

1. ***Eleusine indica*** (L.) Gaertn. GOOSEGRASS
[p. 420, 507]

Pl ann. **Clm** 30–90 cm, erect or ascending, somewhat compressed; **lo intnd** 1.5–2 mm thick. **Shth** conspicuously keeled, mrg often with long, papillose-based hairs, particularly near the throat; **lig** 0.2–1 mm, truncate, erose; **bld** 15–40 cm long, 3–7 mm wide, with prominent, white midveins, mrg and/or adx surfaces often with bas papillose-based hairs. **Pan** with 4–10(17) br, often with 1 br attached as much as 3 cm below the tml cluster; **br** (3.5)7–16 cm long, 3–5.5 mm wide, linear. **Spklt** 4–7 mm long, 2–3 mm wide, with 5–7 flt, obliquely attached to the br axes. **Lo glm** 1.1–2.3 mm, 1-veined; **up glm** 2–2.9 mm; **lm** 2.4–4 mm; **pal** with narrowly winged keels. **Seeds** ovoid, rugulose and obliquely striate, usu not exposed at maturity. $2n = 18$.

Eleusine indica is a common weed in the warmer regions of the world. In the Intermountain Region, it usually grows in disturbed areas and lawns.

2. ***Eleusine coracana*** (L.) Gaertn. [p. 421]

Pl ann. **Clm** to 62 cm, often brchg; **lo intnd** 6–10 mm thick. **Shth** glab; **lig** 1–2 mm, ciliate, with 1–2 mm hairs; **bld** 10–60 cm long, 6–12 mm wide, smt longer than the clm, adx surfaces scabrous

or pubescent. **Pan** subdigitate, with 4–20 br, 1(2) of the br attached below the tml cluster; **br** 4–17 cm long, 5–15 mm wide, spreading at maturity. **Spklt** 5–9 mm long, 3–6 mm wide, with 2–9 flt, smt not dis at maturity. **Lo glm** 1.2–3 mm, 2- or 3-veined; **up glm** 2.2–6.5 mm; **lm** 2.2–5 mm; **anth** about 1 mm. **Seeds** oblong-globose, granular, usu exposed at maturity. $2n = 36$.

Eleusine coracana is an allotetraploid, one of its genomes being derived from *E. indica*. Two subspecies are recognized; only subsp. *coracana* is known from North America.

Eleusine coracana (L.) Gaertn. subsp. ***coracana***
FINGER MILLET, RAGI [p. 421]

Clm to 17 cm. **Bld** 30–60 cm long, 6–12 mm wide. **Br** 4–14 cm long, 7–15 mm wide, spklt closely imbricate. **Spklt** 5–9 mm long, brown, with 6–9 flt, flt not dis at maturity. **Seeds** almost globose, brownish, surfaces granular to smooth.

Eleusine coracana subsp. *coracana* is the domesticated variant of *E. coracana*. It has a long historical record dating back at least 5000 years in Africa, and 3000 years in India. Five races, based on inflorescence morphology, are recognized in East Africa where it is widely cultivated for food and drink. Biochemical data suggest that *Eleusine coracana* subsp. *coracana* evolved from a few populations of the very variable subsp. *africana*. It is cultivated at various agricultural experiment stations and occasionally escapes.

10.14 **SPOROBOLUS** R. Br.

Paul M. Peterson, Stephan L. Hatch, and Alan S. Weakley

Pl ann or per; usu ces, smt rhz, rarely stln. **Clm** 10–250 cm, usu erect, rarely prostrate, glab. **Shth** open, usu glab, often ciliate at the apc; **lig** of hairs; **bld** flat, folded, involute, smt terete. **Infl** tml, open or contracted pan, smt partially included in the uppermost shth. **Spklt** rounded to lat compressed, with 1(–3) flt(s) per spklt; **dis** above the glm. **Glm** 0–1-veined; **cal** poorly developed, usu glab; **lm** memb or chartaceous, 1(3)-veined, unawned; **pal** glab, 2-veined, often splitting between the veins at maturity; **anth** (2)3. **Fruits** utricles or achenes, ellipsoid, obovoid, fusiform, or quadrangular, pericarp free from the seed, becoming mucilaginous when moist in most species. **Cleistogamous spklt** occ present in the lo lf shth. $x = 9$. Name from the Greek *sporos*, ‘seed’, and *bolos*, ‘a throw’, referring to the free seeds, which are sometimes forcibly ejected when the mucilaginous pericarp dries.

Sporobolus is a cosmopolitan genus of more than 160 species that grow in tropical, subtropical, and warm-temperate regions throughout the world. Seventy-four species are native to the Western Hemisphere; 12 are present in the Intermountain Region. Two genera of the Western Hemisphere, *Calamovilfa* and *Crypsis*, resemble *Sporobolus* in having hairy ligules, spikelets with 1 floret, 1-veined lemmas, and fruits with a free pericarp (Peterson et al. 1997).

1. Plants annuals or short-lived perennials flowering in the first year.
 2. Lower panicle nodes with 7–20 branches 1. *S. pyramidatus* (in part)
 2. Lower panicle nodes with 1–3 branches.
 3. Mature panicles 10–35 cm long, 4.5–30 cm wide, open; secondary branches spreading; pedicels usually 6–25 mm long, spreading 8. *S. texanus* (in part)
 3. Mature panicles 2–5 cm long, 0.2–0.5 cm wide, contracted; secondary branches appressed; pedicels 0.1–2.5 mm long, appressed 2. *S. neglectus*
1. Plants perennial.
 4. Plants with rhizomes.
 5. Panicles (0.6)1–8 cm wide, open to somewhat contracted, narrowly pyramidal, well-exserted from the uppermost sheath; branches without spikelets on the lower 1/3 12. *S. interruptus* (in part)
 5. Panicles 0.4–1.6 cm wide, usually spikelike, partially included in the uppermost sheath; branches spikelet-bearing to the base 3. *S. compositus* (in part)

