* (Nutt.) Kuntze, Rev. Gen. Pl. 1: 72. 1891. *Sphaeralcea coccinea* (Nutt.) Rydb., Bull. Torrey Bot. Club 40: 58. 1913. *Notostricte coccinea*

SPHAERALCEA

14. Sphaeralcea psoraloides

13. Sphaeralcea janeae



15. Sphaeralcea coccinea

(Nutt.) Nieuwl. & Lunell, Amer. Midl. Naturalist 4: 476. 1916, not A. W. Hill, 1906. (*T. Nuttall s.n.*, "From the river Platte to the Rocky Mountains," in 1811; lectotype by J. C. La Duke & D. K. Northington, Southw. Naturalist 23: 657. 1978, at PH!; isolectotype: K!) = var. *coccinea*.

Sida dissecta Nutt. ex Torr. & A. Gray, Fl. N. Amer. 1: 235. 1838. *Malvastrum coccineum* var. *dissectum* (Nutt. ex Torr. & A. Gray) A. Gray, Pl. Fendler. 21, 24. 1849. *Malvastrum dissectum* (Nutt. ex Torr. & A. Gray) Cockerell, Bull. Torrey Bot. Club 27: 87. 1900; not Harv., 1860. *Sphaeralcea dissecta* (Nutt. ex Torr. & A. Gray) Rydb., Bull. Torrey Bot. Club 40: 58. 1913. *Sphaeralcea coccinea* (as "*coccinia*") var. *dissecta* (Nutt. ex Torr. & A. Gray) Garrett, Spring Fl. Wasatch, ed. 4. 98. 1927. *Sphaeralcea coccinea* subsp. *dissecta* (Nutt. ex Torr. & A. Gray) Kearney, Univ. Calif. Publ. Bot. 19: 96. 1935. (*T. Nuttall s.n.*, "Sources of the Platte near the Rocky Mountains," Wyo., June 1834; lectotype by T. H. Kearney, Univ. Calif. Publ. Bot. 19: 96. 1935, at BM!; isolectotypes: K!, NY!, PH!) = var. *coccinea*.

Malvastrum coccineum var. *elatum* Baker f., J. Bot. 29: 171. 1891. *Malvastrum elatum* (Baker f.) A. Nelson, Bot. Gaz. 34: 25. 1902. *Sphaeralcea elata* (Baker f.) Rydb., Bull. Torrey Bot. Club 40: 58. 1913. *Sphaeralcea coccinea* subsp. *elata* (Baker f.) Kearney, Univ. Calif. Publ. Bot. 19: 97. 1935. *Sphaeralcea coccinea* var. *elata* (Baker f.) Kearney, J. Wash. Acad. Sci. 29: 486. 1939. (*C. Wright 41*, "Western Texas to El Paso, New Mexico," Oct 1849; lectotype by T. H. Kearney, Univ. Calif. Publ. Bot. 19: 97. 1935, at BM!; isolectotypes: GH!, K!, NY!, US!) = var. *elata*. Leaves with broad segments and a long midlobe. This variety may not be represented in our range.

Malvastrum cockerellii A. Nelson, Bot. Gaz. 34: 24. 1902. *Malvastrum dissectum* var. *cockerellii* (A. Nelson) A. Nelson in J. M. Coult. & A. Nelson, New Man. Bot. Centr. Rocky Mts. 318. 1909. (No type designated.) = var. *coccinea*. There has been considerable confusion relating to this name. In Nelson's opinion, Cockerell [*Malvastrum dissectum* (Nutt. ex Torr. & A. Gray) Cockerell, Bull. Torrey Bot. Club 27: 87. 1900] and A. Gray [*Malvastrum coccineum* var. *dissectum* (Nutt. ex Torr. & A. Gray) A. Gray, Pl. Fendler. 21, 24. 1849] described plants that were different from *Sida dissecta*, even though Cockerell and A. Gray based their combinations on *Sida dissecta* Nutt. ex Torr. & A. Gray. For this reason, Nelson made the new name *Malvastrum cockerellii* based on Cockerell and A. Gray's descriptions. According to Nelson, the specimens cited by A. Gray as *Malvastrum coccineum* var. *dissectum* in Pl. Fendler. (24, 25. 1849) and Pl. Wright. (1: 17. 1852) belong to *Malvastrum cockerellii*.

Malvastrum micranthum Wooton & Standl., Contr. U.S. Natl. Herb. 16: 147. 1913. (*E. O. Wooton 2673*, near Tiznitzin, San Juan Co., N.M., 4 Aug 1904; holotype: US!; isotype: RM!) = var. *coccinea*. Leaves finely dissected.

Scarlet globemallow, common globemallow.

