

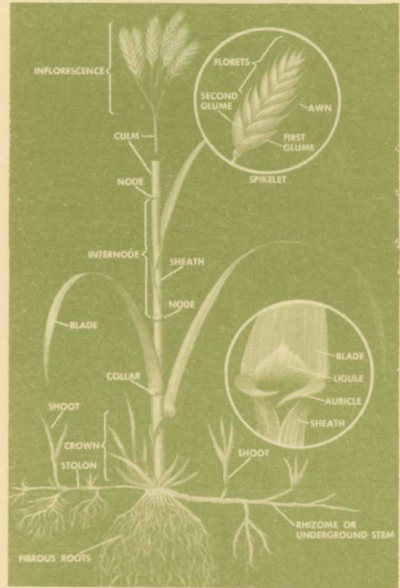
NATIVE NORTH DAKOTA GRASSES



Early pioneers depended on native grasses to provide sod for their homes, feed and bedding for their livestock. We still depend on grass. As one of the most important plant families, it includes native and cultivated forage grasses as well as corn, rice, wheat, rye, barley and oats. This display was established as an educational tool to introduce the visitor to some of the varieties of grasses. Because appreciation and interest develop with knowledge, we hope this leaflet will make the grasses more meaningful to you.

**UPPER SOURIS
NATIONAL WILDLIFE REFUGE
FOXHOLM, NORTH DAKOTA**

Grass has fibrous roots that take in water and nutrients and anchor the plant firmly to the ground. It spreads by seed, rhizomes and stolons or runners. Leaves originate at the nodes and alternate on each side of the stem. They are parallel-veined and composed of three parts — blade, sheath and ligule. The sheath surrounds the stem like a split tube, protecting the new growth. The ligule clasps the stem firmly which prevents dirt and water from fouling the sheath. The culm or stem is usually hollow except at the nodes or joints. As a rule, flowers are perfect, containing both male and female parts.



Switchgrass, a native, warm season, sod forming grass, is a frequent dominant of lowlands. The rather large tear-drop shaped seeds are borne on open seed heads of coarse stems reaching 3-6 feet tall. Identification is simplified by a V-shaped patch of hair on the upper surface of the leaf blade near the stem. Although not as palatable as some grasses, switchgrass is consumed by livestock as long as the stems remain green. Even after maturity, leaves and seed heads are readily eaten. In wetlowlands, switchgrass makes excellent yields of good quality hay and often can be harvested twice a summer.



Prairie sandreed or prairie sandgrass has stems which arise singly from rootstocks, attaining heights of 2-6 feet. Each stem has 10-12 leaves, with flat to inrolled blades, 15-24 inches long, and tapering to a fine point. The flower head is 6-18 inches long, narrow, with erect or ascending branches. Seeds have a basal ring of white hairs half the length of the seed cover. The rhizomes are extensive with the sharp tips pointed much like a rooster's spur. Prairie sandreed is a warm season grass found primarily on sands. It is not particularly palatable during the growing season, but it cures well on the ground and makes good winter feed for cattle.



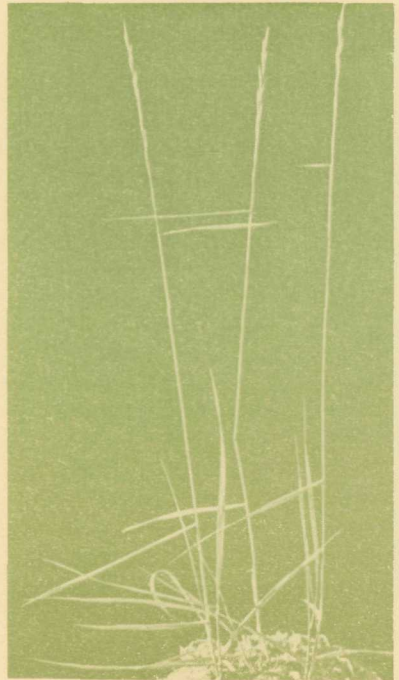
Green needlegrass, also called feather bunchgrass, is a cool season, perennial, bunchgrass, varying in height from 18-36 inches. The seed head is somewhat compacted. The awns are curved, sharply bent in the middle and about one inch long. Leaves are often rolled, thread-like, 4-12 inches long, with prominent veins above. The ligule and sheath margin are hairy. It remains green late into the season. An important native grass, it grows on fine or medium textured soils with western wheatgrass, needleand-thread and blue grama. Green needlegrass is nutritious, palatable, and decreases under grazing use. Awns are not troublesome to livestock as with other needlegrasses.



Blue grama is easily identified by seed heads which resemble a human eyebrow. The seed stalks are from 10-20 inches tall. It differs from hairy and sideoats grama by not having the stiff hairs on the leaf blade margin. Leaves are mostly basal, curling greatly as the plant cures. This perennial, warm season, short grass does best on drier sites. It is best adapted to medium and fine textured, deep soils of rolling uplands. Blue grama increases with grazing pressure frequently replacing the more productive mid- and tall grasses, often giving way to buffalograss. Although normally low in productivity it is nutritious and palatable to all classes of livestock even during winter.



Western wheatgrass is a native, cool-season, sod forming grass. Leaves are stiff, flat when green, and feel rough to the touch. Stems and leaves are generally blue-green giving rise to a less-preferred name, bluestem wheatgrass. It grows on soils ranging from sands to clays. This grass is palatable and nutritious when green in the spring and moderately so during other times of the year. Vigorous rhizomes make western wheatgrass one of the more tolerant of the desirable and abundant grasses to grazing pressure and drought. Grazing abuse, however, especially in May and June will decrease its abundance.



