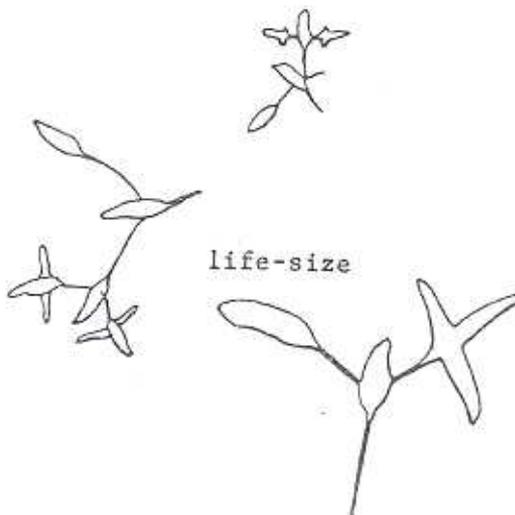


LITTLE, FREE-FLOATING PLANTS grow in sheltered fresh water, often in the shade of trees, shrubs, and marsh plants. Reproduction is mainly by offshoots from growing plants.

STAR DUCKWEED, *Lemna trisulca*

Fresh water; Alaska to Quebec, California, and Georgia (but rare in the southeastern states).

Half-floats under the surface of water which is sheltered from wind and which contains much nitrogenous matter; often under a blanket of Duckweeds and Watermeals. Dull-green. New plants grow from old ones; and several individuals are often attached to each other.



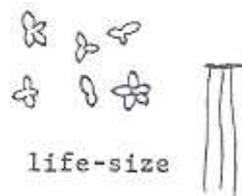
OBL

LITTLE DUCKWEEDS, *Lemna*
(except *Lemna trisulca*, above)

Fresh water; Alaska to Quebec, California, and Florida.

A green blanket on water which is sheltered from wind and which contains much nitrogenous matter; often mixed with Big Duckweeds and Watermeals. New plants grow from old ones; and a few individuals are often attached to each other. One root dangles in the water from each plant.

The five kinds known in Canada and the United States cannot surely be told apart without a hand lens or microscope, and then only when they have seeds. They are *Lemna gibba*, *minima*, *minor*, *perpusilla* (*trinervis*), and *valdiviana* (*cyclostasa*).



Source: Hotchkiss, 1967

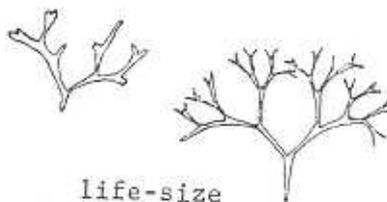
OBL

RICCIA, *Riccia fluitans*

Aquatic liverwort

Fresh water, British Columbia to Maine, California, and Florida.