4. Plants without rhizomes.
 6. Spikelets 2.5–10 mm long.
 7. Lower panicle nodes with 3 or more branches 11. *S. junceus*
 7. Lower panicle nodes with 1–2(3) branches.
 8. Mature panicles 0.2–4 cm wide, spikelike; panicle branches appressed.
 9. Spikelets 4–6(10) mm long, stramineous to purplish tinged; panicles terminal and axillary; sheaths without a conspicuous apical tuft of hairs 3. *S. compositus* (in part)
 9. Spikelets 1.7–3.5(4) mm long, whitish to plumbeous; panicles all terminal; sheaths with a conspicuous apical tuft of hairs.
 10. Culms 40–100(120) cm tall, 2–4(5) mm thick near the base; mature panicles 0.2–0.8(1) cm wide; anthers 0.3–0.5 mm long 7. *S. contractus* (in part)
 10. Culms 100–200 cm tall, (3)4–10 mm thick near the base; mature panicles 1–4 cm wide; anthers 0.6–1 mm long 10. *S. giganteus*
 8. Mature panicles (0.6)1–30 cm wide, usually open, narrowly pyramidal to pyramidal or ovate; panicle branches appressed or spreading.
 11. Spikelets 2.3–3 mm long; panicles 4.5–30 cm wide, diffuse, about as long as wide; branches capillary; anthers 0.3–1 mm long 8. *S. texanus* (in part)
 11. Spikelets 3–7.2 mm long; panicles 0.6–15 cm wide, longer than wide, not diffuse; branches not capillary; anthers 1.5–5 mm long 12. *S. interruptus* (in part)
 6. Spikelets 1.2–2.5(2.8) mm long.
 12. Panicles 12–35 cm wide, open.
 13. Sheath apices with a conspicuous tuft of white hairs; flag blades nearly perpendicular to the culms 6. *S. cryptandrus* (in part)
 13. Sheath apices glabrous or with a few scattered hairs; flag blades ascending.
 14. Secondary panicle branches spikelet-bearing to the base; pedicels mostly appressed, mostly 0.2–0.5 mm long; panicles 20–60 cm long 4. *S. wrightii*
 14. Secondary panicle branches without spikelets on the lower $\frac{1}{4}$ – $\frac{1}{2}$; pedicels mostly spreading, mostly 0.5–25 mm long; panicles 10–45 cm long.
 15. Pedicels 0.5–2 mm long; anthers 1.1–1.8 mm long 5. *S. airoides*
 15. Pedicels 6–25 mm long; anthers 0.3–1 mm long 8. *S. texanus* (in part)
 12. Panicles 0.2–12(14) cm wide, contracted to open.
 16. Mature panicles 0.2–5 cm wide, contracted, often spikelike, the panicle branches appressed or diverging no more than 30° from the rachises.
 17. Primary panicle branches spikelet-bearing to the base 7. *S. contractus* (in part)
 17. Primary panicle branches without spikelets on the lower $\frac{1}{8}$ – $\frac{1}{2}$ of their length.
 18. Lower panicle nodes with 7–12(15) branches; anthers 0.2–0.4 mm long 1. *S. pyramidatus* (in part)
 18. Lower panicle nodes with 1–3 branches; anthers 0.5–1 mm long 6. *S. cryptandrus* (in part)
16. Mature panicles 4.5–30 cm wide, open, pyramidal to subovate or oblong, the panicle branches diverging more than 10° from the rachises, sometimes reflexed.
 19. Lower panicle nodes with 7–12(15) branches; anthers 0.2–0.4 mm long 1. *S. pyramidatus* (in part)
 19. Lower panicle nodes with 1–2(3) branches; anthers 0.3–1 mm long.
 20. Pedicels 6–25 mm long, spreading; panicles 4.5–30 cm wide, about as long as wide, diffuse 8. *S. texanus* (in part)
 20. Pedicels 0.1–3 mm long, appressed or spreading; panicles 2–14 cm wide, longer than wide, open.
 21. Pedicels appressed to the secondary branches; primary branches appressed, spreading, or reflexed; pulvini glabrous; rachises straight, erect; mature panicles narrowly pyramidal, lower branches longer than the middle branches 6. *S. cryptandrus* (in part)

21. Pedicels spreading from the secondary branches; primary branches reflexed; pulvini pubescent; rachises drooping or nodding; mature panicles subovate to oblong, lower branches no longer than those in the middle. 9. *S. flexuosus*

1. ***Sporobolus pyramidatus*** (Lam.) Hitchc.

WHORLED DROPSEED [p. 421, 507]

Pl ann or short-lived per flowering in the first year; ces, not rhz. **Clm** 7–35(60) cm, erect or decumbent. **Shth** rounded below, mrg and apc hairy, hairs to 3 mm; **lig** 0.3–1 mm; **bld** 2–12(20) cm long, 2–6 mm wide, flat, abx surface glab, adx surface scabridulous, smt sparsely hispid, mrg ciliate-pectinate. **Pan** 4–15(18) cm long, 0.3–6 cm wide, open (contracted when immature), pyramidal; **lo nd** with 7–12(15) br; **pri br** 0.5–4.5 cm, spreading 30–90° from the rchs, with elongated glands, without spklt on the lo $\frac{1}{3}$ – $\frac{1}{2}$; **sec br** appressed; **ped** 0.1–0.5 mm, appressed. **Spklt** 1.2–1.8 mm, plumbeous or brownish, often secund along the br. **Glm** unequal, ovate to obovate, memb; **lo glm** 0.3–0.7 mm, without midveins; **up glm** 1.2–1.8 mm, at least $\frac{2}{3}$ as long as the flt, often longer; **lm** 1.2–1.7 mm, ovate to elliptic, memb, glab, acute; **pal** 1.1–1.6 mm, ovate to elliptic, memb, glab; **anth** 0.2–0.4 mm, yellowish or purplish. **Fruits** 0.6–1 mm, obovoid, faintly striate, light brownish. $2n = 24, 36, 54$.

Sporobolus pyramidatus is native to the Americas, extending from the southern United States to Argentina. It grows in disturbed soils, roadsides, railways, coastal sands, and alluvial slopes in many plant communities, at elevations from 0–1500 m.

2. ***Sporobolus neglectus*** Nash PUFFSHEATH

DROPSEED [p. 421, 507]

Pl ann; tufted, delicate, slender. **Clm** 10–45 cm, wiry, erect to decumbent. **Shth** inflated, mostly glab but the apc with small tufts of hairs, hairs to 3 mm; **lig** 0.1–0.3 mm; **bld** 1–12 cm long, 0.6–2 mm wide, flat to loosely involute, abx surface glab, adx surface scabridulous, bases of both surfaces smt with papillose-based hairs, mrg smooth or scabridulous. **Pan** tml and axillary, 2–5 cm long, 0.2–0.5 cm wide, contracted, cylindrical, included in the uppermost shth; **lo nd** with 1–2(3) br; **pri br** 0.4–1.8 cm, appressed, spklt-bearing to the base; **sec br** appressed; **ped** 0.1–2.5 mm, appressed, scabridulous. **Spklt** 1.6–3 mm, yellowish to cream-colored, smt purple-tinged. **Glm** subequal, shorter than the flt, lanceolate to ovate, memb to chartaceous, glab; **lo glm** 1.5–2.4 mm, midveins often greenish; **up glm** 1.7–2.7 mm; **lm** 1.6–2.9 mm, ovate, chartaceous, glab, acute; **pal** 1.6–3 mm, ovate, chartaceous, glab; **anth** 3, 1.1–1.6 mm, purplish. **Fruits** 1.2–1.8 mm,

obovoid, lat flattened, light brownish or orangish brown, translucent, finely striate. $2n = 36$.

Sporobolus neglectus is native to North America, and grows at 0–1300 m in sandy soils, on river shores, and in dry, open areas within many plant communities, often in disturbed sites.

