



GRASSES

Native to Shortgrass Prairie

SIDE-OATS GRAMA

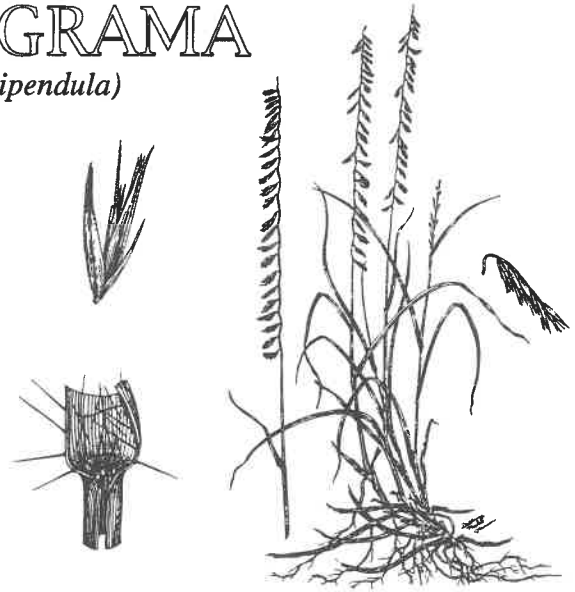
(*Bouteloua curtipendula*)

Description

When walking across the prairie uplands in the late fall, you may find a slender, somewhat zigzag-shaped stalk rising above the short prairie grasses. Many flower clusters may remain aligned along one side of this stalk, giving it the appearance of the flags on a ship's mast. It is likely that you have had an encounter with a grass known as side-oats grama.

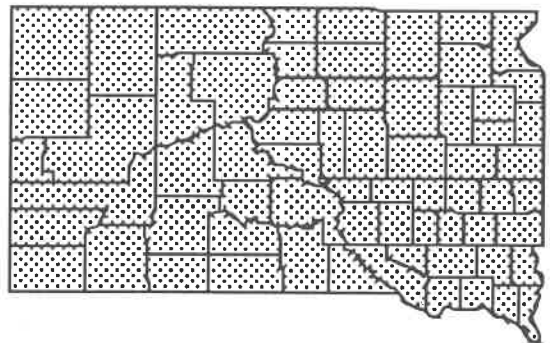
The common name was inspired by the alignment of the seeds along one side of the stalk, and by the Spanish explorers who called this and other related grasses "grama," or "grass" in Spanish. The scientific name was given in honor of two Spanish gardeners of the nineteenth century, Claudio and Esteban Boutelou. The Lakota call this grass, *wapaha kamnínnila péjé*, "banner waving in the wind grass."

In South Dakota, the erect, flattened, zigzag stalk grows from 1 to 3 feet high (36-108 cm). From 20 to 80 one-sided spikes, or flower clusters, are attached along two sides of the stalk, but will align themselves along one side of the stalk. The leaves, usually wide and flat with stiff hairs along their margins, grow from 1 to 12 inches long (3-36 cm). The majority are clustered at the base of the plant, a few are attached to the stalk. When in flower, with the *anthers* in evidence, the *spikes* are a distinct



orange-red color. As the grass matures, the leaves become curled and whitish-brown. In the fall, the plant becomes light red in color. This grass tends to grow in bunches, usually in association with other grasses. Rarely does it grow in great abundance, and only occasionally does it grow in pure stands.

Distribution



Species Distribution

Side-oats grama is widely distributed throughout North and South America, from Southern Canada to Argentina. In the United States it grows in all regions except the Pacific Northwest and the extreme Southeast. In South Dakota it grows throughout the state, preferring upland soils, especially the poor, thin soils found on dry slopes and steep banks. It can also be found on streamsides, where rock debris has been newly deposited by the running water. It is best adapted to fine textured, *alkaline* soil containing calcium carbonate, or lime, and will grow in moist or dry settings. It can be found in association with both little and big bluestem (*Andropogon spp.*) plant communities.