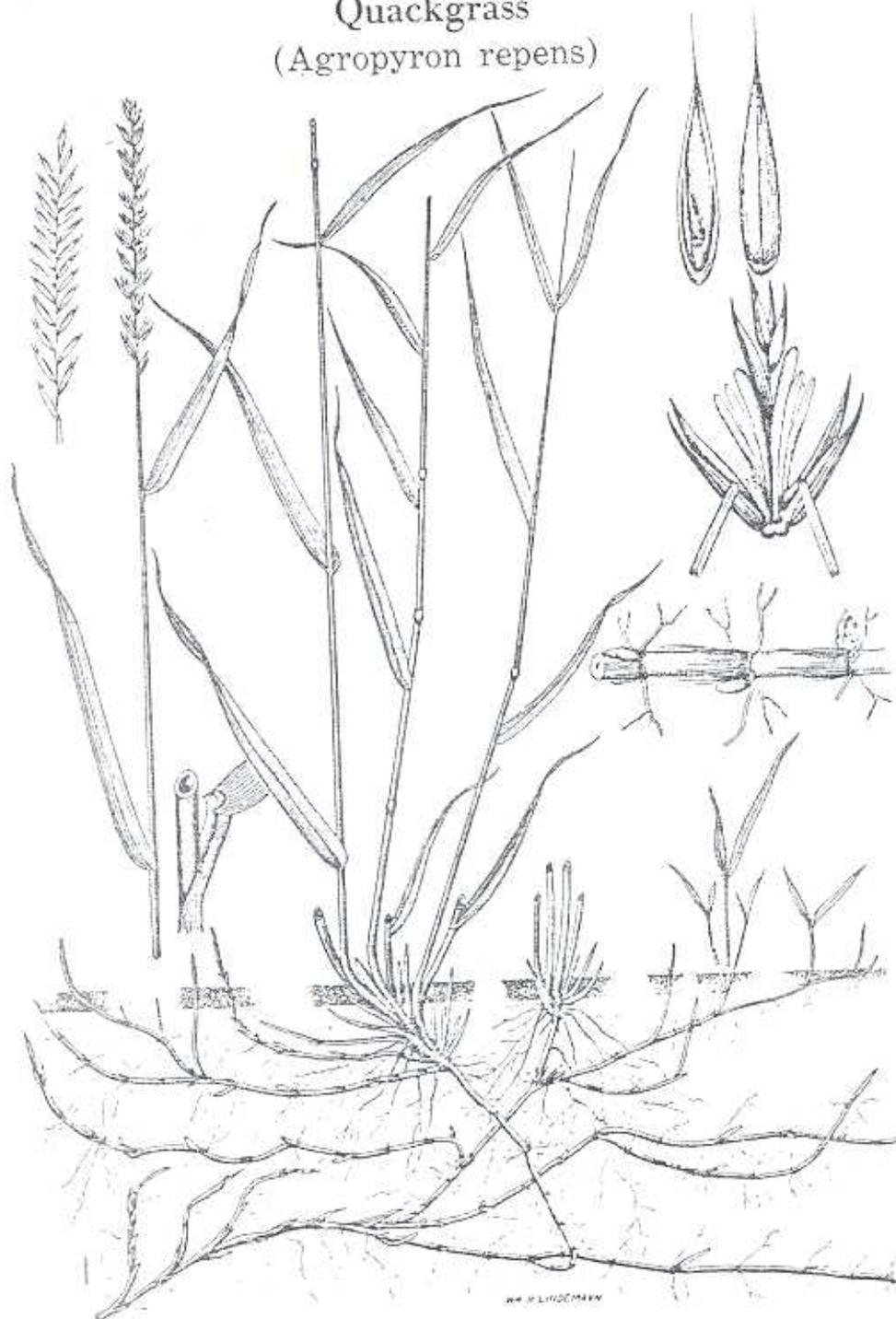
Half-floats under the surface of water which is sheltered from wind and which contains much nitrogenous matter; often under a blanket of Duckweeds.



life-size

Source: Hotchkiss, 1967

Quackgrass
(*Agropyron repens*)



Source: South Dakota Weeds

NC - FACU

***Alopecurus aequalis* Sobol. SHORT-AWN FOXTAIL.**

Perennial; culms erect or somewhat decumbent below and rooting at the nodes, glabrous, 2-6 dm. tall (or taller in some aquatic forms); sheaths glabrous, usually somewhat inflated; ligules 3-5 mm. long; blades slightly scabrous, 1-4 mm. wide, sometimes tufted at base; panicles more or less exserted, narrow-cylindric, 2-7 cm. long, 4-5 mm. wide; glumes 2-2.5 mm. long, ciliate on the keel, appressed-pubescent on the sides, especially below; lemma glabrous, the awn attached at or slightly below the middle, straight or slightly bent, included or exserted about 1 mm.; anthers about 1 mm. long.



Fig. 111: *Alopecurus aequalis*: a, floret, the lemma bearing an awn below the middle, X 12; b, habit, showing short basal leaves, the tall culms and narrow-cylindric panicles, X $\frac{3}{8}$; c, spikelet, showing the ciliate glumes, the awn of lemma protruding, X 12; d, grain, X 12; e, floret, variation in the awn of lemma, X 12; f, leaf sheath, ligule and scabrous blade, X 4. (From Mason, Fig. 57).

Beckmannia Sysigachne (Steud.) Fern. AMERICAN SLOUGH GRASS.

Annual; culms light green, erect, rather stout, 3-10 dm. tall; blades flat; panicle 10-25 cm. long, narrow, more or less interrupted; spikes crowded, 1-2 cm. long, appressed or ascending; spikelets 1-flowered, laterally compressed, subcircular, nearly sessile and closely imbricate, in 2 rows along one side of a slender continuous rachis, disarticulating below the glumes, falling entire, 3 mm. long; glumes equal in size, inflated, obovate, 3-nerved, transversely wrinkled and with a deep keel; lemma narrow, 5-nerved, acuminate with the apex protruding beyond the glumes; palea nearly as long as the lemma.