3. ***Sporobolus compositus*** (Poir.) Merr. ROUGH DROPSEED [p. 421, 507]

Pl per; ces, smt rhz. **Clm** (20)30–130(150) cm. **Shth** with sparsely hairy apc, hairs to 3 mm; **lig** 0.1–0.5 mm; **bld** not conspicuously distichous, 5–70 cm long, 1.5–10 mm wide, flat, folded, or involute, abx surface glab or pilose, adx surface glab or scabridulous, mrg glab. **Pan** tml and axillary, 5–30 cm long, 0.4–1.6 cm wide, usu spikelike, partially included in the uppermost shth, with 15–90 spklt per cm² (exposed portion, when pressed); **lo nd** with 1–2(3) br; **pri br** 0.4–6 cm, appressed, spklt-bearing to the base; **sec br** appressed; **pulvini** glab; **ped** 0.3–3.5 mm, appressed, glab or scabridulous. **Spklt** 4–6(10) mm, stramineous to purplish tinged. **Glm** subequal, lanceolate, memb to chartaceous, midveins usu greenish; **lo glm** (1.2)2–4 mm; **up glm** (2)2.5–5(6) mm, slightly shorter or longer than the lm; **lm** (2.2)3–6(10) mm, lanceolate, memb to chartaceous and hyaline, glab, smooth, occ 2- or 3-veined, acute to obtuse; **pal** (2.2)3–6(10) mm, ovate to lanceolate, memb; **anth** 0.2–3.2 mm, yellow to orangish. **Fruits** 1–2 mm, ellipsoid, lat flattened, often striate, reddish brown; **pericarps** gelatinous, slipping from the seeds when wet. $2n = 54, 88, 108$.

Sporobolus compositus grows along roadsides and railroad right of ways, on beaches, and in cedar glades, pine woods, live oak-pine forests, prairies, and other partially disturbed, semi-open sites at 0–1600 m.

The *Sporobolus compositus* complex is a difficult assemblage of forms, perhaps affected by their primarily autogamous breeding system (Riggins 1977). Asexual proliferation via rhizomes adds to the species' ability to maintain local population structure and to perpetuate unique character combinations. One variety is present in the Intermountain Region.

Sporobolus compositus (Poir.) Merr. var. **compositus** [p. 421]

Pl not rhz. **Clm** stout, 2–5 mm thick. **Uppermost shth** usu 2.6–6 mm wide. **Pan** with 30–90 spklt per cm² when pressed. **Fruits** 1–1.8 mm.

Sporobolus compositus var. *compositus* is the most widespread of the three varieties, being found throughout most of the range of the species.

4. *Sporobolus wrightii* Munro ex Scribn. BIG
ALKALI SACATON [p. 422, 507]

Pl per; ces, not rhz. **Clm** 90–250 cm, stout. **Shth** rounded below, shiny, glab, rarely sparsely hairy apically, hairs to 6 mm; **lig** 1–2 mm; **bld** 20–70 cm long, 3–10 mm wide, flat (rarely involute), glab abx, scabrous adx, mrg scabrous; **flag bld** ascending. **Pan** 20–60 cm long, 12–26 cm wide, open, broadly lanceolate, exerted; **pri br** 1.5–10 cm, spreading 20–70° from the rchs; **sec br** appressed, spklt-bearing to the base; **pulvini** glab; **ped** 0.2–0.5 mm, mostly appressed. **Spklt** 1.5–2.5 mm, crowded, purplish or greenish. **Glm** unequal, lanceolate to ovate, memb; **lo glm** 0.5–1 mm, often appearing veinless; **up glm** 0.8–2 mm, $\frac{2}{3}$ or more as long as the flt; **lm** 1.2–2.5 mm, ovate, memb, glab, acute to obtuse; **pal** 1.1–2.5 mm, ovate, memb, glab; **anth** 1.1–1.3 mm, yellowish to purplish. **Fruits** 1–1.4 mm, ellipsoid, reddish brown or blackish, striate. $2n = 36$.

Sporobolus wrightii grows in moist clay flats and on rocky slopes near saline habitats, at elevations of 5–1800 m. Its range extends to central Mexico.

5. *Sporobolus airoides* (Torr.) Torr. ALKALI
SACATON [p. 422, 507]

Pl per; ces, not rhz. **Clm** 35–120(150) cm, stout. **Shth** rounded below, shiny, apc glab or sparsely hairy, hairs to 6 mm; **lig** 0.1–0.3 mm; **bld** (3)10–45(60) cm long, (1)2–5(6) mm wide, flat to involute, glab abx, scabridulous adx, mrg smooth or scabridulous; **flag bld** ascending. **Pan** (10)15–45 cm long, 15–25 cm wide, diffuse, subpyramidal, often included in the uppermost shth; **pri br** 1.5–13 cm, spreading 30–90° from the rchs; **sec br** spreading, without spklt on the lo $\frac{1}{4}$ – $\frac{1}{3}$; **pulvini** glab; **ped** 0.5–2 mm, spreading, glab or scabrous. **Spklt** 1.3–2.8 mm, purplish or greenish. **Glm** unequal, lanceolate to ovate, memb; **lo glm** 0.5–1.8 mm, often without midveins; **up glm** 1.1–2.4(2.8) mm, at least $\frac{2}{3}$ as long as the flt; **lm** 1.2–2.5 mm, ovate, memb, glab, acute; **pal** 1.1–2.4 mm, ovate, memb, glab; **anth** 1.1–1.8 mm, yellowish to purplish. **Fruits** 1–1.4 mm, ellipsoid, reddish brown, striate. $2n = 80, 90, 108, 126$.

Sporobolus airoides grows on dry, sandy to gravelly flats or slopes, at elevations from 50–2350 m. It is usually associated with alkaline soils. Its range extends into northern Mexico.

6. *Sporobolus cryptandrus* (Torr.) A. Gray
SAND DROPSEED [p. 423, 507]

Pl per; ces, not rhz, bases not hard and knotty. **Clm** 30–100(120) cm tall, 1–3.5 mm thick, erect to decumbent. **Shth** rounded below, glab or

scabridulous, mrg smt ciliate distally, apc with conspicuous tufts of hairs, hairs to 4 mm; **lig** 0.5–1 mm; **bld** (2)5–26 cm long, 2–6 mm wide, flat to involute, glab abx, scabridulous to scabrous adx, mrg scabridulous; **flag bld** nearly perpendicular to the clm. **Pan** 15–40 cm long, 2–12(14) cm wide, longer than wide, initially contracted and spikelike, ultimately open and narrowly pyramidal; **rchs** straight, erect; **lo nd** with 1–2(3) br; **pri br** 0.6–6 cm, appressed, spreading, or reflexed to 130° from the rchs, without spklt on the lo $\frac{1}{8}$ – $\frac{1}{4}$; **lo br** longest, included in the uppermost shth; **sec br** appressed; **pulvini** glab; **ped** 0.1–1.3 mm, appressed, glab or scabridulous. **Spklt** 1.5–2.5(2.7) mm, brownish, plumbeous, or purplish tinged. **Glm** unequal, linear-lanceolate to ovate, memb; **lo glm** 0.6–1.1 mm; **up glm** 1.5–2.7 mm, at least $\frac{2}{3}$ as long as the flt; **lm** 1.4–2.5(2.7) mm, ovate to lanceolate, memb, glab, acute; **pal** 1.2–2.4 mm, lanceolate, memb; **anth** 0.5–1 mm, yellowish to purplish. **Fruits** 0.7–1.1 mm, ellipsoid, light brownish to reddish orange. $2n = 36, 38, 72$.

