

## Vascular Plants of Williamson County

*Bothriochloa ischaemum* var. *songarica* – KING RANCH BLUESTEM, KR BLUESTEM, TEXAS  
YELLOW BEARDGRASS [Poaceae]

*Bothriochloa ischaemum* (L.) Keng var. *songarica* (Rupr.) Celarier & J. R. Harlan (includes here probable hybrids with *B. bladhii*), KING RANCH BLUESTEM, KR BLUESTEM, TEXAS YELLOW BEARDGRASS (glabrous nodes and having yellow anthers) Perennial herb, bunchgrass, rhizomatous, fibrous-rooted, not rosetted, many-stemmed at base, mostly erect to ascending from near base (unmolested plant) or with decumbent lower stems (mowed), in range with inflorescence to 100 cm tall; sometimes also andromonoecious; shoot with mostly basal leaves (mowed plants) or tall, robust individuals also with to 6 cauline leaves, hirsute at nodes and having long hairs with enlarged bases (pustulate hairs) on blade, not glaucous. **Stems (culms):** ± cylindric (slightly concave opposite lateral shoot), 2–4 mm diameter (nodes), tough, light green to reddish bracketing exposed upper nodes, not glaucous, in range typically hirsute mostly with appressed hairs 1–2 mm long (adjacent to hirsute hairs at base of sheath); internodes solid, white. **Leaves:** alternate distichous, simple with sheath; prophyll strongly 2-keeled and strongly 2-folded, to 19 mm long, whitish, acuminate at tip, keels to 0.5 mm wide minutely jagged, concave between keels, appressed short-hairy on exposed surface of margins; sheath open, low-ridged, > internode, with narrow membranous margins base-to-top, hirsute often just above node and sometimes approaching top, lacking lobes (auricles) at top; ligule membranous (continuous with membranous sheath margins) and short-ciliate, subtruncate to somewhat obtuse, 0.5–1.5 mm long; collar to 2 mm long, whitish, with pustulate hairs; blade linear and somewhat folded upward from midrib, (15–)50–300(–380) × 3.5–6.5(–8) mm (basal leaves with the shortest blades; flag leaf blade often short and very slender), the widest at base, minutely serrate on narrow, colorless margins, long-tapered to tip, finely parallel-veined with veins somewhat raised on both surfaces and wide midrib sunken on upper surface, upper surface often with scattered, long, stiff, pustulate below midblade (especially near collar), lower surface glabrous or with sparse pustulate hairs.

**Inflorescence:** spikelets, in terminal panicle, panicle fully exerted with branches ascending from a principal rachis or initially partially enclosed in sheath of flag leaf and appearing funnel-shaped and umbel-like but later showing ascending branches, in range panicle 50–110 mm long (including awns), branches 1–3 per node, of 5–17 branches (individuals with many branches and longer rachis probably hybrids with *B. bladhii*) slender and 30–75 mm long, before anthesis purple-red or mostly lacking that pigment and often appearing silvery (hairs), at the first node principal branch sometimes with shorter branchlets (from *B. bladhii*), principal branch with several–12+ units (rames) later abscising, rame consisting of an axis internode, a fertile sessile spikelet, and a stalked spikelet (typically sterile but sometimes staminate) spikelet (pedicellate spikelet), sessile spikelet having 2 florets with the lower floret sterile and poorly defined and upper floret bisexual, bracteate, axes densely pubescent with persistent, ascending, straight hairs (hirsute-pilose), sessile spikelet awned; principal rachis in range to 75 mm long, generally < branches, light green to purple-red or with purple-red pigment at nodes, glabrous; branches having a prominent axillary pulvinus, greenish or purple-red and conspicuously hirsute, branch axis glabrous at base but pubescent along margins and narrowly grooved on each rame, the hairs straight and ascending, 1 mm long increasing to 3 mm long at top

