

Ammophila arenaria (L.) Link subsp. *arenaria*, EUROPEAN BEACHGRASS. Perennial herb, clonal, rhizomatous, fibrous-rooted, caespitose, 70–120 cm tall; shoots arising vertically in sand from deep, horizontal, creeping rhizome, new shoot appressed to parent shoot, with cauline leaves (appearing like basal leaves) inrolled to upper side (involute) becoming fully cylindrical with only lower blade surface exposed, glabrous; rhizomes > 180 mm deep (unless exposed by erosion), low-ridged, \pm 5 mm diameter, internodes to 110 mm long, flat next to where a shoot diverges, hollow; adventitious roots nodal on rhizome and vertical stem, 1–several per node. **Stems (culms):** cylindrical, 2–4 mm diameter, tough, striped pale straw-colored and whitish, vertical stem within sand hidden by leaf sheaths; internodes hollow. **Leaves:** alternate distichous, simple with sheath; sheath open, overlapping base-to-tip, mostly 140+ mm long, striped, with minute hairs (microhairs) on softer strips, broad membranous margins continuous with ligule; ligule erect, membranous, acuminate-triangular, 11–31 mm long (short on flag leaf), splitting lengthwise, low-ridged and minutely puberulent on outer surface; blade involute and appearing cylindrical, 120–500+ \times < 2 mm, tough, when green with tightly overlapping margins except approaching tip, parallel-veined, smooth, internal surface ridged and densely white-puberulent. **Inflorescence:** spikelets, in terminal, dense panicles, panicle lanceoloid-linear to narrowly ellipsoid-linear, 110–255 \times 6–17 mm, with many overlapping, appressed lateral branches and branchlets, the axes not arising at only discrete nodes and some fused to rachis, spikelet with 1 floret, stalked, lacking awns; rachis ridged, mostly glabrous but with several short hairs on margin of collarlike ledge at nodes; axes of branches and branchlets angled, with short teeth along edges; stalk of spikelet 1–3 mm long (short for sterile or aborted spikelets), minutely scabrous along edges. **Spikelet:** lanceoloid \pm compressed side-to-side, = glumes, breaking above glumes; **glumes** 2, subequal, lanceolate, 12–15 mm long, acuminate at tip, lower glume 1-veined, upper glume 1-veined or 3-veined, keeled, keel minutely scabrous above midpoint, glabrous; callus with conspicuous tuft of straight hairs 1.5–3 mm long; **lemma** broadly lanceolate, 9–10.8 mm long, short 2-toothed at tip with short point = extension of midvein < 0.5 mm long in notch, 5–7-veined, keeled \pm base-to-tip, keel minutely toothed above midpoint, puberulent on back; **palea** lanceolate, 8.5–10.3 mm long, acute at tip lacking notch or point, 4-veined, weakly keeled above midpoint, keel minutely scabrous, puberulent on back from just below midpoint. **Flower:** bisexual; **perianth (lodicules)** 2, narrowly lanceolate, 1.8–2.2 mm long, with swollen base, short-strigose with upward-pointing hairs on back surface and often having 1–2 longer hairs on acuminate tip, aging scarious and persistent; **stamens** 3, free; filaments threadlike, 5.5–6 mm long, white; anthers fully exerted, dorsifixed, dithecal, 4.5–7 mm long, pale yellow, longitudinally dehiscent; pollen whitish; **pistil** 1, \pm 5 mm long; ovary compressed-obovoid, ca. 0.8 \times 0.5–0.6 mm, greenish; styles 2, exerted at midlemma, with long stigmatic branches base-to-tip. **Fruit:** achene (caryopsis), dispersed enclosed within floret, 9.5–11 mm long, with a tuft of straight hairs 2+ mm long on callus; achene oblanceoloid, ca. 4 \times 1.2–1.3 mm, brown, with longitudinal groove on side facing palea and having a dark brown rib, appearing hairy at tip but = collapsed persistent stigmas. Mid-May–late June.

Naturalized (extirpated). Perennial grass of sand dunes formerly planted for erosion control at spots along the coastline of the city of Santa Monica but not collected recently in

range. *Ammophila arenaria* is a distinctive grass, having blades that are fully cylindrical and involute, i.e., inrolled to the upper side so that the exposed surface technically is the lower surface of the blade, whereas the hairy, ridged upper surface is hidden inside the cylinder. European beachgrass can be found south of the city of Ventura, and one can expect to find it planted in range on seashore property where botanizing currently is not permitted. This grass is not invasive, because it rarely produces fruits but persists where its creeping rhizomes, deeply buried and rooted in sand, are not disturbed.

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