Big bluestem, or turkey foot, is so named because of large size, bluish color, and seed heads which frequently branch into three parts resembling a turkey's foot. This warm season, perennial, tall grass has coarse seed stalks reaching 3-8 feet in height, with numerous large leaves $\frac{1}{4}$ - $\frac{1}{2}$ inch wide, often covered with hairs. It typifies the lowland tall grass community and also grows in protected areas having high soil moisture. Big Bluestem is among the best of the prairie grasses in quality and palatability when it is actually growing. Abundance will quickly decrease with frequent mowing or with heavy grazing pressure.



Little bluestem is a warm season, tufted, leafy, perennial bunchgrass, 1-4 feet tall. Basal portions of stems and leaf sheaths are somewhat flattened, leaves are slightly folded and lacks hairiness on sheaths and lower leaves. Visible growth usually begins in late April or early May. Leaves become bluish-green to reddish-brown at maturity. Seeds are fuzzy and fluffy white at maturity. It is the dominate of many upland plant communities and occurs mainly on sandy soils or on weakly developed soils especially along ridges or steep slopes. Little bluestem is nutritious and liked by livestock when green but it does not cure well. It makes fine hay, but consecutive years of haying will reduce its abundance.



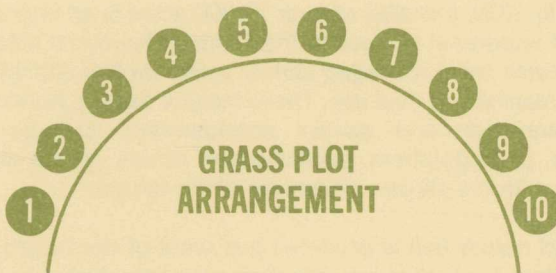
Sideoats grama takes its name from the oat-like florets which appear to hang from the seed stalk along one side. Leaves normally are flat, with stiff hairs along the leaf blade edges. With curing, basal leaves curl and turn white. The entire plant may take on a light reddish appearance late in the summer and fall, similar to the somewhat darker red bluestems. Sideoats grama may be found in many upland plant communities, but is most common on weakly developed soils of steeper slopes. Sideoats grama is relished by all classes of livestock. Growing with little bluestem, sideoats grama usually increases with heavy grazing pressure, but if prolonged it gives way to blue grama and/or increasing or invading forbs.



Prairie Junegrass or Junegrass is a perennial bunchgrass occurring as small tufts normally about two inches in diameter. The dense, contracted spike-type seed heads are 2-5 inches long. Leaves extend to 12 inches, and seedstalks are normally 8-24 inches long. Leaves are stiff, dark green and rough on the upper surface. Growth is completed by mid-June with plants becoming dormant until autumn or the following spring. When green it is good forage and palatable to all livestock as well as deer and elk, becoming less preferred with maturity. Prairie Junegrass is easily overgrazed because it greens earlier than most other native grasses.



Needleandthread or speargrass is a cool season, perennial bunchgrass with seed stalks reaching 1-3 feet but with leaves mostly basal. It flowers in early June. Sharp pointed seeds have twisted awns 4-5 inches long, giving rise to the common names. The leaves, less than an eighth of an inch wide and 8-12 inches long are rough on the upper surface. Needleandthread, a native midgrass, is an important constituent of the upland prairies, common on coarse and medium textured soils. The grass provides from fair to good forage, especially when green. If grazed during the time the awns are prominent physical injury may result to eyes, mouth and flesh of sheep. Larger livestock seldom are bothered.



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| 1. Switchgrass — Panicum Virgatum | 6. Big bluestem — An-dropogon gerardii |
| 2. Green needlegrass — Stipa viridula | 7. Little bluestem — An-dropogon scoparius |
| 3. Prairie sandreed — Calamovilfa longifolia | 8. Sideoats grama — Bouteloua curtipendula |
| 4. Blue grama — Bouteloua gracilis | 9. Prairie Junegrass — Koeleria cristata |
| 5. Western wheatgrass — Agropyron smithii | 10. Needleandthread — Stipa comata |

Grass descriptions and reproductions courtesy of the Agricultural Experiment Station, South Dakota State University, Brookings.



Upper Souris National Wildlife Refuge extends for nearly 30 miles along the beautiful Souris River Valley in northwestern North Dakota. Established in 1935, this area of over 32,000 acres is an important unit in the series of waterfowl refuges in the Central Flyway. In addition to the water and marsh areas managed almost solely for fish and wildlife, there are certain areas having dual use. These include fishing, hunting, boating, wildlife observation and special arrangements can be made for berrypickers, photographers, canoeing and others whose activities will not interfere with the primary objectives of the refuge.

A self-guided nature trail is provided just west of the headquarters and main dam. Here the visitor can use their new knowledge to identify the grasses along the trail. Anyone desiring further information on the flora and fauna of the area should stop by the refuge headquarters.



Created in 1849, the Department of the Interior — a department of natural resources — is concerned with the management, conservation, and development of the Nation's water, fish, wildlife, mineral, forest and park and recreational resources. It also has major responsibilities for Indian and Territorial affairs.

As the Nation's principal conservation agency, the Department works to assure that nonrenewable resources are developed and used wisely, that park and recreational resources are conserved for the future, and that renewable resources make their full contribution to the progress, prosperity, and security of the United States — now and in the future.

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Fish and Wildlife Service
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