United States Department of Agriculture
Natural Resources Conservation Service

Plant Guide

COSMOPOLITAN BULRUSH

Schoenoplectus maritimus (L.) Lye

Plant Symbol = SCMA8

Contributed by: USDA NRCS Idaho Plant Materials Program

Cosmopolitan bulrush. Photo by Derek Tilley, USDA-NRCS.

Alternate Names

Common Alternate Names: alkali bulrush
Scientific Alternate Names: Bolboschoenus maritimusScirpus maritimus

Uses

Erosion Control, Restoration, & Constructed Wetlands: As a pioneering species, cosmopolitan bulrush will provide protection from wind and wave erosion especially for newly exposed soil. The rhizomes form a matrix for many beneficial bacteria making this plant an excellent choice for wastewater treatment constructed wetlands (Hoag and Sellers, 1995).

Wildlife & Livestock: Livestock and big game will rarely use this species for food. Palatability is low.

Waterfowl will utilize the seed and use the stems for nesting cover. Muskrats and beaver eat the rootstocks and young shoots, and will also use the shoots for building material.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Description

General: Sedge Family (Cyperaceae). Alkali bulrush is a native perennial, heavily rhizomatous, obligate, wetland plant that may reach 1.5 m (60 in) in height and form dense stands. The stems are upright and angular with several leaves, up to 1 cm (0.4 in) wide, along the lower two thirds of the plant. The flowers are borne in sessile spikelets, densely clustered at the tip of the stem, and nestled in 3 or more leafy bracts. Spikelets are 1.2-2 cm (0.5 to 0.8 in) long. The seeds are brown lenticular achenes, 2.5 to 4 mm (0.1 to 0.16 in) long (Cronquist et al., 1977).

Distribution:
Cosmopolitan bulrush is found throughout North America with the exception of the Southeastern United States. For current distribution, consult the Plant Profile page for this species on the PLANTS Web site.

Habitat:
Cosmopolitan bulrush is found in areas with saturated soils including marshes, playas, ponds, streams and mud flats (Welsh et al., 2003). It is often found growing in association with other salt tolerant wetland species such as iodine bush (*Allenrolfea occidentalis*) inland saltgrass (*Distichlis spicata*) and seepweed (*Suaeda* spp.).

Adaptation

Alkali bulrush is found at low to mid elevations from 850 to 2,100 m (2,800 to 6,900 ft). in marshes, transient wet spots, pond margins, and backwater areas. It forms large dense stands in alkaline or saline sites. It can handle a pH of up to 9.0 and will grow on soils from fine clay to silt loam to sand. Cosmopolitan bulrush can survive periods of total inundation of up to 1 m (3 ft) deep. It tends to spread and reproduce when the water table is within 10 cm (4 in) of the surface. It can occur in freshwater sites, but is usually a pioneering species that will be replaced over time. Cosmopolitan bulrush is fairly resistant to fire, which will increase its production and protein content.

Establishment

Planting: Best establishment comes from planting plugs (either from the greenhouse or wild transplants). Plug spacing of 30 to 45 cm (12 to 18 in) will fill in within one

growing season. Soil should be kept saturated. It can handle from 5-8 cm (2 to 3 in) of standing water during the establishment year. Fluctuating water levels during the establishment period is essential. Water levels can be managed to enhance spread and control weeds (Hoag, et al., 1992).

Wild plants for transplant can be collected and transplanted directly into the desired site. If less than 4 dm^2 is removed from any 1-m^2 area (1 ft^2 in 1 yd^2), the hole will fill in within one growing season. Care should be taken not to collect plants from weedy areas, as these weeds can be relocated to the transplant site, and the hole left at the collection site may fill with undesirable species.

Management
Water level in a wetland should be fluctuated from saturated conditions up to a maximum depth of 30 cm (12 in) of standing water for establishing plants. The young plants can handle deeper water, but not for an extended period of time. This species can tolerate periods of drought and total inundation. Water levels can be managed to either enhance or reduce spread as well as to control terrestrial weeds.

Pests and Potential Problems
Generally, insects and disease are not a significant problem. If an insect or disease problem is encountered in the greenhouse, treat as you would for any other type plant.

Environmental Concerns:
Cosmopolitan bulrush is native to North America. It can spread under favorable conditions but does not pose any environmental concern to native plant communities.

Pests and Potential Problems
Pests are generally not a problem. Aphids will feed on the stems, but generally will not kill the plant.

Environmental Concerns
Because of its poor forage value, hardstem bulrush can be considered undesirable in flooded meadows and pastures. Hardstem bulrush is native to western North America. It can spread under favorable conditions but does not pose any environmental concern to native plant communities.

Seed and Plant Production
Cosmopolitan bulrush reproduces sexually by seed and asexually through vegetative spread via rhizomes.

Seed Collection and Cleaning:
Seed ripens in late August to October. Seeds are held tightly in the seed head, which means the collection time can be extended. Seed is typically collected by hand stripping the seed from the plant or clipping it using a pair of hand shears. Power seed harvesters are also effective. The bracts, which are found in the seed heads, are very irritating to the skin. Gloves and protective eye wear should be worn, especially when using a power seed harvester.

Seed Cleaning: Hammer mills can be used to break up the large debris and knock the seed loose from the stem. Cleaning can be accomplished using a seed cleaner with a No. 8 round top screen and a 1/8-inch bottom screen. Screens should be sized so desired seed will fall through and debris and weed seed are removed. Air velocity should be adjusted so chaff is blown away. Air flow and screen size may require adjustment to optimize cleaning process for given situation.

Greenhouse Plant Production:
Stratifying the seed in a mixture of water and sphagnum moss at 2°C (35° F) for 30 days may enhance the germination rate. Seed viability is quite high if stored properly for up to 20 years.

Seeds need light, moisture, and heat for germination. Place seeds on surface of soil and press in lightly to assure good soil contact. Do not cover seed. Soil should be kept moist. Greenhouse temperatures of (32 to 38°C (90 to 100° F) are required for germination and good growth. Germination should begin within about one week. Maintain moisture until plants are to be transplanted (Hoag and Sellers, 1994).

Cultivars, Improved, and Selected Materials (and area of origin)
There are no cultivars, improved, or selected materials of hardstem bulrush. Common wildland collected seed is available from commercial sources.

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