Sporobolus cryptandrus is a widespread North American species, extending from Canada into Mexico. It grows in sandy soils and washes, on rocky slopes and calcareous ridges, and along roadsides in salt-desert scrub, pinyon-juniper woodlands, yellow pine forests, and desert grasslands. Its elevational range is 0–2900 m.

7. *Sporobolus contractus* Hitchc. SPIKE
DROPSEED [p. 423, 507]

Pl per; ces, not rhz. **Clm** 40–100(120) cm tall, 2–4(5) mm thick near the base. **Shth** rounded below, mrg hairy, particularly distally, hairs to 3 mm, apc with conspicuous tufts of hair; **lig** 0.4–1 mm; **bld** (2)4–35 cm long, 3–8 mm wide, flat to involute, glab on both surfaces, mrg whitish, somewhat scabridulous. **Pan** all tml, (10)15–45(50) cm long, 0.2–0.8(1) cm wide, contracted, spikelike, dense, usu included in the uppermost shth; **lo nd** with 1–2(3) br; **pri br** 0.3–1.5 cm, appressed, spklt-bearing to the base; **sec br** appressed; **pulvini** glab; **ped** 0.2–2 mm, appressed, scabridulous. **Spklt** 1.7–3.2 mm, whitish to plumbeous. **Glm** unequal, narrowly lanceolate, memb, prominently keeled; **lo glm** 0.7–1.7 mm, usu 1-veined, acute to acuminate; **up glm** 2–3.2 mm, at least $\frac{2}{3}$ as long as the flt; **lm** 2–3.2 mm, linear-lanceolate, memb, glab, acute; **pal** 1.8–3 mm, linear-lanceolate, memb, glab; **anth** 3, 0.3–0.5 mm, light yellowish. **Fruits** 0.8–1.2 mm, ellipsoid, lat flattened, light brownish or translucent. $2n = 36$.

Sporobolus contractus grows in dry to moist, sandy soils, at elevations from 300–2300 m. It is found occasionally in salt-desert scrub, desert grasslands, and pinyon-juniper woodlands. Its range extends to the states of Baja California and Sonora in Mexico.

8. ***Sporobolus texanus*** Vasey TEXAS DROPSEED [p. 423, 507]

Pl per (often appearing ann); ces, with fibrous roots, not rhz. **Clm** 20–70 cm, erect to decumbent, glab or scurfy roughened below. **Shth** rounded bas, apc glab or with scattered, appressed, papillose-based hairs, hairs to 4 mm; **lig** 0.2–0.6 mm; **bld** 2.5–13(18) cm long, 1–4.2 mm wide, flat to involute, glab abx, scabrous adx, mrg scabridulous, often also with a few papillose-based hairs; **flag bld** ascending. **Pan** 10–35 cm long, 4.5–30 cm wide, open, diffuse, subpyramidal, about as long as wide, partially included in the uppermost lf shth; **lo nd** with 1–2 br; **pri br** 4–14 cm, capillary, spreading 10–80° from the rchs; **sec br** spreading, without spklt on the lo 1/3–1/2; **ped** 6–25 mm, spreading. **Spklt** 2.3–3 mm, purplish tinged. **Glm** unequal, linear-lanceolate to lanceolate, memb; **lo glm** 0.5–1.7 mm, often without midveins; **up glm** 1.7–3 mm, at least 2/3 as long as the flt, often longer; **lm** 1.8–3 mm, lanceolate to ovate, memb, glab, acute; **pal** 1.7–2.9 mm, ovate, memb, glab, often splitting as the fruit matures; **anth** 0.3–1 mm, yellowish. **Fruits** 1.1–1.5 mm, obovoid, light brown, translucent, occ rugulose. $2n =$ unknown.

Sporobolus texanus grows along rivers, ponds, and in wet alkaline habitats, at 100–3300 m. It is known only from the United States.

9. ***Sporobolus flexuosus*** (Thurb. ex Vasey) Rydb. MESA DROPSEED [p. 424, 507]

Pl per (rarely appearing ann); ces, not rhz, bases not hard and knotty. **Clm** 30–100(120) cm tall, 1–3 mm thick near the base, erect to decumbent. **Shth** rounded below, smooth or scabridulous, mrg smt ciliate distally, apc with tufts of hairs, hairs to 4 mm; **lig** 0.5–1 mm; **bld** (2)5–24 cm long, 2–4(6) mm wide, ascending or strongly divergent, flat to involute, glab abx, scabridulous adx, mrg scabridulous. **Pan** 10–30 cm long, 4–12 cm wide, longer than wide, open, subovate to oblong; **rchs** drooping or nodding; **lo nd** with 1–2 br; **pri br** 1–8(12) cm, flexible, diverging at least 70° from the rchs, often strongly reflexed to 130°, tangled with each other and with br from adjacent pan; **lo br** no longer than those in the mid, usu included in the uppermost shth; **sec br** widely spreading, without spklt on the lo 1/8–1/2; **pulvini** pubescent; **ped** 0.3–3 mm, spreading, scabridulous. **Spklt**

1.8–2.5 mm, plumbeous. **Glm** unequal, ovate, memb; **lo glm** 0.9–1.5 mm; **up glm** 1.4–2.5 mm, subequal to the flt; **lm** 1.4–2.5 mm, lanceolate to ovate, memb, glab, acute; **pal** 1.4–2.4 mm, ovate, memb; **anth** 0.4–0.7 mm, yellow. **Fruits** 0.6–1 mm, ellipsoid, light brownish to reddish orange. $2n = 36, 38$.

Sporobolus flexuosus grows on sandy to gravelly slopes, flats, and roadsides in the southwestern United States and northern Mexico. It is associated with desert scrub, pinyon-juniper woodlands, and yellow pine forests. Its elevational range is 800–2100 m.

