

WETLAND PLANT FACT SHEET

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

Nebraska Sedge (*Carex nebrascensis*)

Nebraska Sedge is a perennial, heavily rhizomatous wetland plant that is found in low valleys to mid-elevations. It will form dense stands, and often it is the dominant member of the wetland community. It grows in wet to moist meadows, marshes, swamps, ditches, seeps, stockwater ponds, low to moderate gradient streams, riparian wetlands, and lake shores. It tolerates alkaline conditions very well. It is an obligate wetland plant. It reproduces by rhizomes and seed. However, seedling establishment is unusual except on freshly deposited, fertile, moist soil. It has moderate to good palatability early in the season, but becomes tough as the temperatures grow colder. Shoots from rhizomes are produced throughout the growing season and into late fall.

DESCRIPTION:

Habit -- Forms dense deep root system with root biomasses up to 3000g/m² in the top 20 cm of soil.

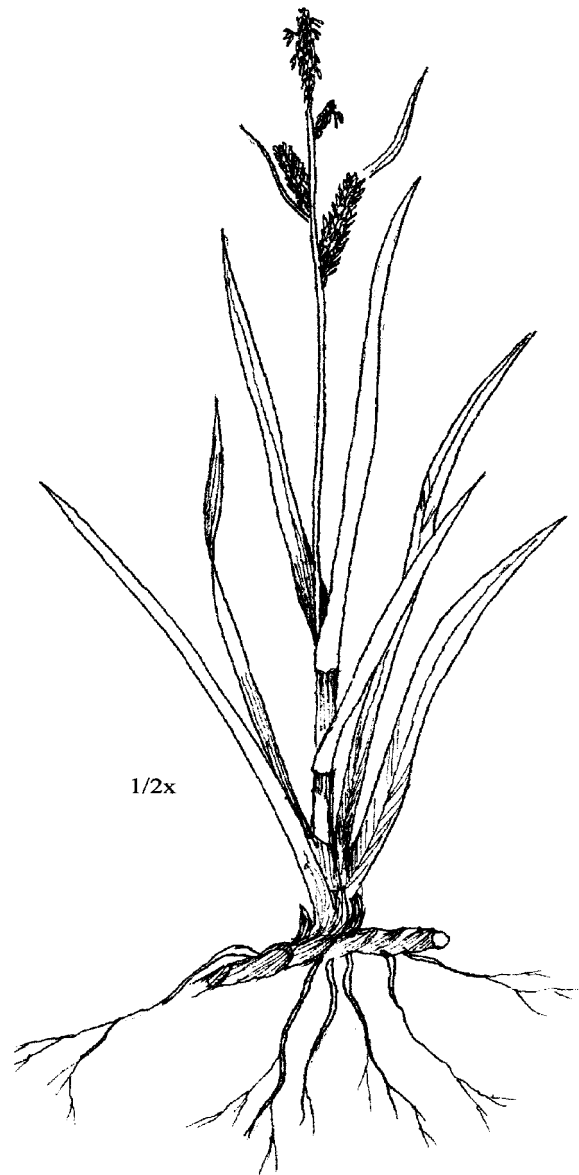
Stems -- Upright, triangular, spongy inside; plants growing in saturated soils will grow to about 90 cm.

Leaves -- Elongated, alternate, longer or shorter than the stem, up to 12 mm wide, often with a bluish tinge.

Spikes -- The flowers are most often borne on separate male or female spikes on the same plant. There are generally 1-2 male spikes above the 2-5 female spikes. The male or staminate spikes are usually sessile, narrow, and about 1.5-4 cm long; female or pistillate spikes are on a short peduncle and 1-5 cm long.

Fruits -- Brown lenticular achenes, up to 2 mm long. The achene is surrounded by a "leathery capsule" called a perigynium. Perigynia are elliptic to ovate, 3-4 mm long, and yellowish brown to light brown in color. The seed (if present) is found in the base of the perigynial cavity.

Distribution -- Common throughout the western Midwest and western United States.



(Drawing by G. Bentrup)

HYDROLOGY:

Nebraska sedge grows in areas that are saturated. It can handle standing water for long periods of time as long as there are periods when the soils dry down. Nebraska sedge is rarely found where the water table will drop more than 1 m below the root zone late in the growing season. Nebraska sedge can tolerate total inundation for about 3 months.

