

*Stipa pulchra* A. Hitchc., PURPLE NEEDLE GRASS. Perennial herb, rhizomatous (highly condensed), fibrous-rooted, many-stemmed at base, densely caespitose having shoots crowded along rhizome, unbranched above, erect to ascending, 35–95 cm tall; shoots with basal leaves and 2–3 cauline leaves becoming tightly inrolled concealing the upper blade surface when water-stressed, with the uppermost cauline leaf sheath (flag leaf) initially concealing peduncle, leaves scabrous when flat or inrolled, with short, stiff, ascending hairs; rhizomes shallow, horizontal, obscured by adventitious roots and crowded shoots arising from axillary buds. **Stems (culms):** many-ridged, to 3 mm diameter (nodes), internodes 10–250 mm long, stiff-puberulent and short-hairy below each node, the internodes otherwise glabrous where covered by leaf sheath but sometimes minutely pubescent along grooves. **Leaves:** alternate distichous, simple with sheath; prophyll narrowly triangular and strongly 2-keeled, tough, whitish, conspicuously ciliate along keels; sheath open, ridged, to 190 mm long, exposed margin narrowly membranous ascending into an erect lobe, overlapped margin short-ciliate but long-ciliate approaching ligule, the lobe continuous with ligule, silky hairy (sheaths of lower leaves) to glabrous, sometimes hairy on inner surface; ligule membranous, truncate to rounded and jagged, 0.5–3.2 mm long, glabrous; collar glabrous or with several marginal hairs; blade linear, 30–330 × 1.3–5.2 mm, the widest at base, flat becoming inrolled, entire and ciliate on margins, ± acute at tip, parallel-veined, with white midrib and veins raised on both surfaces, upper surface dull, pilose to villous at base becoming pubescent to glabrescent above base, lower surface (outer surface when inrolled) dull to semi-glossy, glabrous to sparsely puberulent or sometimes short-pilose with spreading hairs at base, becoming short-scabrous along veins or short-pubescent to ± strigose. **Inflorescence:** spikelets, in terminal, open panicles, panicle with ascending, flexible branches from widely spaced nodes, 180–420 mm long (excluding peduncle), with peduncle and lower branches initially enclosed by sheath of flag leaf, spikelet with 1 floret, bracteate, long-awned; peduncle elongating during anthesis, 155–350 mm long; rachis 100–340 mm long, with upward-pointing hairs (ascendingly pubescent) to weakly strigose, scabrous approaching panicle, rachis with 4–5(–7) nodes and 2(1) branch per node, internodes 10–160 mm long decreasing upward, lower rachis elliptic in ×-section, with ascending short hairs, the shorter internodes hemi-cylindric, scabrous on edges; lateral branches ascending, wiry and flexible, 90–220 mm long (branch base to awn tip), unbranched at base for 7–70 mm, bearing 2–13 spikelets in groups of (1–)2(–3) commonly with 1 spikelet long-stalked (> 7.5 mm) and 1 spikelet short-stalked (< 7.5 mm); stalks of spikelets 1.5–18.5 mm long, pubescent with ascending hairs < 0.5 mm long. **Spikelet:** narrowly lanceoloid-fusiform, breaking above glumes, with glumes spreading after fruit abscised; **glumes** 2, erect, unequal, narrowly lanceolate, lower glume 18–22 × 0.7–1.3 mm with margins incurved (to 2.2 mm when flattened) and 3–5-veined, having ridged midvein base to tip and lateral veins 1/4–3/4 glume length, upper glume 15.7–20 × 0.7–1.3 mm with margins incurved (to 2.2 mm when flattened) and 5–6-veined at base having , with midvein extending to or nearly to tip and lateral veins ca. 1/4 to 3/4 glume length, green at base and along ridged veins, membranous and tinged purplish red from between veins to tip and on margins, narrowly acuminate at tip with membranous margins sometimes tightly inrolled and appearing short-awned; **lemma** awned, body narrowly lanceoloid to fusiform, in range 9.2–10.7 × 1–1.3 mm, with strongly overlapping margins, 5–7-veined (obscured by hairs and sometimes concealed by overlapping margin), silky with appressed to ascending hairs