Fig. 123: *Beckmannia Sysigachne*: a, panicle, showing the ascending; b, habit, X 1/4; c, floret, X 12; d, spikelet, laterally compressed, X 8; e, f, leaf sheath and ligule, X 4. (From Mason, Fig. 59).

Source: Correll and Correll

OBL



A, *Calamagrostis canadensis*. Plant, $\times 34$; glumes and floret, $\times 10$. (Chase 5977, Mont.) B, Var. *scabra*, $\times 10$. (Pringle, N. H.) C, Var. *macouniana*, $\times 10$. (Pammel 891, Minn.)

Figure 34.—Bluejoint reedgrass

FACW

CALAMAGROSTIS INEXPANSA A. Gray
northern reed grass

Growth habit	tall, erect, tufted, perennial, with slender rhizomes
Blade	to 4 mm wide, 10 to 30 cm long, flat or involute, convolute in young shoots, firm; ridged and very scabrous above, smooth or slightly scabrous below; medium to light green; margins scabrous; rolled at emergence
Sheath	round or slightly compressed, split, with scarious overlapping margins, prominently veined, sometimes purplish at base
Ligule	to 6 mm long, membranous, obtuse or truncate, lacerate or slightly ciliate
Collar	indistinct, continuous or divided, glabrous, yellowish green, often oblique
Auricles	absent
Where found	throughout area in wet places and meadows

Source: ND Bio. Tech Note 12



Calamagrostis inexpansa. Panicle, X 1; glumes and floret, X 10. (Ehlers 686, Mieb.)

Figure 35.—Northern reedgrass

Source: Hotchkiss, 1968

FACW





Deschampsia cespitosa. Plant, $\times 3/4$; glumes and floret, $\times 10$. (Nelson 3823, Wyo.)

Figure 46.—Tufted hair-grass

Source: Hitchcock, 1968

FACW



Distichlis stricta. Staminate plant. $\times 5$; staminate spikelet and floret. $\times 5$ (Maarna 3132, Calif.); pistillate panicle. $\times 1$; pistillate floret. $\times 5$ (Sandberg and Leiberg 403, Wash.).

Figure 49.—Inland saltgrass

Distichlis spicata

Source: Hitchcock, 1968

FACW



Barnyardgrass

Echinochloa crusgalli

OTHER NAMES — cockspurgrass, barngrass, watergrass.

Barnyardgrass is an annual reproducing by seed. This weed grows in cultivated fields, gardens, roadsides, and in most low, moist areas.

The plant grows 2 to 5 feet high and branches from the base. The stem and leaves are smooth, but sometimes have rough edges. The head is

branched, 3 to 10 inches long, and covered with seeds that are tipped with a short awn. The seeds are green to dark purple in color and are crowded in 2 to 4 rows on one side of the main stem of the head. The seeds are shiny, yellow-gray in color with one side flat and the other round.

Source: South Dakota Weeds

FACW, DRA

6. *Glyceria grandis* Wats. ex Gray. AMERICAN MANNA-GRASS. Fig. 82.

Culms stout, 1-1.5 m. tall from a perennial base; leaf blades flat, 6-12 mm. wide; panicle large, compound, 20-40 cm. long, somewhat nodding at tip; spikelets 4- to 7-flowered, 5-6 mm. long; glumes 1.5-2 mm. long; lemmas purplish, 2-2.5 mm. long; palea slightly longer than lemma.