Natural History

Side-oats grama is a native, *warm season, perennial* grass. It tends to be a sod forming grass, reproducing mainly by *rhizomes*. *Rhizomes*, also known as rootstalks, produce roots and shoots, with the shoots arising from the ground to produce new plants. These underground rootstalks are usually short, being only 2 to 4 inches long (5 to 10 cm). In addition to *rhizomes*, it also reproduces by seed. Though of somewhat low *viability*, the seed is produced in such an abundance that seedlings are commonly found.

Side-oats grama begins growth in early spring and continues through early summer, flowering from July through September. During early fall, it may have another period of growth. Its dense mass of fine roots that penetrate the soil as deep as 4 feet (144 cm), coupled with its abundant seed and *rhizome* production, have given side-oats grama the ability to

withstand the periodic droughts that visit the Great Plains.

Significance

Prior to the drought of the 1930's, side-oats grama covered less than one percent of certain rangelands. Following the drought, it was the dominant species on the same rangelands. Furthermore, this species increases in abundance under grazing pressure, especially when growing in association with bluestems (*Andropogon spp.*), and it is capable of invading bare soil. Hence, side-oats grama has been valuable as a soil cover in times of drought and following disturbances such as overgrazing. If intense grazing is prolonged, side-oats grama may decrease in abundance.

When green, this grass is highly *palatable* to livestock, and will produce a respectable volume of forage, up to 1,600 to 2,600 lbs (727 to 1182 kg) per acre. Under favorable moisture it will produce usable green feed in spring. It will be consumed mainly through the growing season, although it offers some food through the winter. The stems are not as *palatable* as the leaves. Consequently, a variety of wildlife, such as the chestnut-collared longspur, black-tailed prairie dog, pronghorn antelope, and American bison, are known to use this and other *Bouteloua spp.* for food.

Side-oats grama has proven to be valuable for agricultural uses. It is a desirable forage for all manner of domestic livestock. Where abundant, it produces a good quality hay. Not to be overlooked is the aesthetic value of this grass. A brush of side-oats grama on a rocky hillside amidst a flurry of grasses, sedges and forbs is a beautiful scene.

Glossary

- Alkaline** - basic, capable of neutralizing acids; pertaining to soil that contains minerals or mineral salts.
- Anther** - the pollen producing part of the male organ of the flower.
- Palatable** - pleasant to eat.
- Perennial** - a plant that lives for more than two years.
- Rhizome** - an underground stem that produces roots and shoots at intervals, the shoots arising from the ground to produce new plants. Also called rootstalk.
- Spike** - an unbranched, elongated cluster of stemless flowers attached to a central axis.
- Viability** - the state or quality of being able to take root and grow.
- Warm season grass** - a grass that produces seed in the warmest months of the growing season.

References

- Costello, David F., 1969. *The Prairie World*. University of Minnesota Press, Minneapolis, MN.
- Hitchcock, A.S., 1971. *Manual of Grasses of the United States*. Volume 1, Dover Publications, Inc., New York, NY.
- Johnson, James R. and James T. Nichols, 1982. *Plants of South Dakota Grasslands*. South Dakota State University, Brookings, SD.
- Looman, Jan, 1982. *Prairie Grasses*. Canadian Government Publishing Centre, Ottawa, Canada.
- Martin, Alexander C. and Herbert S. Zim, and Arnold L. Nelson, 1961. *American Wildlife and Plants*. Dover Publications, Inc. New York, NY.
- Stubbendeick, James, and Stephan L. Hatch, and Charles H. Butterfield, 1991. *North American Range Plants*. University of Nebraska Press, Lincoln, NE.
- Stubbendeick, J., and James t. Nichols, and Kelly K. Roberts. *Nebraska Range and Pasture Grasses*. Nebraska Cooperative Extension Service.
- Van Bruggen, Theodore, 1976. *The Vascular Plants of South Dakota*. The Iowa State University Press, Ames IA.
- Van Bruggen, Theodore, 1983. *Wildflowers, Grasses and Other Plants of the Northern Plains and Black Hills*. Badlands Natural History Association, Interior, SD.
- Weaver, J.E., 1954. *North American Prairie*. Johnsen Publishing Company, Lincoln, NE.
- USDA Forest Service, 1988. *Range Plant Handbook*. Dover Publications, Inc., New York, NY.

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