base to tip, minutely warty, callused at base, slightly constricted below tip forming a crown, long-awned from top of crown, the callus 1.5–2.5 mm long, densely strigose-pilose with ascending hairs to 0.8 mm long, the crown 0.6–1.1 long, 0.6–0.75 mm wide at rim, with an erect ring of hair from rim 0.25–1.1 mm long; awn in range 70–86 mm long, 0.4–0.55 mm wide at base, typically with 2 bends, tawny to spirally striped greenish and brownish, the basal segment 12–25 mm long,  $\pm$  straight, twisted, with ascending hairs ca. 0.7 mm long, the middle segment 13–18 mm long, slightly twisted and sometimes wavy, with ascending hairs  $>$  0.5 mm long, the terminal segment 32–47 mm long, straight, very short hairy or scabrous; **palea** lanceolate, 2–2.5  $\times$  0.3–0.7 mm, veins obscure, membranous but firmer ( $\pm$  chartaceous) at base, rounded at tip, glabrous. **Flower:** bisexual, out-crossing (chasmogamous) or self-pollinated (cleistogamous); of chasmogamous floret, **perianth (lodicules)** 2, narrowly oblong to oblanceolate or spatulate, 0.6–1.6  $\times$  0.2–0.3 mm, translucent, at anthesis fleshy (chasmogamous) or not fleshy (cleistogamous form), flat and membranous after anthesis; **stamens** 3, free; filaments threadlike, to 9 mm long, white; anthers basifixed, dithecal, equal, 3.5–5.5 mm long, light yellow, with short hairs at tip, longitudinally dehiscent; pollen light yellow; **pistil** 1; ovary superior, cylindric or oblong to obovoid, 0.5–2  $\times$  0.35–0.6 mm, yellowish, glabrous, 1-chambered with 1 ovules; styles 2, spreading and exerted sideways from near midpoint of lemma, white, feathery with stigmatic hairs most of length (plumose) but absent on basal 0.2 mm. **Flower** (of cleistogamous floret); **perianth (lodicules)** 2, narrowly oblong to oblanceolate or spatulate, 0.6–1.6  $\times$  0.2–0.3 mm, translucent, at anthesis not fleshy, flat and membranous after anthesis; **stamens** 3, free, central stamen fertile but laterals sterile and diminutive; filament ca. 1 mm long, white; fertile anther basifixed, dithecal, oblong, 0.55–1.3 mm long, light yellow, without short hairs at tip, longitudinally dehiscent; pollen light yellow; **pistil** 1, 1.65–3 mm long; ovary superior, cylindric or oblong to obovoid, 0.5–2  $\times$  0.35–0.6 mm, yellowish, glabrous, 1-chambered with 1 ovules; styles 2, included, white, feathery with stigmatic hairs most of length (plumose) but absent on basal 0.2 mm. **Fruit:** achene (caryopsis), tightly enveloped by lemma, narrowly fusiform, in range 6–6.7  $\times$  1–1.3 mm, tightly enveloped by lemma; awn in range 70–86 mm long, 0.4–0.55 mm wide at base, typically with 2 bends, tawny to spirally striped greenish and brownish, the basal segment 12–25 mm long,  $\pm$  straight, twisted, with ascending hairs ca. 0.7 mm long, the middle segment 13–18 mm long, slightly twisted and sometimes wavy, with ascending hairs  $>$  0.5 mm long, the terminal segment 32–47 mm long, straight, very short-hairy or scabrous. Early March–mid May.

Native. Perennial herb bunchgrass occurring occasionally throughout the range in grasslands, coastal sage scrub, chaparral, and grassy open areas of southern oak woodland. *Stipa pulchra* is most similar to *S. cernua*, which also has long awns and purplish spikelets; in good vegetative status, the flat blades of *S. pulchra* are much wider, and when blooming or during fruit maturation, the awn is much thicker, often half a millimeter in diameter. *Stipa pulchra* has been used in range for revegetation projects by conservation agencies. B. A. Prigge & A. C. Gibson