Ammophila arenaria (L.) Link.

European beachgrass

Family: Poaceae
Range: Coasts of central to northern California and the Pacific Northwest; coasts of the central eastern states.
Habitat: Coastal dune systems. Populations may extend inland for half a mile or more.
Origin: Native to northern Europe. Originally planted along the Pacific coast from the late 1800s to the mid-1900s for sand stabilization, European beachgrass has since invaded nearly every major dune system in California.
Impacts: Populations trap blowing sand, building dunes into steep slopes which do not support native coastal vegetation. Dense stands also outcompete other species and provide poor habitat for wildlife.
California Invasive Plant Council (Cal-IPC) Inventory: High Invasiveness

European beachgrass is a clumping perennial grass to 4 ft tall, with coarse, tough foliage and long thick rhizomes. Its stems and leaves are erect and rigid. It produces long, hard, scaly rhizomes both horizontal and vertical, mostly within the top 8 inches of sand. When the population traps sand, the rhizomes are buried deeper. This further stimulates rhizome growth and shoot production, which further increases sand deposition. Plants that are not continually accumulating sand may senesce and decompose slowly, or can persist as large, living, stable clumps for decades.

European beachgrass reproduces both from rhizomes and seed. Dormant rhizome fragments survive long periods of submersion in ocean water and disperse with ocean currents. It flowers in summer, producing dense, cylindrical panicles 6 to 12 inches long. Seed viability and seedling establishment are typically low and seedlings are rarely encountered.

NON-CHEMICAL CONTROL

Mechanical (pulling, cutting, disking)	Plants can be removed manually with a two-year program. Begin removal in March, as plants emerge from dormancy. Rhizomes must be dug to a depth of 8 inches, and removal must be repeated as resprouts emerge – as many as 8 removals during the first season and again during the second season. This method is expensive but allows conservation of relict native species. Removing young plants before they become well established can prevent spread and more expensive control programs. In suitable circumstances, heavy equipment can be used for initial removal, to be followed by manual removal. Deep ripping to 3 ft has been found to be an effective first step.
Cultural	Burning does not control beachgrass but by removing the tops may allow easier access for mechanical removal or herbicide application. One study reports effective control using a fall burn to remove beachgrass tops, followed by treating resprouts with glyphosate in the following season.
Biological	There are no biological control agents available for the management of European beachgrass.

CHEMICAL CONTROL

The following specific use information is based on published papers and reports by researchers and land managers. Other trade names may be available, and other compounds also are labeled for this weed. Directions for use may vary between brands; see label before use. Herbicides are listed by mode of action and then alphabetically. The order of herbicide listing is not reflective of the order of efficacy or preference.

AROMATIC AMINO ACID INHIBITORS	
Glyphosate	**Rate:** 8% to 10% v/v solution (*Roundup ProMax*) as a spot treatment, 33% to 50% v/v solution as a wiper

Roundup, *Accord XRT II*, *Rodeo*, and others	solution **Timing:** Postemergence to non-dormant plants during active growth. **Remarks:** Glyphosate is a nonselective herbicide. It has no soil activity. With *Rodeo*, use a non-ionic surfactant (0.5% to 1.5% in spot treatments, 1% to 2.5% in wiper treatments). Effectiveness may be increased by addition of ammonium sulfate. Standing dead biomass may still have to be removed to allow revegetation. This treatment is only marginally effective and most land managers find better control when glyphosate is tank mixed with imazapyr.
BRANCHED-CHAIN AMINO ACID INHIBITORS	
Imazapyr *Habitat*, *Arsenal*, *Stalker*, *Chopper*, *Polaris*	**Rate:** 2 to 3 pt product/acre (0.5 to 0.75 lb a.e./acre) **Timing:** Best when applied pre- or postemergence in fall or spring to non-dormant plants. Applications in fall may be most effective. Some areas allow application only from September to February due to the presence of snowy plovers, an endangered species. **Remarks:** Imazapyr is a nonselective herbicide. It also has a relatively long soil residual activity and may have longer-term effects on the plant community.
Imazapyr + glyphosate + *Habitat*, *Arsenal*, or *Polaris* + *Roundup* and others	**Rate:** 2% *Roundup ProMax* or other trade name with similar amount of active ingredient + 1% *Habitat* v/v solution for spot treatment. **Timing:** Postemergence in fall or spring to non-dormant plants. Applications in fall may be most effective. **Remarks:** This combination appears to have improved efficacy and fewer negative effects compared to imazapyr alone. This tank mix is often used because the quicker response to glyphosate indicates that the application was successful. Success of treatment is enhanced with multiple applications per year.

RECOMMENDED CITATION: DiTomaso, J.M., G.B. Kyser et al. 2013. *Weed Control in Natural Areas in the Western United States*. Weed Research and Information Center, University of California. 544 pp.