

WETLAND PLANT FACT SHEET

INTERAGENCY
RIPARIAN/WETLAND PROJECT
USDA-NRCS
Plant Materials Center
Aberdeen, Idaho 83210

Hardstem Bulrush (*Scirpus acutus*)

Hardstem bulrush is a perennial, heavily rhizomatous wetland plant that is found at low to mid elevations (generally below 7500 ft) in marshes and along lake, reservoir, and pond shorelines. It forms large stands with the young plants on the outside and the older plants on toward the center. It is generally found in areas of standing water ranging from 10 cm to more than 2.5 m in depth. It will not tolerate long periods with very deep water. It will grow and spread on alkaline, saline, and brackish sites. It will grow on soils that range from peat to alkaline and silts to coarse substrates. Hardstem bulrush will resprout after fire. Burning will increase its production and protein content. It will reproduce from seeds and rhizomes. It will spread more than 45 cm in one growing season. Seeds will tend to germinate readily on freshly deposited, fertile, moist soils. Currently accepted name is *Schoenoplectus acutus* var. *acutus* (Muhl. ex Bigelow) A. & D. Love.

DESCRIPTION:

Habit -- Perennial, rhizomatous wetland obligate. May reach 3 m in height and form dense stands.

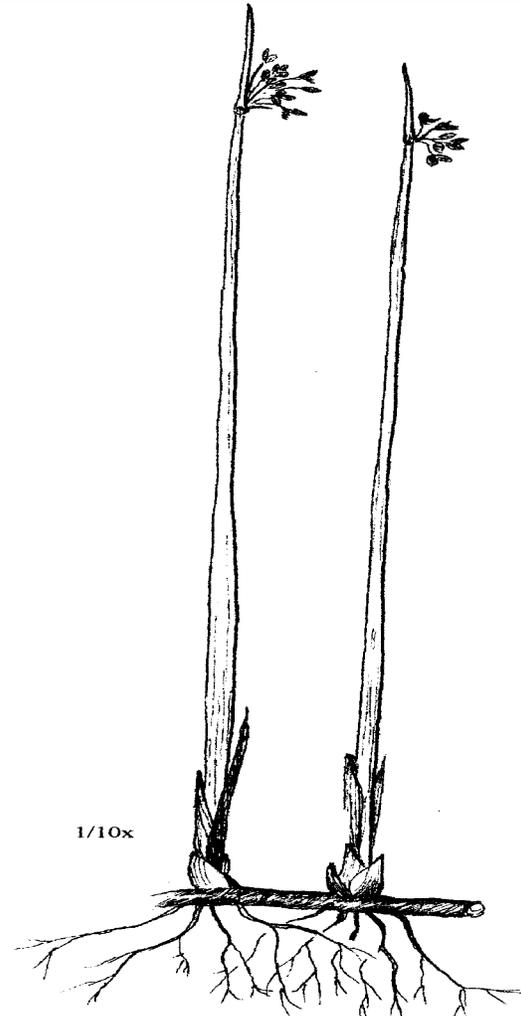
Stems -- Upright, gray-green to green, round, 1-2 cm thick, 1-3 m high.

Leaves -- Few and short, found at or near the base, commonly with well-developed sheath.

Panicle -- Terminal panicle made up of up to 50 or more spikelets. May be on a short pedicel or sessile. Spike exceeded by a 3-10 cm lateral bract.

Fruits -- Dark brown lenticular achenes up to 2.5 mm long.

Distribution -- Widespread throughout North America, but most common in the West.



(Drawing by G. Bentrup)

SEED COLLECTION:

Seeds ripen in late August to September. Seeds are not held tightly in the seedhead. High winds, frost, and brushing against the seedhead will cause the seeds to drop out. Seeds may be collected by hand stripping them from the plant or by clipping the seedhead using a pair of hand shears. A handheld power seed harvester may also be used.

CLEANING:

A hammermill is needed to break up coarse debris and knock seeds free from the panicle. Cleaning can be accomplished using a seed cleaner with a No. 12 top screen and a 1/20 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 the cleaning process for each collection.