SEED COLLECTION:

Plants flower from June to August. Seeds ripen in August to October. Perigynia are not held tightly in the seed head. High winds and frost will cause the perigynia to drop off. Seeds may be collected by hand stripping them from the plant or clipping the seedheads using a pair of hand shears. A power seed harvester may also be used. There are 2.7 million perigynia/kg. Often the perigynium is mistaken for the seed. In many cases, especially if there is a frost during flowering, the seed will not fill, but the perigynia will still form. It is recommended that the collector open several perigynia to see if they actually contains a seed.

CLEANING:

If debris or other seed mixed in the collection, cleaning may be desirable. A hammermill is used to break up the large debris and knock the seeds loose from the stem, but they may not always be needed. Cleaning can be accomplished using a seed cleaner with a No. 8 top screen and a No. 20 bottom screen. Screens should be sized so desired seeds will fall through and debris and weed seeds are removed. Air velocity should be adjusted so chaff and empty perigynia are blown away. Air flow and screen size may require adjustment to optimize the cleaning process for a given situation.

Once the fruits are cleaned, the perigynia must be removed. They can be removed with a seed scarifier or a sandpaper box. The seed is then re-cleaned using the top

and bottom screens to separate the seed from the empty perigynia.

PROPAGATION:

Special procedures -- The germination rate may be enhanced by removing the perigynia and by wet prechilling the seeds in a mixture of water and sphagnum moss at 2° C for 30 days.

Greenhouse -- 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 muddy. Greenhouse should be kept hot (32°-38°C). Germination should begin within about 1 week. Maintain moisture until plants are to be transplanted.

Wild transplants -- Wild plants can be collected and transplanted directly into the desired project 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 from saturated conditions to no more than 2.5-5.1 cm of standing water until the plants are well established and the aerenchymous material (the above ground biomass) is about 0.3 m tall. Fluctuating the water level during the establishment period may speed establishment and spread. Water levels can be managed to enhance rhizome spread and to control weeds.

Maintenance -- Soil should be kept saturated. The water table should rarely drop below the root zone. This species can tolerate periods of drought and total inundation. Water levels can be managed to control terrestrial weeds.

INSECT AND DISEASE PROBLEMS:

Few insect or disease problems have been encountered in the greenhouse. Aphids will feed on the stems, but little or no damage has been noted and the vigor of the plant has not been affected.

WILDLIFE AND LIVESTOCK USES:

Nebraska sedge is a valuable forage species used by big game and livestock. Annual production and nutrient levels are quite high. It has half the protein level of alfalfa. It provides cover for nesting waterfowl, seeds for small mammals and birds, and the shoots are grazed by muskrats and geese. It can be used as a key species to determine grazing pressure.

ANTICIPATED CONSERVATION USES:

Erosion control, Constructed Wetland System applications, wildlife food and cover, wetland creations and restorations, and for increasing plant diversity in wetland and riparian communities. Its dense root mass (214 cm of roots/cm³ of soil) makes this species resistant to soil compaction and erosion. It also makes it an excellent choice for soil stabilization in wetlands and riparian sites. Nebraska sedge is used extensively in bioengineering techniques because of its dense root system. 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:

Sterling Selection of Nebraska Sedge (*Carex nebrascensis*), Accession Number 9067420, for Land Resource Region B East from the Sterling Wildlife Management Area, just north of the town of Aberdeen, Bingham County, Idaho.

Centennial Selection of Nebraska Sedge (*Carex nebrascensis*), Accession Number 9057599, for Land Resource Region B West from Centennial Marsh Wildlife Management Area, just south of the town of Hill City, Camas County, Idaho.

Modoc Selection of Nebraska Sedge (*Carex nebrascensis*), Accession Number 9057612, for Land Resource Region D North from Modoc National Wildlife Refuge, near the town of Alturas, Modoc County, California.

Ruby Lake Selection of Nebraska Sedge (*Carex nebrascensis*), Accession Number 9057639, for Land Resource Region D South from Ruby Lake National Wildlife Refuge, near the town of Ruby Lake, Elko 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.

Manning, M.E., S.R. Swanson, T. Svejcar, and J. Trent. 1989. Rooting characteristics of four Intermountain meadow community types. JRM 42(4), July, 1989. p. 309-312.

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