10. ***Sporobolus giganteus*** Nash GIANT DROPSEED [p. 424, 507]

Pl per; ces, not rhz. **Clm** 100–200 cm, (3)4–10 mm thick near the base. **Shth** rounded below, striate, mrg hairy distally, apc with conspicuous tufts of hairs, hairs to 2 mm; **lig** 0.5–1.5 mm; **bld** 10–50 cm long, (3)4–10(13) mm wide, flat, glab on both surfaces, mrg whitish, scabridulous. **Pan** all tml, 25–75 cm long, 1–4 cm wide, spikelike, dense, usu included in the uppermost shth; **lo nd** with 1–2(3) br; **pri br** mostly 0.5–6 cm, appressed or spreading to 30° from the rchs, spklt-bearing to the base; **sec br** appressed; **pulvini** glab; **ped** 0.5–2 mm, appressed. **Spklt** 2.5–3.5(4) mm, whitish to plumbeous. **Glm** unequal, narrowly lanceolate, memb, prominently keeled; **lo glm** 0.6–2 mm; **up glm** 2–3.5(4) mm, subequal to the lm; **lm** 2.5–3.5(4) mm, linear-lanceolate, memb, glab, acute; **pal** 2.4–3.4(3.8) mm, linear-lanceolate, memb, glab; **anth** 0.6–1 mm, yellowish. **Fruits** 0.8–1.7 mm, ellipsoid, light yellowish brown, smt translucent. $2n = 36$.

Sporobolus giganteus grows in sand dunes and sandy areas along rivers and roadsides, at elevations from 100–1830 m. Its range extends from the southwestern United States into northern Mexico.

11. ***Sporobolus junceus*** (P. Beauv.) Kunth PINEY WOODS DROPSEED [p. 425, 507]

Pl per; ces, not rhz. **Clm** (30)40–100 cm. **Shth** rounded below, mrg and apc smt sparsely ciliate; **lig** 0.1–0.2 mm; **bld** (6)10–30 cm long, 0.8–2 mm wide, flat to tightly involute, glab abx, scabridulous adx, mrg scabrous, apc pungent. **Pan** 7–28 cm long, 2–6 cm wide, open, pyramidal; **lo nd** with 3 or more br; **pri br** 0.7–4.5 cm, spreading 20–100° from the rchs, whorled or verticillate, without spklt on the lo 1/8–1/2; **sec br** appressed; **ped** 0.4–2.5 mm, appressed, scabridulous. **Spklt** 2.6–3.8 mm, purplish red. **Glm** unequal, linear-lanceolate to lanceolate or ovate, hyaline to memb; **lo glm** 0.9–3 mm; **up glm** 2.6–3.8 mm, as long as or longer than the flt;

lm 2–3.6 mm, ovate, memb, glab, acute; **pal** 2–3.6 mm, ovate, memb; **anth** 1.4–2 mm, purplish. **Fruits** 1.4–1.8 mm, ellipsoid, somewhat lat flattened, somewhat rugulose, reddish brown. $2n$ = unknown.

Sporobolus junceus grows in openings in pine and hardwood forests, coastal prairies, and pine barrens, usually in sandy to loamy soils, at 2–400 m. Its range lies entirely within the southern United States.

12. *Sporobolus interruptus* Vasey BLACK

DROPSEED [p. 425, 507]

Pl per; ces but shortly rhz, with tough, fibrous roots. **Cm** 25–60 cm. **Shth** dull and fibrous bas, with scattered, contorted hairs to 5 mm, mrg glab; **lig** 0.2–0.7 mm; **bld** (5)8–20 cm long, 1–2.5 mm wide, flat to folded, glab or scattered-pilose on both surfaces, mrg glab. **Pan** 5–20 cm long, (0.6)1–8 cm wide, longer than wide, narrowly

pyramidal, open to somewhat contracted, not diffuse, well-exserted from the up lf shth; **lo nd** with 1–2(3) br; **pri br** 0.6–7 cm, appressed or spreading to 70° from the rchs, not capillary, without splkt on the lo ½; **ped** 0.8–5.5 mm, appressed to spreading. **Spklt** 4.5–6.6 mm, plumbeous. **Glm** unequal, lanceolate, memb; **lo glm** (2)2.5–4.2 mm; **up glm** 3.8–6.5 mm, at least ¾ as long as the flt; **lm** 5–6.5 mm, ovate, memb, glab, acute; **pal** 4.8–6.5 mm, ovate, memb; **anth** 3–4.2 mm, yellow to purplish. **Fruits** about 3 mm long, 1.5–1.7 mm thick, pyriform-globose; **emb** dark brown to blackish; **endosperm** reddish brown. $2n$ = 30.

Sporobolus interruptus grows on rocky slopes and in dry meadows of open yellow pine and oak-pine forests and piñon-juniper woodlands, at elevations from 1500–2300 m. It is endemic to Arizona.

10.15 CRYPSIS Aiton

Barry E. Hammel and John R. Reeder

Pl ann; synoecious. **Cm** 1–75 cm, erect to geniculately ascending, smt brchg above the base; **nd** usu exposed. **Shth** open, often becoming inflated, jnt with the bld evident; **lig** of hairs; **aur** absent; **bld** often dis. **Infl** tml or tml and axillary, spikelike or capitate pan subtended by, and often partially enclosed in, 1 or more of the uppermost lf shth, additional pan often present in the axils of the lvs below. **Spklt** 2–6 mm, strongly lat compressed, with 1 flt; **flt** bisex; **dis** above or below the glm. **Glm** 1-veined, strongly keeled; **lm** memb, glab, 1-veined, strongly keeled, not lobed, unawned, smt mucronate; **pal** hyaline, 1–2-veined; **lod** absent; **anth** 2 or 3; **ov** glab. **Fruits** oblong, pericarp loosely enclosing the seed and easily removed when wet; **hila** punctate. x = 8. Name from the Greek *krupsis*, 'concealment', alluding to the partially concealed inflorescence.

Crypsis, a genus of eight species, is native from the Mediterranean region to northern China. Its species tend to occur in moist soils, often in areas subject to winter flooding. The three species found in the Intermountain Region are very plastic in the lengths of their culms and leaves, e.g., the culms of *C. schoenoides* vary from 2 cm in dry sites to 75 cm under optimal conditions.

1. Spikelets 1.5–2.8 mm long; panicles 7–8 times longer than wide, usually completely exserted from the uppermost sheath at maturity 1. *C. alopecuroides*
1. Spikelets 2.5–4 mm long; panicles 1–5 times longer than wide, the bases usually enclosed in the uppermost sheath at maturity.
 2. Collars glabrous; glumes unequal, the margins glabrous; anthers 0.7–1.1 mm long. 2. *C. schoenoides*
 2. Collars pilose; glumes subequal, at least the lower glumes pilose on the margin; anthers 0.5–0.9 mm long 3. *C. vaginiflora*

1. *Crypsis alopecuroides* (Piller & Mitterp.)