PROPAGATION:

Special procedures -- The germination rate can be enhanced by wet prechilling the seeds in a mixture of water and sphagnum moss at 2°C for 30-75 days. Another option would be using a 10% acid wash for 45 minutes followed by a thorough washing then wet prechilling the seed for 75 days.

Greenhouse -- Seeds need light, moisture, and heat for germination. Place seeds on the soil surface and press in lightly to assure good soil contact. Do not cover the seed. Soil should be kept moist. Greenhouse should be kept hot (35°-38°C). Germination should begin within about

1 week to 10 days. Maintain moisture until plants are to be transplanted.

Wild transplants -- Wild plants can be collected and transplanted directly into the desired site. As long as no more than 4 dm², 13-15 cm deep, is removed from any 1 m² area, 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. In addition, the hole left at the collection site may fill with undesirable species.

ESTABLISHMENT AND MAINTENANCE OF STANDS:

Establishment -- Planting plugs (either from the greenhouse or wild transplants) is the surest way to establish a new stand of this species. Plug spacing of 30-45 cm will fill in within one growing season. Soil should be kept saturated. Standing water should be no deeper than 4-5 cm during the first growing season. Larger transplanted plugs can handle more standing water if the stems are cut long enough to ensure they are out of the water. Fluctuating the water level during the establishment period will speed spread. Water levels can be managed to enhance spread and to control weeds.

Maintenance -- Water level should be fluctuated from saturated conditions up to a maximum depth of 30 cm of standing water. The plants can handle deeper water, but not for an extended period of time. This species can tolerate periods of drought and total inundation. It will spread into water depths of 1-1.5 m. Water levels can be managed to either enhance or reduce spread as well as to control terrestrial weeds.

INSECT AND DISEASE PROBLEMS:

Generally not a problem. Aphids will feed on the stems, but generally will not kill the plant. If an insect or disease problem is encountered in the greenhouse, treat as you would for any other plant species.

WILDLIFE AND LIVESTOCK USES:

Livestock rarely use this species when the area is flooded. They will use it as roughage or in the winter under heavy snow cover because the stems stick out of the snow. Waterfowl will feed on the seeds and use the stands for nesting. Muskrats and beaver will eat the rootstocks and young shoots. Muskrats will use the stems for building their houses.

ANTICIPATED CONSERVATION USES:

Constructed Wetland System applications, wildlife food and cover, erosion control, wetland creation and restoration, and for improving plant diversity in wetland and riparian communities. Its dense root mass makes this species an excellent choice for soil stabilization. Its above ground biomass will provide protection from erosive wave action and stream currents that erode shorelines or streambanks. The rhizomes also form a matrix for many beneficial bacteria, making this plant an excellent choice for wastewater treatment.

RELEASED SELECTIONS:

The Interagency Riparian/Wetland Plant Development Project released four performance tested ecotypes for areas within its service area in 1997. The following is a list of those Selected releases:

Camas Selection of Hardstem

Bulrush (*Scirpus acutus*), Accession Number 9057643, for Land Resource Region (LRR) B East from Camas National Wildlife Refuge (NWR), just west of the town of Hamer, Jefferson County, Idaho.

Hagerman Selection of Hardstem

Bulrush (*Scirpus acutus*), Accession Number 9057597, for Land Resource Region (LRR) B West from Hagerman Wildlife Management Area, just west of the town of Hagerman, Gooding County, Idaho.

Ogden Bay Selection of Hardstem

Bulrush (*Scirpus acutus*), Accession Number 9067393, for Land Resource Region (LRR) D South from Ogden Bay Wildlife Management Area, west of the city of Ogden, Weber County, Utah.

Stillwater Selection of Hardstem

Bulrush (*Scirpus acutus*), Accession Number 9057634, for Land Resource Region (LRR) D North from Stillwater National Wildlife Refuge, northwest of the town of Fallon, Churchill County, Nevada.

REFERENCES:

Hurd, E.G., N.L. Shaw, and L.C. Smithman. 1992. Cyperaceae and Juncaceae- selected low-elevation species. Proceedings of Symposium on Ecology, Management, and Restoration of Intermountain Annual Rangelands, Boise, ID. May 18-22, 1992. p.380-383.

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