

Bromus L. BROME, CHESS

Bromus diandrus Roth, RIPGUT GRASS, GREAT BROME. Annual, fibrous-rooted, 1–several-stemmed at base, erect to ascending or spreading (especially when in fruit), in range 20–90 cm tall; shoots typically with 5 cauline leaves, shoot pilose and short-pilose. **Stems (culms):** cylindric, to 4 mm diameter, crimson at exposed nodes, smooth, striped, glabrous but puberulent with downward-pointing hairs below glabrous nodes; internodes hollow. **Leaves:** alternate distichous, simple with sheath; sheath closed, 47–105 mm long on cauline leaves and open for 7–55 mm, narrowly membranous and ciliate on margins, ridged with conspicuous, raised midvein + veins on closed portion also raised, pilose with erect short to long hairs especially in region of open region of sheath having the long hairs near blade, without lobes (auricles) at top; collar whitish to reddish purple; ligule translucent-membranous, jagged-obtuse, 2–6 mm long, glabrous or with several pilose hairs; blade linear, (35–)80–310 × 3–9.5 mm, the widest near base, flat to keeled, minutely toothed on margins base to tip, parallel-veined with midrib raised on lower surface, pilose, upper surface with denser hairs, much longer hairs sometimes near the margins, lower surface sometimes glabrescent. **Inflorescence:** spikelets in panicle, terminal, panicle loose and somewhat open with nodding spikelets, in range to 250 mm long in fruit, branching nodes alternate distichous, at each node generally with 2–4 branches, typically 1 terminal spikelet per branch, spikelet with 5–7(–11) florets (terminal floret sometimes sterile), awned; lateral branches subtended on rachis by a whitish ledge (bract); axes of branches wiry and lax, unequal at each node, to 75 mm long increasing in fruit, often with green or purple-red pulvinus at base on upper side, rachis and branches typically short-pilose with upward-pointed hairs or sometimes downward-pointed hairs near first node. **Spikelet:** slightly compressed, to 80 mm long (including awns), not ribbed, soft-pubescent; rachilla 3.5–4.3 mm long, breaking above glumes and between florets; **glumes** 2, unequal, narrowly lanceolate and strongly keeled, lower glume 12–25 × 1.1 mm, upper glume 18–30 × 1.3 mm, both 3-veined or upper glume weakly 5-veined, green with membranous margins and at tip aging scarious, midvein scabrous above midpoint; **lemma** narrowly lanceolate to linear-lanceolate, 18–35 × ± 2.2 mm of fertile florets >> glume, 3–7-veined and ridged on ± rounded back, membranous and minutely toothed on margins, green portion scabrous with scattered, small, upward-pointing hairs, often appearing ciliate with long hairs on edge of green tissue, with minutely scabrous on membranous tissue and minutely toothed on margins, deeply 2-toothed on membranous tip with straight awn arising before teeth, then veins not converging at tip, the teeth 1.5–3 mm long, the awn attached 4–6 mm from lemma tip (below sinus), 30–62 mm long; **palea** on only fertile florets, membranous, narrowly elliptic, 13.5–14.5 × 1.3–2 mm, << lemma, strongly 2-keeled folded flat along keels with incurved margins, keel veins green and ascending short-ciliate with stiff hairs, membranous surfaces with short hairs between heels and on margins. **Flower:** bisexual, cleistogamous (concealed within floret); **perianth (lodicules)** 2, ovate and acuminate or 2-toothed at tip, ± 0.6 mm long, translucent, at anthesis bulbous and water-filled at base, persistent but flat during fruit development; **stamens** 2(–3), included; filaments very slender, 1.5–3 mm long, translucent-white; anthers basifixed, dithecal, in range ± 0.6 mm long, light yellow, longitudinally dehiscent; pollen light yellow; **pistil** 1; ovary superior, compressed narrowly wedge-shaped, ca. 1.2 mm long,

greenish near base, with erect, straight hairs on upper 1/3, with 2 sterile, \pm sericeous flaps extending beyond tip, 1 triangular to elliptic, the longer flap notched to shallowly 2-toothed, flaps persistent in fruit, 1-chambered with 1 ovule; styles 2, arising separately from top of ovary; stigma \pm 1.5 mm long, with numerous branches, the branches, \pm 0.5 mm long, simple but twisted, wavy, and often intertwined. **Fruit:** achene (caryopsis), dispersed as floret tightly enclosed within adherent palea and awned lemma + a rachilla segment, awned dispersal unit commonly 55–75 mm long, with hard, rounded, whitish callus at tip; achene narrowly ellipsoid compressed top-to-bottom, 12–14.5 \times 2–2.5 mm, orange-red to brown, concave or deeply sunken (ventral face) and convex (dorsal face), with whitish flap and tuft of short hairs on tip; lemma rounded with midvein raised more than lateral veins, extremely scabrous with scattered short, upward-pointing hairs; palea short-ciliate along keels, membranous tissue between keels and on margins with short hairs; rachilla segment appressed, flattened front-to-back, 3.5–5 mm long, straw-colored, scabrous. Late January–late April.

Naturalized. Annual common through the range in disturbed sites, often in dense populations and where an area has been reseeded after a fire. *Bromus diandrus* is the first local brome species to flower, and it is easy to recognize by its nodding panicles with relatively long branchlets and long lemma awns on the spikelets. The awned dispersal unit commonly is greater than sixty millimeters long and extremely scabrous, due to the presence of teeth, barbs, and sharp-tipped short hairs on all exposed surfaces, which easily lock into fabric of hikers and animal fur.

B. A. Prigge & A. C. Gibson