Schrad. FOXTAIL PRICKLEGRASS [p. 426, 507]

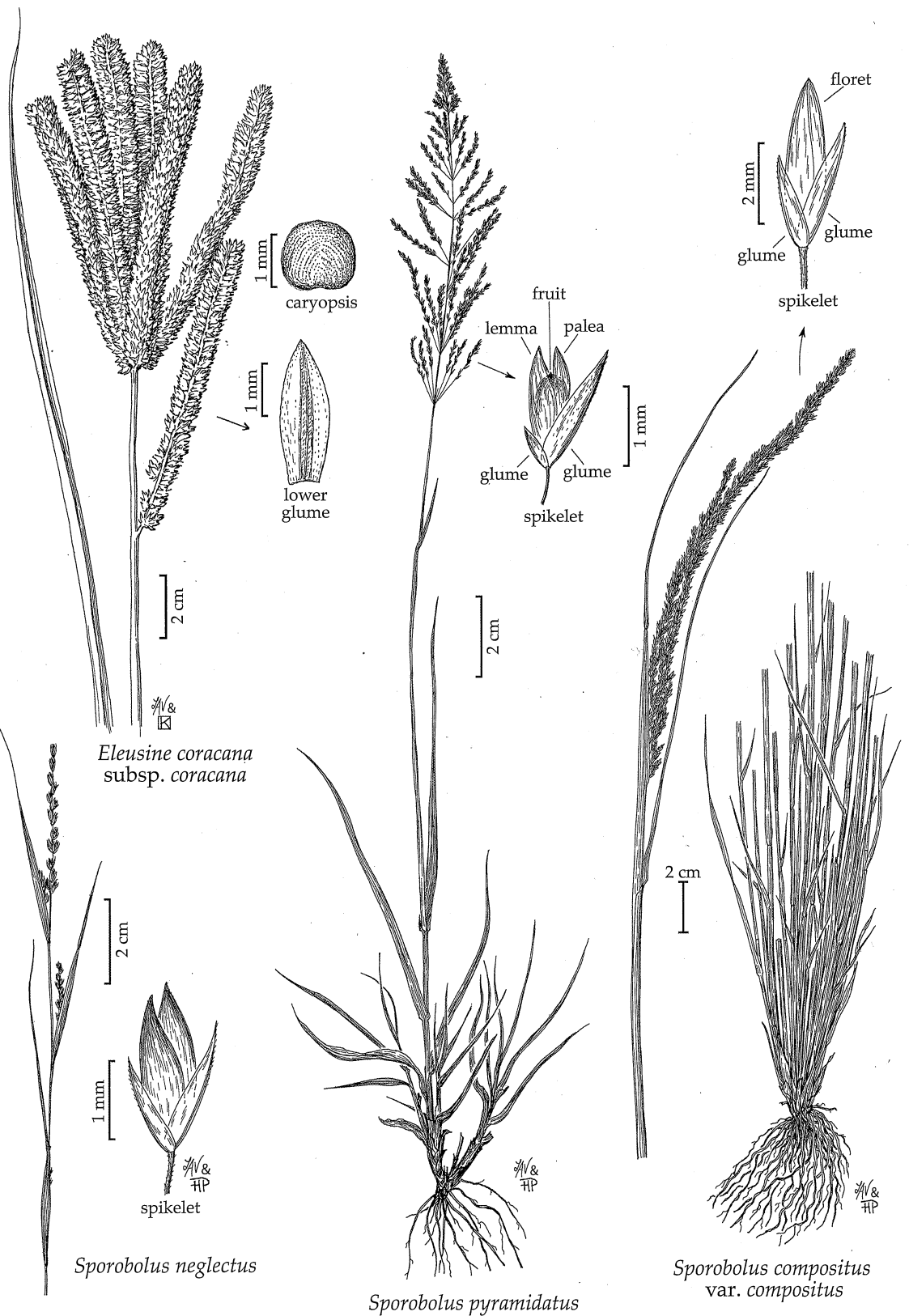
Cm (3)5–75 cm, rarely brchd above the base. **Shth** glab; **col** glab; **lig** 0.2–1 mm; **bld** 5–12 cm long, 1.2–2.5 mm wide, not dis. **Pan** 1.5–6.5 cm long, 4–6 mm wide, 7–8 times longer than wide, often purplish, completely exserted from the uppermost shth at maturity on peduncles at least 1 cm long. **Spklt** 1.8–2.8 mm, remaining lightly attached until late in the season. **Lo glm** 1.2–2 mm; **up glm** 1.4–2.4 mm; **lm** 1.7–2.8 mm; **pal** faintly 2-veined; **anth** 3, 0.5–0.6 mm. **Car** 0.9–1.1 mm. $2n$ = 16.

Crypsis alopecuroides is common to abundant in sandy soils around drying lake margins in Oregon and southern Washington, and within the last forty years has become widespread in northern California; it is also known from several other western states. In the Eastern Hemisphere, it extends from France and northern Africa to the Urals and Iraq.

2. *Crypsis schoenoides* (L.) Lam. SWAMP

PRICKLEGRASS [p. 426, 507]

Cm 2–75 cm, prostrate to erect, smt geniculate, usu not brchg above the base, but some pl profusely brchd. **Shth** glab or ciliate at the throat, often inflated; **col** glab; **lig** 0.5–1 mm; **bld** 2–10 cm long, 2–6 mm wide, not dis. **Pan** 0.3–4(7.5)



