

Smooth Cordgrass



Spartina alterniflora Loisel.

Related Species

Dense-flowered cordgrass

S. densiflora Brongn.

Saltmeadow cordgrass

S. patens (Ait.) Muhl

English cordgrass

S. anglica C.E. Hubbard

Description

Smooth cordgrass plants grow 2–4 feet tall. Stems are hairless and 2–8 feet long with dense colorless flowers. Leaf blades are 8–24 inches long, tough, greenish-gray in color, and $\frac{1}{4}$ – $\frac{5}{8}$ of an inch wide becoming folded at the tip. Plants are deciduous, and stems die back at the end of each growing season. Panicles of many spikes are closely appressed and overlapping. The inflorescence is 16 inches long with 5–20 spike-like branches up to 5 inches long each. Flowers occur only on branch undersides. This plant grows in the intertidal zone between mean high water and mean low water.



Smooth cordgrass.

Georgia Coastal Ecosystems LTER photo by Steven C. Pennings

Similar Species

There are no native *Spartina* species in Alaska, but 3 other exotic species now occur on the Pacific coast. Dense-flowered cordgrass (*Spartina densiflora* Brongn.) plants are 1–5 feet tall. Leaf blades are narrow, long, inrolled, tough, grayish-green, and between $\frac{1}{4}$ and $\frac{3}{8}$ of an inch wide. The inflorescence is 2–12 inches long with dense, compact, and colorless flowers. It grows in the upper intertidal zone near mean high water, among glasswort (*Salicornia* spp.) or just below on open mud.

Exotic saltmeadow cordgrass (*Spartina patens* (Ait.) Muhl.) plants are 1–4 feet tall. The hairless leaf blades are 4 to 20 inches long and $\frac{3}{8}$ – $1\frac{1}{2}$ inches wide at the base. When fresh, leaf blades are generally inrolled and have ridges on the upper surface. Flowers occur in 2 to several spikes that are appressed to somewhat spreading. The inflorescence is 2–9 inches long with 1–4 inch spikes that ascend or diverge from the stem. The flowers are colorless. Its habitat includes middle to upper salt marsh zones, dunes, swales, sand flats, and coastal scrublands.

English cordgrass (*Spartina anglica* C.E. Hubbard) is a hybrid species with highly variable morphology. Plants are stiff and 1–4 feet tall, with stout stems that are $\frac{3}{16}$ of an

inch or more in diameter. Leaves protrude at angles more or less perpendicular to the stem. The leaf blades are flat or inrolled, persistent or falling, green or grayish-green, and $\frac{3}{16}$ – $\frac{1}{2}$ of an inch wide. Flowers are in numerous, erect, contracted panicles, consisting of closely overlapping spikelets in 2 rows on one side of the stalk. The inflorescence is 4–16 inches long with 2–12 spikes. Spikes are 6–8 inches long. Flowers are colorless. Habitats include low to high marsh zones.



Photo courtesy of NRCS Plant Materials Program

A dense stand of smooth cordgrass.

Ecological Impact

All *Spartina* species are perennial plants that spread by seeds or rhizomes, grow in ring-shaped clones, coalesce into extensive monospecific stands, and lead to the conversion of mudflats and channels into marsh. The loss of mudflat and channel may impact foraging for numerous shorebirds and waterfowl. Increased rates of sedimentation can lead to clogging of sloughs, raising them to the overall elevation of the marsh plain. Cordgrass can displace glasswort (*Salicornia virginica* L.), which provides habitat for a number of bird and animal species, as well as sea grass

(*Zostera marina* L.) and arrow-grass (*Triglochin maritimum* L.). Studies indicate that populations of invertebrates among smooth cordgrass clones are smaller than populations in intertidal mudflats. Juvenile chum salmon may lose access to important food resources and the benefits of other important attributes of mudflat nurseries.

Biology and Invasive Potential

All 4 species are saltwater-loving grasses that colonize tidal marshes. In its native range, smooth cordgrass exhibits varying growth forms in different salt marsh zones. A tall form occurs along creek banks and drainage channels. Landward of the tall form, an intermediate form occurs that grades into a stunted form at the marsh interior.

Distribution and Abundance

There are no cordgrass species in Alaska as of early 2005, but they are included in this book due to their apparent migration northward into British Columbia and the severity of their impacts.

Smooth cordgrass is native to the east coast of the United States. It is now commonly found on the west coast in marshes of San Francisco Bay in California, Siuslaw Estuary and Willapa Bay in Oregon, and Puget Sound and Juan de Fuca Strait in Washington.

English cordgrass is found in San Francisco Bay and Marin County in California and Skagit, Island, Snohomish, San Juan, Kitsap, Jefferson, and King Counties in Washington. It was recently found in British Columbia.

Dense-flowered cordgrass is native to South America. It is now found in Humboldt Bay, San Francisco Bay, and Marin County in California and Grays Harbor in Washington.

Saltmeadow cordgrass is native to the upper reaches of salt marshes on the east coast of the United States. It now occurs in California, Oregon, Washington, British Columbia,

China, and the Mediterranean.

Management

Smooth cordgrass can grow on very soft, deep mud, making infestations inaccessible by foot or boat. Hand-pulling or digging of seedlings is suggested for smaller infestations (< 5 acres). Special care must be taken to remove both shoots and roots. Shading small *Spartina* clones with woven geotextile fabric has been successful in Oregon. Mowing or herbicide treatment can reduce growth and limit seed set (Sytsma et al. 2003, Daehler 2000).

Notes

Cordgrass roots are a favorite food of snow geese. *Spartina* species have taken over vast tracts of tidelands along the west coast of the United States, increasing rates of sedimentation and marsh elevation, reducing native biodiversity, and impacting waterfowl habitat. Infestations of cordgrass have irrevocably altered the character of ecosystems in most of these areas. One of the most famous examples of complete alteration by smooth cordgrass comes from San Francisco Bay and its vicinity.



Photo by Jean Everett

Saltmeadow cordgrass.