Perennial herb, 1–2.2 (3.5) dm tall, from a woody, branched caudex, surmounting deep-seated running roots, often forming colonies; *herbage* grayish-green, pubescent with stellate hairs with rays free to the base and angled away from the surface; *stems* several to many, decumbent or ascending, unbranched or with short, often poorly developed branches; *leaves* all cauline, the petiole 1–2.5 (4) cm long, the blade (1) 1.5–3 cm long, 1.5–3.5 cm wide, broadly ovate to orbicular in outline, often wider than long, pedately 3-foliolate, the lower lateral lobes deeply divided with the lower segments imparting a 5-foliolate appearance, the midlobe ternate to pinnatifid, sometimes bipinnatifid, the ultimate segments oblanceolate to obovate, apically obtuse or rounded; *stipules* lanceolate, deciduous; *inflorescence* with the lower flowers solitary in leaf axils and a bracteate raceme above with 1 flower at a node, barely elongating in fruit; *pedicels* 2–10 mm long, relatively stout at maturity, ascending; *involucel* absent or rarely some of the flowers with 1–3 filiform bractlets; *calyx* (5) 9.5 mm long, the lobes triangular-ovate, acute, ½–¾ the calyx length; *petals* 10–16 (20) mm long, the short claw ciliate, the blade obovate, emarginate, deep orange to reddish-orange; *staminal column* 3–5 mm long, bearing anthers at the apex, sparsely stellate pubescent, the rays of the hairs spreading in more than 1 plane; style with capitate stigmas; *schizocarp* of 10–14 mericarps forming a ring 4.8–6.7 mm in diam, each mericarp (2)-seeded, 2–2.6 mm high, 2.4–3 mm wide, rounded dorsally, the indehiscent lower part coarsely reticulate on the sides and margins, this part occupying all but a small patch of a smooth-sided upper part, densely pubescent on the dorsal surface; *seeds* about 2 mm long, reniform, dark brown to black; $2n = 10, 20$.

Sandy and gravelly soils in greasewood, shadscale, pinyon-juniper, and Gambel oak communities, (1100) 1375–1750 m, parts of B.C., Alta., Sask., and Man., s. through Mont., Wyo., S.D., w. Minn., and w. Iowa to N.M., Texas, and Chihuahua, Mex., to s. Idaho (Bannock, Jefferson, and Owyhee Cos.), Utah (all but Cache and Rich Cos.), and n. Ariz.; reported from s. Nev., but I have seen no specimens. Late Apr–Oct.

The stellate hairs of *S. coccinea* were used as evidence in a famous botany case involving a 1989 plane crash near Ruidoso, New Mexico. For a summary of this story and a list of references, see Diggs, Lipscomb, and O'Kennon (1999).

Plants of *Sphaeralcea coccinea* in our range differ from those of the Great Plains (var. *coccinea*) by their statistically shorter stems, narrower leaf divisions, and denser, more grayish pubescence. The differences, however, are subtle, and there is considerable variation in these characters. La Duke and Northington (1978) placed var. *dissecta* in the synonymy of var. *coccinea*. I am reluctantly agreeing with this decision, but I note that the Intermountain material agrees better with the type of *Sida dissecta* Nutt. ex Torr. & A. Gray than with the type of *Malva coccinea* Nutt. or the type of *Malvastrum coccineum* var. *elatum* Baker f. For those who wish to distinguish our plants from the type form (var. *coccinea*), the name *Sphaeralcea coccinea* var. *dissecta* (Nutt. ex Torr. & A. Gray) Garrett is available.

La Duke and Northington (1978) concluded that var. *coccinea* is the common widespread taxon in our range, with var. *elata* reaching into our eastern border from Colorado and New Mexico and existing sympatrically with var. *coccinea*. According to them, var. *elata* has leaves with broader lamina and a middle lobe noticeably longer than the lateral lobes and mericarps with the indehiscent lower portion nearly equal to the height of the dehiscent upper portion. These characters may be reliable to the southeast of our range, but var. *elata* is not a recognizable entity in our range.

Sphaeralcea coccinea can be easily confused with some plants of *S. grossulariifolia*, which also has deeply divided leaves. The two can be distinguished in our range by the following characters.

1 Plants 1–2.2 (3.5) dm tall, the stems arising from a branched caudex and running roots; leaves grayish-green from a dense pubescence; inflorescence a simple raceme with 1 flower per node; involucel lacking or rarely with 1–3 bractlets; mericarps 2–2.6 mm high, with the reticulate-sided indehiscent lower part usually taking up most of the height ..... 15. *S. coccinea*

1 Plants mostly taller, 1.5–10 dm, the stems arising from a thick crown or a short-branched caudex surmounting a taproot; leaves greener with moderate to sparse pubescence; inflorescence thyrsoid-glomerate with 2 or more flowers per node; involucel of 3 bractlets; mericarps mostly taller, 2.5–4 mm high, with the reticulate-sided indehiscent lower part much less than half the height ..... 7. *S. grossulariifolia*

3. EREMALCHE Greene

Annual herbs; *herbage* hispid or hirsute with simple and stellate hairs; *stems* single or few to many, prostrate, decumbent, or ascending; *leaves* petiolate, basal and cauline, [illegible] leaves