Eleusine coracana
subsp. *coracana*

Sporobolus neglectus

Sporobolus pyramidatus

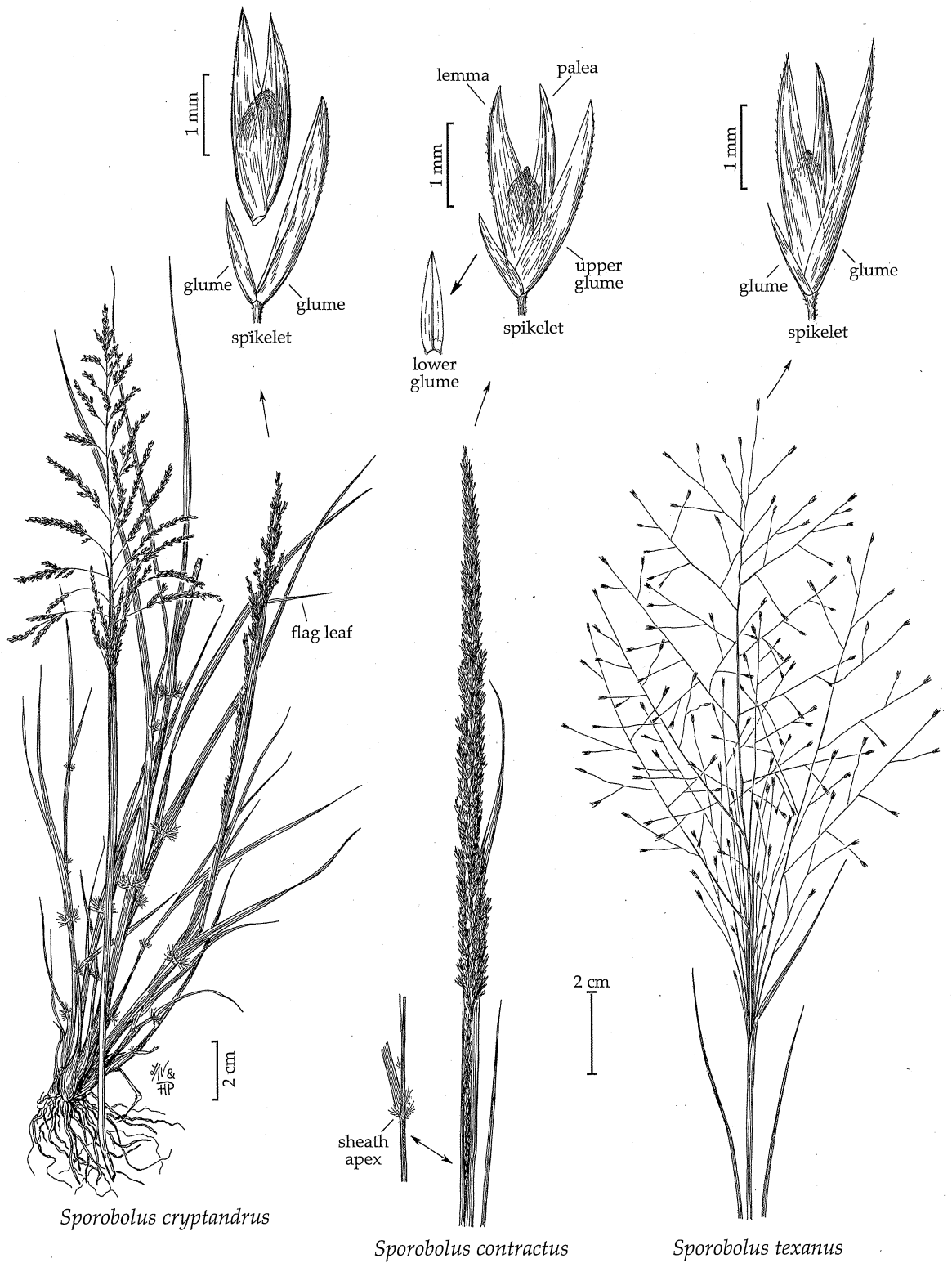
Sporobolus compositus
var. *compositus*

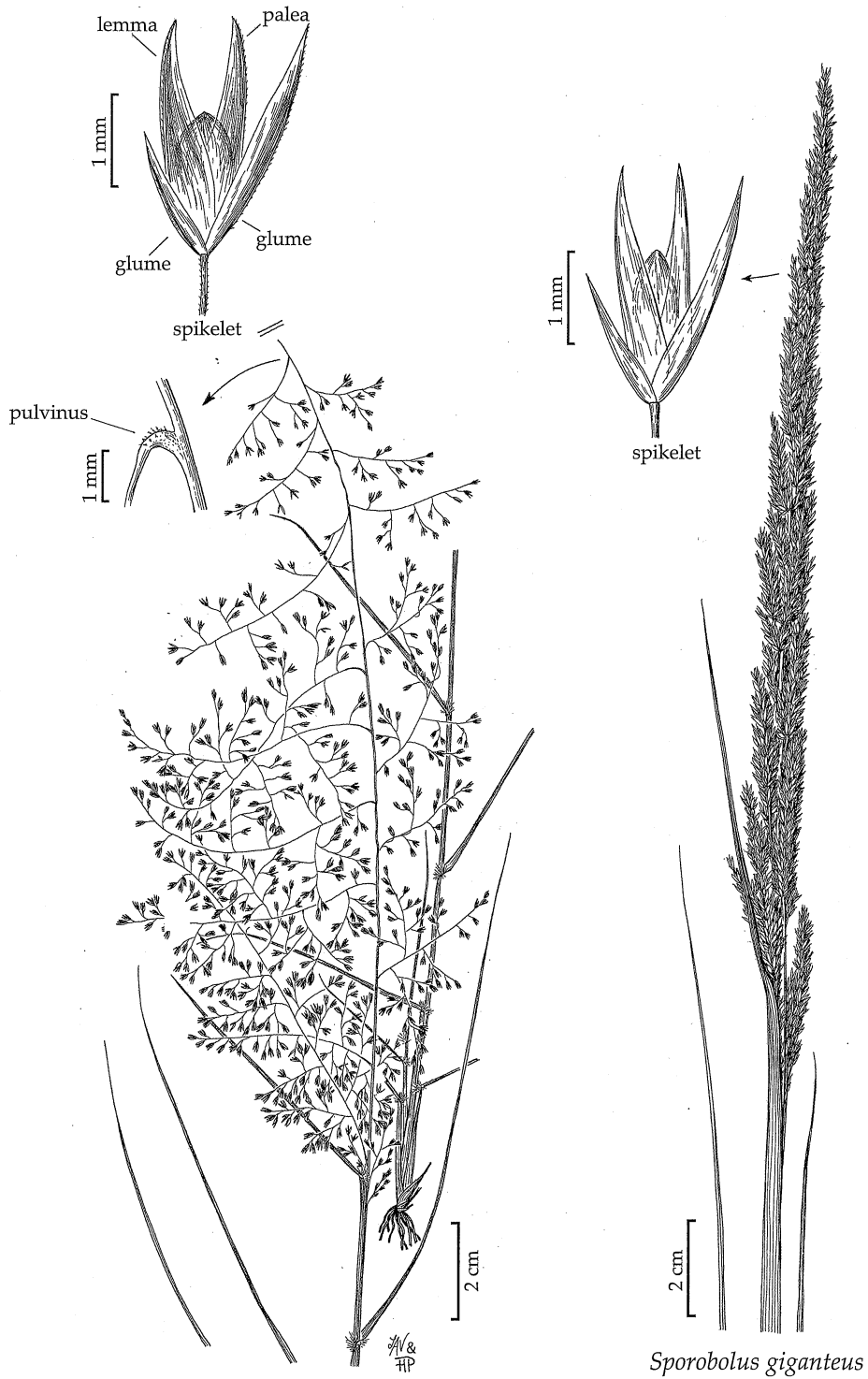


Sporobolus wrightii



Sporobolus airoides



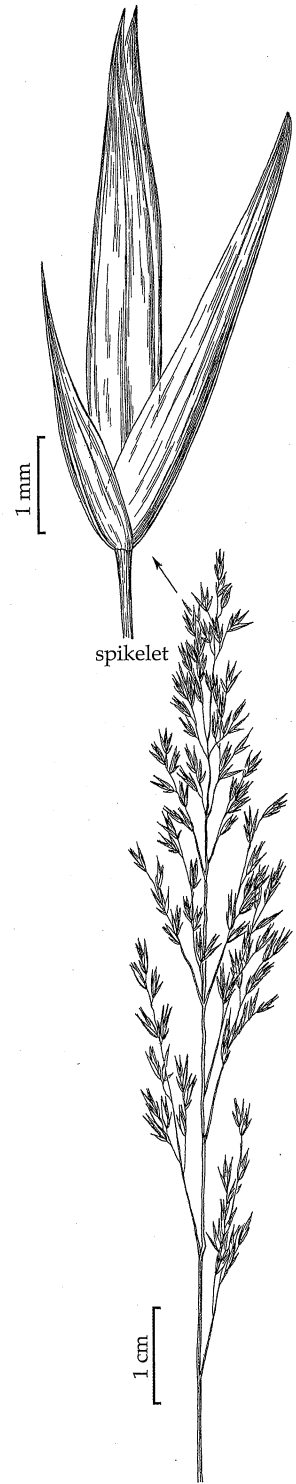


Sporobolus flexuosus

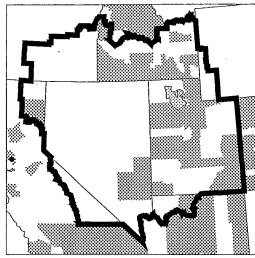
Sporobolus giganteus



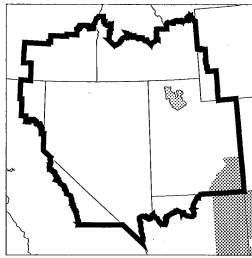
Sporobolus junceus



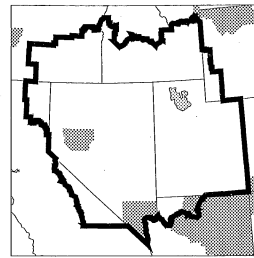
Sporobolus interruptus



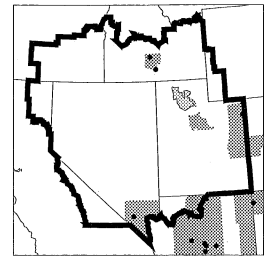
Eleusine indica
10.13.1



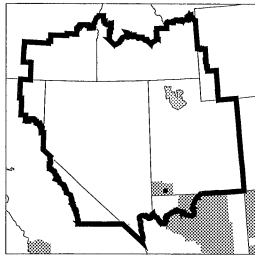
Sporobolus pyramidatus
10.14.1



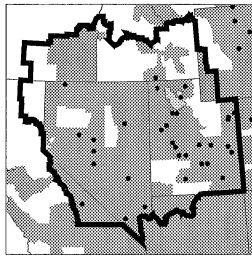
Sporobolus neglectus
10.14.2



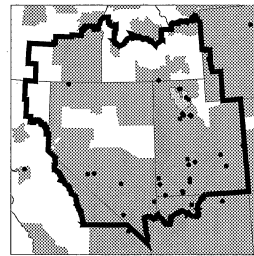
Sporobolus compositus
10.14.3



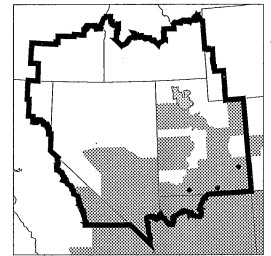
Sporobolus wrightii
10.14.4



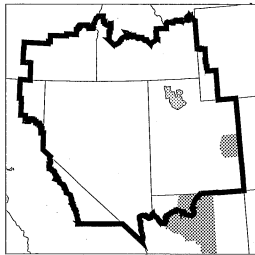
Sporobolus airoides
10.14.5



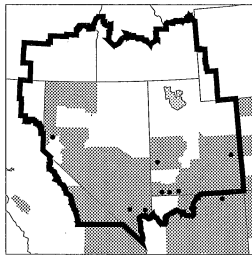
Sporobolus cryptandrus
10.14.6



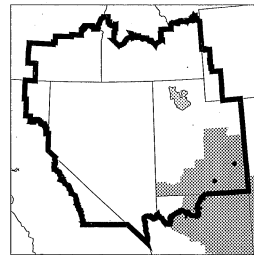
Sporobolus contractus
