

WOOLGRASS

Scirpus cyperinus (L.) Kunth

Plant Symbol = SCCY

Contributed by: USDA NRCS National Plant Data Center



R. Mohlenbrock
USDA, NRCS, Wetlands Institute
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Alternative Names

cotton grass bulrush, common wool-grass

Uses

Ethnobotanic: Woolgrass stems were woven to make matting and ropes. The fruiting tops of the plant were used as a resilient material for stuffing and making pillows (Moerman 1998). The small rushes were used in making woven mats and storage bags (Ibid.).

Wildlife: Woolgrass is one of several wetland species that are important in providing food, cover and nesting material for waterfowl and other wildlife. Woolgrass acts as a buffer against wind and wave action, which permits other aquatic species to grow in otherwise unfavorable environments. Muskrats eat both the foliage and rhizomes of woolgrass. Voles eat the seedheads.

Phytoremediation: Woolgrass is a prevalent species in natural acid mine drainage wetlands in West Virginia and Pennsylvania. Woolgrass is useful in constructed wetlands for ammonium removal and the treatment of municipal wastewater and ash pond seepage. Woolgrass was difficult to establish in a peat-sand filter bed that was irrigated with sewage effluent in Minnesota. The researchers concluded that woolgrass required a wetter environment.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description

General: Sedge family (Cyperaceae). Woolgrass (*Scirpus cyperinus*) is a tall rhizomatous perennial with slender culms. This species is an erect grasslike plant up to 6.5 feet tall, commonly four to five feet (Tiner 1987). The leaves are smooth, flat, elongated, and up to ½ inch wide. The flowers occur in dense rounded clusters of greenish-brown spiklets arising from the top of the culm. The fruits are yellow-gray to white achenes surpassed by long red-brown bristles at maturity. The flowers are wind-pollinated and the achenes reach maturity in late summer. Achenes are small and light. An estimated average number of achenes per inflorescence is 108,000. The number of seeds (achenes) per pound has been estimated from 27 to 45 million. The reported numbers of chromosomes for woolgrass are 60, 64, or 70.

Distribution: Woolgrass ranges from New England and New York westward across Ohio to Iowa, and southward to North Carolina and Oklahoma. It is also found from Newfoundland to Minnesota south to Florida and Louisiana (Tiner 1987). For current distribution, please consult the Plant profile page for this species on the PLANTS Web site.

Adaptation

Woolgrass is found in irregularly flooded tidal fresh marshes, inland marshes, wet meadows, and swamps. This species grows best in areas with wet soil moisture content and is seldom found in more than a few inches of water (Voss 1972). It prefers peat or sandy soil types in full to partially sunny locations. Woolgrass is an early successional species. It often invades disturbed wetlands where the soil has been exposed by drawdown. It tolerates a wide range of hydrologic, soil and chemical conditions. It has been found in peat soils with pH levels as low as 3.7 and high as 8.4. Woolgrass performs well in created and constructed wetlands for the treatment of acid mine drainage if the pH of the influent mine drainage is > 4. Woolgrass has been found growing in tittle rice fields where the salinity was 9000 mg/L.

Though woolgrass will grow in water it is seldom found growing in water more than a few inches deep. Mature woolgrass plants form raised tussocks, which tolerate greater water depths than seedlings.

Woolgrass clonal clumps collected from an acid mine drainage contaminated wetland were compared with clumps from an uncontaminated wetland. Plants from the contaminated source population had more total root length, more tillers, larger clump diameter and greater biomass than plants from the uncontaminated source population when grown in the presence or absence of acid mine drainage. Plants from the two populations were not different for growth characteristics when grown in the presence of tap water. Variation for growth characteristics among individual clones in the presence of acid mine drainage suggests a potential for genotypic selection in woolgrass for increased growth in presence of acid mine drainage.

Establishment

Propagation by Seed: Woolgrass seeds should be sown in a cold frame as soon as they are ripe in a pot standing in three centimeters of water. The seeds should be just covered with soil. Soil should be constantly damp until germination is complete. The seeds germinate quickly. When they are large enough to handle, plant them into their permanent positions in early summer.

A review of woolgrass seed germination studies suggest that woolgrass seed is initially dormant and cold-most stratification followed by divergent day/night temperatures (90/77 °F) increase germination percentage. Light appears necessary for germination of woolgrass seed. Woolgrass seed, unlike seed of many aquatic species is apparently not injured by drying. But, dry storage of woolgrass seed decreases germination percentage. Seed can be stored submerged in distilled water for extended periods. Woolgrass exhibited at least 50 % germination after submerged storage at 37-39 °F for 35 months.

Propagation by Stem Division: Divisions should contain both shoots and rhizomes. Large divisions can be planted directly into their permanent positions. It is best to pot smaller divisions and grow them in a cold frame, out-planting when they are well established in the summer.

Management

An ecologist suggested that a woolgrass community in Wisconsin developed with the water-level control program. Water levels were drawn down, and woolgrass seedlings established on the exposed mudflats. Seedling density was highest on the driest

portion of the formally submerged area. Once established, woolgrass survived in this area after re-flooding.

Woolgrass propagules should be planted in saturated, but not inundated soil. Seedlings will not survive prolonged inundation at the time of installation. During the first growing season following planting, water depths should be kept at or near the soil surface as much of the time as possible. But, standing water during periods when plants are dormant such as winter and early spring is not as harmful. Once plants have formed tussocks they can tolerate greater water depths for longer periods. Tussocks formation takes several years from seedlings and a year longer from seed. Water levels are critical though out this period.

Newly established woolgrass meadows should be burned each year usually in the spring for the first three or four years; then once every two or three years. Historically, dense woolgrass stands are best maintained by mowing or prescribed burning.

Researchers studied primary succession in a created freshwater wetland by comparing plant cover, species density and biomass in the created wetland with that in a reference wetland. Woolgrass and cypress panicgrass (*Dichanthelium dichotomum* var. *dichotomum*) were the dominant species in the reference wetland. In contrast, blunt spikerush (*Eleocharis obtusa*) and tapertip rush (*Juncus acuminatus*) were the dominant species in the created wetland.

A slow plant decomposition rate in wetlands subjected to acid mine drainage may result in a low level of nutrient cycling because a substantial proportion of nutrients remain unavailable in the organic matter. Two studies indicate that the decomposition rate of woolgrass and common rush (*Juncus effusus*) were significantly lower than that of calamagrostis (*Acorus calamus*) and rice cutgrass (*Leersia oryzoides*), when subjected to acid mine drainage.

Cultivars, Improved and Selected Materials (and area of origin)

Muckalee Germplasm wool-grass was released as source identified material by the Jimmy Carter Plant Materials Center (GA) in 2008. It can be used in small constructed wetlands, wetland restoration and riparian buffers. Available through wetland plant nurseries. Contact your local Natural Resources Conservation Service office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation

Service will be listed under the subheading "Department of Agriculture."

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Prepared By

Jammie Favorite
formerly USDA, NRCS, National Plant Data Center
Baton Rouge, Louisiana

Species Coordinator

James Henson
USDA NRCS National Plant Data Center, Baton Rouge, Louisiana

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