(subtending sessile spikelet; hairs of *B. bladhii* only < 1 mm long), the groove narrower than the margins; stalk of sterile spikelet 3–3.5 mm long, mostly purplish red or greenish, densely hairy like rame internode. **Sterile or staminate spikelet (stalked): glume 1**, elliptic to elliptic-lanceolate, 3.3–3.6 × 0.4–1 mm (the widest = staminate spikelet), 7-veined + folded along margins, reddish with green veins or colorless tissue with green veins, short-ciliate along folds, tissue drying whitish, outer surface with appressed short hairs to midpoint and inner surface with short hairs above bract of floret; bract of floret 1, membranous, of sterile spikelet linear, ca. 2.5 × 0.3 mm long, with pale green veins and wide folded margins, of staminate flower wide elliptic-obovate somewhat subtruncate and jagged at top, ca. 2.5 × 1 mm, colorless without veins. **Fertile spikelet (sessile): glumes 2**; lower glume flattish or center somewhat indented, acute-oblong, 3.5–4 mm long, tinged purplish red or not, having 7 parallel veins, most green especially above midpoint but the outer pair often reddish, with or without a sunken pit (probably from hybridization with *B. bladhii*) above midpoint secreting water (hydathode), margins inrolled from outer veins and short-ciliate along “fold,” with ascending straight hairs to 1 mm long below midpoint; upper glume acute-ovate, ca. 3.3 × 1 mm, 5-veined, somewhat rounded on back, with minute hairs approaching tip; lower floret bract (lemma) membranous, ca. 2.5 mm long, colorless; lemma of upper floret with terminal awn, linear, to 2 mm long, whitish, the awn 10–18 mm long, initially green or sometimes lower portion with red pigment, aging orange then brown to tannish above midpoint; palea of upper floret membranous, acute-elliptic, 2.5–2.8 × 0.4 mm, lacking veins. **Staminate flower: perianth (lodicules) 2**, fan-shaped, 0.5 × 0.3–0.35 mm, translucent, mostly shallowly scalloped; **stamens 3**, free; filaments threadlike, ca. 1 mm long, translucent-white; anthers partially exerted from tip of spikelet, basifixed, dithecal, in range mostly 1.5–1.9 mm long, light yellow or tinged purplish red, longitudinally dehiscent but mainly at tips (porelike); pollen pale yellow; **pistil** absent. **Bisexual flower: perianth (lodicules) 2**, fan-shaped, 0.5 × 0.3–0.35 mm, translucent, mostly shallowly scalloped; **stamens 3**, free; filaments threadlike, 1–1.5 mm long, translucent-white; anthers exerted laterally from open spikelet, basifixed, dithecal, in range mostly 1.5–1.9 mm long, purplish red or light crimson often spotted and with yellow (or entirely light yellow), longitudinally dehiscent or mostly at tips (porelike); pollen pale yellow; **pistil 1**, 2 mm long; ovary superior, ovoid, ca. 0.5 × 0.3 mm, yellowish, glabrous, 1-chambered with 1 ovule; styles 2, ascending and spreading from 2 sides of spikelet at ca. midpoint, lower portion translucent, exerted stigmatic portion feathery (plumose), ca. 1 mm long, pale rose-pink to purplish red. **Fruit:** achene (caryopsis) enclosed within white sessile spikelet with long hairs and a long awn on lemma on rame, falling easily from floret; achene obovoid flattish on lemma side, ca. 2 × 0.7–0.8 × 0.5–0.6 mm, somewhat amber-colored but purplish at base + a pair of reddish, short beaks (bases of styles) on rounded top, not 3-sided, rough (shrunken) over the oblique lateral embryo, with a fine longitudinal groove along embryo to achene midpoint on side facing palea; rame internode with purple-red groove; awn still loosely attached as an extension of the slender, diminutive lemma, twisted to midpoint with 1(–2) bends (geniculate) and straight upper portion, straightened 10–18 mm long, aging golden brown or orangish (lower portion) and paler above bend.

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