

Koeleria macrantha (Ledeb.) Schult., JUNE GRASS. Perennial herb, rhizomatous (highly condensed), fibrous-rooted, many-stemmed at base, cespitose and densely clumped, erect to ascending, in range 40–105 cm tall; shoots with basal leaves and 3–4 cauline leaves, pubescent to pilose or glabrate (individuals in same population). **Stems (culms):** cylindric, 1.1–4.5 mm diameter (nodes to 6 mm), internodes to 150 mm long, glabrous to minutely pubescent or long-hairy with downward-pointing hairs; internodes hollow. **Leaves:** alternate distichous, simple with sheath; sheath open, 75–200 mm long (the longest = flag leaf), throat 10–45 mm long, ridged, green but pale green along ridges and aging purplish red with pale tan ridges, margins unequal and free margin not membranous except at throat, puberulent to densely pilose mostly with backward-pointing hairs but with spreading hairs next to throat, without lobes (auricles) at top or auricles merely a slight crescent-shaped expansion; ligule membranous, narrowly rounded, 1.3–3.2 mm long, short-dentate to jagged on margin and commonly splitting in age, pubescent to long-hairy on hidden surface; collar not evident or narrowly tannish (upper surface); blade linear, 65–310 × 1.5–4.5 mm, the widest = flag leaf, flat to folded along midline or becoming inrolled when water-stressed, entire, parallel-veined with veins raised, finely short-hairy and long-hairy, minutely pubescent to scabrous between veins. **Inflorescence:** spikelets, in terminal panicle, panicle dense, compact, and cylindric in bud and going into fruit, but open with spreading branches during flowering, in flower lanceoloid to ellipsoid in outline, mostly 70–150 × 25–65 mm, with alternate distichous clusters of lateral branches along a straight rachis having 18–22 nodes, to 3 branches per node, the branches initially appressed and suberect, at anthesis spreading and often \perp , after flowering becoming suberect to slightly spreading, spikelet with 2 florets, bracteate, with minute awns; peduncle 415–485 mm long, glabrous at base to puberulent or pubescent above, axes cylindric, pubescent, lateral branches 7–33 mm long, with a greenish pulvinus in axil; stalk of terminal spikelet 1–3 mm long, of lateral spikelets 0.2–0.6 mm long. **Spikelet:** obovate and compressed side-to-side, 4.8–6.2 × 2.3–4 mm but widely spreading at anthesis, breaking above glumes and between florets; rachilla between florets 0.8–1 mm long, pubescent on lemma side of upper floret, rachilla extension ca. 2 mm long above upper floret and uniformly pubescent with ascending hairs; **glumes** 2, subequal, lanceolate, lower glume 3.7–4.5 mm long, 1-veined, and convex to \pm keeled on back, upper glume slightly asymmetric, 4.3–4.8 mm long, 3-veined, convex and scabrous with 1 lateral vein short and only 2-veined approaching tip, lower glume < upper glume, acute at tip, widely white-membranous on margins, green along veins; callus ca. 0.2 mm long; **lemma** short-awned, lanceolate to elliptic, 4.2–4.6 mm long, convex on back and 1-veined, green and scabrous along vein and white-membranous on margins, acute + awn ca. 0.2 mm long; **palea** lanceolate-oblong, 3.5–3.6 mm long, transparent-membranous, 2-veined, 2-keeled and folded inward along veins, scabrous along veins and on margins, with 2 teeth at tip to 0.5 mm long. **Flower:** bisexual; **peianth (lodicules)** 2, generally lanceolate with a lateral lobe, 1–1.4 mm long, translucent, bulbous and water-filled at base at anthesis, principal lobes acuminate or sometimes 2-toothed, 0.5–0.7 × 0.25–0.3 mm, lateral lobe on outer edge arching outward, narrowly triangular, 0.3–0.5 mm long; **stamens** 3, free, exerted and pendent from floret; filaments threadlike, to 6 mm long, white; anthers basifixed, dithecal, narrowly oblong, 1.6–2.8 mm long, light yellow becoming purplish red at tips

and along line of dehiscence, free at tips for 0.4–0.5 mm, the tips arching outward after dehiscing and anthers becoming ± X-shaped; pollen light yellow; **pistil** 1, on a short stalk ca. 0.1 mm long; ovary superior, obovoid, 0.5–1 × 0.3–0.4 mm, light yellowish green, glabrous, 1-chambered with 1 ovule; styles 2, exerted at midpoint of lemma, distinct at top of ovary, 1–1.7 mm long, whitish to colorless, naked from 0.25–0.40 mm at base, stigmatic and conspicuously feathery with helically arranged stigmatic hairs, the hairs unbranched, to 0.25 mm long basal hairs decreasing upward. Early May–late June.

Native. Perennial herb, a bunchgrass rarely observed growing in disturbed grassland between oaks (*Quercus*) in small, isolated populations. *Koeleria macrantha* is generally described and illustrated as having a compact inflorescence. The inflorescence is compact before florets open and during fruit maturation, but while flowering the lateral branches are widely spreading due to the function of axillary pulvinus, which often forces the branch to perpendicular, and the inflorescence instead appears airy with long-pendent stamens. When the pulvinus is not functioning, the lateral branches collapse toward the axis, and this is also the condition normally seen on dried herbarium specimens of *K. macrantha*.
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