

## *Cortaderia* Staph

*Cortaderia selloana* (Schult. & Schult. f.) Asch. & Graebn., PAMPUS GRASS. Perennial herb, robust and clump-forming, evergreen, rhizomatous, fibrous-rooted, rosetted, many-stemmed at base, unbranched above base with mostly ascending to erect inflorescences, 75–410 cm tall; dioecious; shoots with bluish green, fibrous, basal leaves and cauline leaves, for very short individuals leaves mostly basal and appearing cauline but sheaths attached near ground level, grading to tall individuals with 10+ cauline leaves below peduncle of inflorescence, scabrous and with flesh-cutting edges; rhizomes shallow, horizontal, elliptic in  $\times$ -section, to 15+ mm diameter, yellowish white with hollow internodes, walls of internodes ca. 1.5 mm thick and having large air canals, with scales, the scales narrowly triangular, 20–60 mm long, brownish, acuminate at tip; adventitious roots nodal. **Stems (culms):** cylindrical, 4–17 mm diameter (appearing thicker because hidden by leaf sheaths), tough, whitish, leaf-bearing axis to ca. 2000 mm long, lacking axillary buds, internodes to 320 mm long and increasing base to tip, glabrous; internodes below the uppermost node aging hollow. **Leaves:** alternate distichous, simple with sheath; sheath open, strongly overlapping (to 2 $\times$  curled), short (leaves at ground level) to 1050 mm long (= flag leaf of a very tall shoot) and increasing base to tip, rounded on back, of lower leaves somewhat finely ridged and with or without long, fine hairs, of upper leaves smooth and glabrous but inconspicuously puberulent and low-ridged approaching collar, sometimes glaucous, internally densely sericeous approaching ligule, with or without lobes (auricles) at top, membranous and narrowly triangular, to 18 mm long, early-deciduous; ligule densely hairy, the hairs straight, 2–4 mm long, white; collar whitish, puberulent; blade linear long-tapered, 380–2200  $\times$  12–28 mm, the widest at base,  $\pm$  flat but having a deeply channeled midrib, minutely toothed on margins base to tip, dying backwards from tip, parallel-veined with conspicuous midrib raised on lower surface, upper surface with minute hairs lining grooves, lower surface with several rows of sharp, upward-pointing teeth submarginal and along midrib (only 1 row at tip). **Inflorescences:** spikelets, in terminal, plumelike, unisexual panicles partially covered at base by flag leaf sheath until the end of anthesis, panicle ovate to elliptic in outline and somewhat flattened, 500–900  $\times$  200–450 mm fully expanded (often lanceoloid when not expanded), pale greenish to whitish (pistillate) to pale yellowish ochre or pale purple (staminate), with sets of lateral branches alternate at 11–17 nodes, lateral branches 2–5 per node and each with many spikelets, spikelets stalked, 2–4-flowered (staminate) or 3–6-flowered with the terminal and subterminal floret often sterile (pistillate), bracteate, somewhat awned; panicle axis straight, mostly glabrous but puberulent below and above nodes and sometimes with backward-pointing hairs along 2 lateral veins above node; lateral branches unequal, ascending, the principal branch to 450 mm long (the longest at node 2 and decreasing upward), repeatedly branched, mostly glabrous but puberulent at nodes; stalks of spikelets 0.5–5.5 mm long, purplish red when panicle colored, scabrous-puberulent. **Staminate spikelet:** lanceoloid, 11–19 mm long, with each floret separated by a glabrous or sparsely pilose rachilla 0.4–0.8 mm long; **glumes** subequal or unequal, 7.2–17  $\times$  0.5–0.9 mm, lower glume < upper glume to 3.5 mm, minutely toothed on margins, tapered to a narrowly acute or 2-toothed tip; **lemma** narrowly lanceolate long-tapered to an awn, 7.8–17  $\times$  0.8–1.3 mm (including awn), the awn to 3 mm long, 3-veined, transparent milky

white, minutely toothed on margins, awn or entire midvein purplish red; **palea** elliptic, 2.7–4.6 × 0.8–1.1 mm, 2-veined, transparent, purplish red along veins. **Staminate flower:** **perianth (lodicules)** 2, fleshy and unequally 2-lobed, 0.3–0.4 × 0.3 mm, colorless, broadly tapered at base, sometimes with 2–3 hairs from teeth; **stamens** 3, free; filaments 1–2 mm long, white; anthers attached to connective on middle 1/3, dithecal, each sac linear, 2.5–3.8 × 1.5–1.7 mm, light yellow sometimes tinged purplish red, ± diverging at ends for 1 mm, longitudinally dehiscent; pollen light yellow; **pistil** diminutive, sterile, ca. 0.7 × 0.35 mm; ovary superior, ca. 0.3 mm long; styles 2, not papillate. **Pistillate spikelet:** lanceoloid, 16–17.7 mm long, with each floret separated by a glabrous rachilla 0.6–0.8 mm long, breaking above glumes and between florets; **glumes** subequal, long-tapered, 10.3–13 × 0.6–1 mm, lower glume < upper glume ca. 1.5 mm, semitransparent, narrowly truncate or minutely 2-toothed at tip, 1-veined and commonly folded along vein approaching tip; **lemma** long-tapered into an awn, 11–16 mm long (including awn) × 0.5–0.7 mm wide, the awn to 3 mm long, semitransparent milky-white, minutely toothed on margins, 3-veined, densely long-pilose with hairs 8–10 mm long; **palea** narrowly oblong, 2.2–3.2 × 0.5 mm, 2-veined, semitransparent milky white and sometimes veins purplish red. **Pistillate flower:** **perianth (lodicules)** 2, fleshy and 2-lobed, 0.5 × 0.2 mm, colorless, sparsely short-ciliate with 2–5 hairs from teeth or sinus; **stamens** absent; **pistil** 1; ovary superior, ± oblanceoloid, 0.6–0.8 mm long, light yellowish green; styles 2, exerted laterally from sides of palea, 1.1–1.5 mm long, stigmatic and bottlebrushlike for most of length with yellowish orange hairs. **Fruit:** achene, not observed in range. Mid-August–late October.

Naturalized. Tussock perennial herb escaped from cultivation and growing in sunny, mostly coastal locations, but rare individual found to Topanga Village, in Sepulveda Pass, or inland wherever the species has escaped from gardens. *Cortaderia selloana* appears to be the only pampus grass species that occurs in range, although *C. jubata*, a taller, more hairy, and all-female species (apomictic) is widespread along coastal California. Some authors have mistakenly identified tall, hairy individuals of *C. selloana* as *C. jubata*. Both species are classified as invasives, and they can displace native species. The flowering stalks of pampus grasses appear to have cauline leaves with ascending blades, but, in fact, the sheaths are attached to stem close to ground level and so must be treated as being essentially basal. The stem (culm) is covered by the leaf sheaths. *Cortaderia selloana* is a wind-pollinated, dioecious species with pistillate plants and staminate plants in which the flower has a vestigial pistil. Glumes and lemmas are long-tapered, and the fine tips are sometimes treated as awns, although they are poorly defined as such and so cannot be reliably measured. Pistillate individuals of *C. selloana* are easy to distinguish from *C. jubata* because the 2 styles of each pistils are clearly exerted from each floret, and few fruits are rarely produced, whereas purple pampus grass has included pistils that always mature as fruits without experiencing pollination.

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