10.14.7



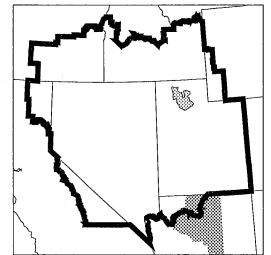
Sporobolus texanus
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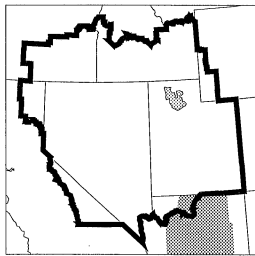
Sporobolus flexuosus
10.14.9



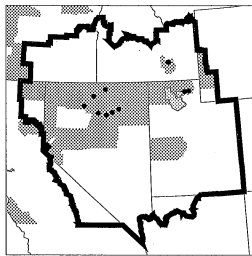
Sporobolus giganteus
10.14.10



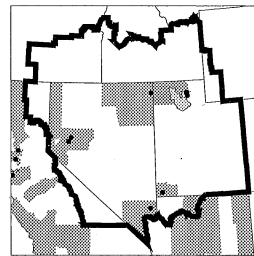
*Sporobolus junceus**
10.14.11



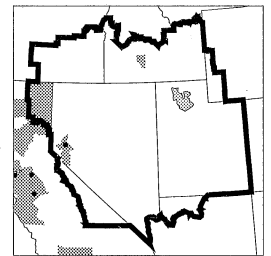
*Sporobolus interruptus**
10.14.12



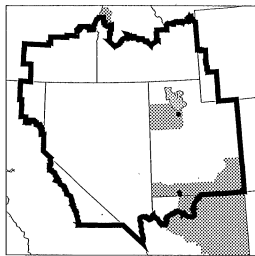
Crypsis alopecuroides
10.15.1



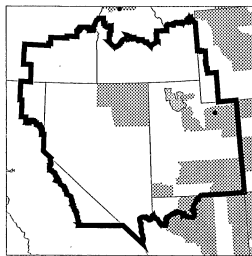
Crypsis schoenoides
10.15.2



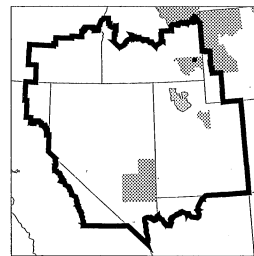
Crypsis vaginiflora
10.15.3



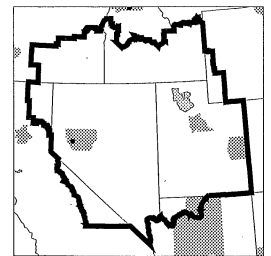
Calamovilfa gigantea
10.16.1



Muhlenbergia racemosa
10.17.1



Muhlenbergia glomerata
10.17.2



Muhlenbergia mexicana
10.17.3

Grasses of the Intermountain Region

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Illustrated by Cindy Talbot Roché, Linda Ann Vorobik, Sandy Long,
Annaliese Miller, Bee F. Gunn, and Christine Roberts

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