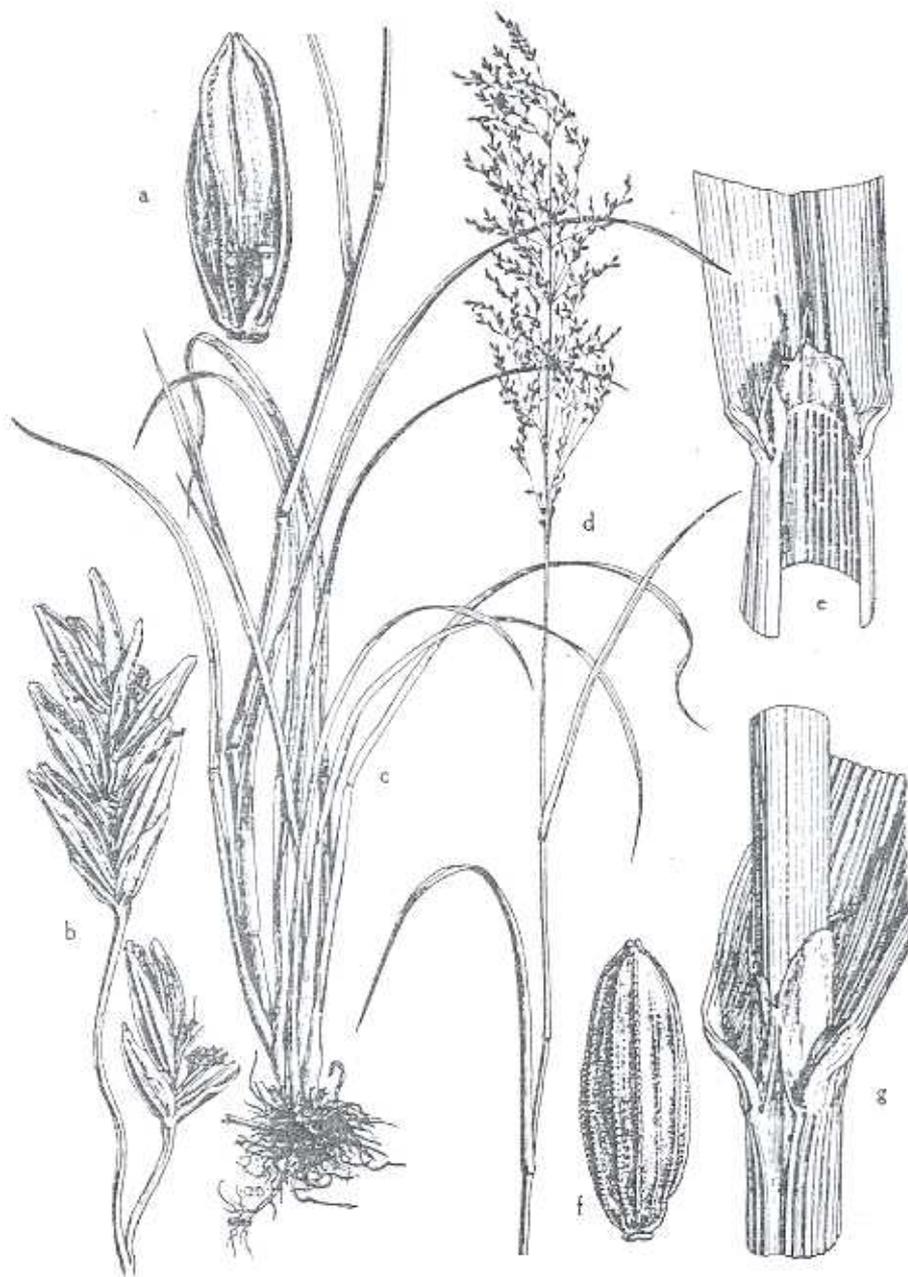


Fig. 82: *Glyceria grandis*: a, floret, showing palea, X 16; b, spikelets, solitary on tips of branchlets, X 8; c, habit, lower part showing the conspicuous joints of culm and the long lax leaf blades, X 1/2; d, habit, upper part of culm, showing panicle, X 1/2; e, leaf sheath, blade and ruptured ligule, X 4; f, floret, showing lemma, the strong nerves papillose, X 16; g, young upper leaf, the sheath and ligule enclosing culm, X 4. (From Mason, Fig. 67).

Glyceria maxima
Source: Correll and Correll

OBL



Glycyca striata. Plant, X 1/4; spikelet, X 5; seed, X 10. (V. H. Chase 60, Ill.)

Figure 74.—Fowl manna grass

Source: Hitchcock, 1968

OBL



Sweetgrass
Hierochloa odorata

Hierochloa odorata. Plant, $\times 15$; spikelet, glumes, and fertile glume, $\times 5$. (Shear 437, Mont.)

Figure 77.—Sweetgrass

Source: Hitchcock, 1968

FACW



Foxtail Barley

Hordeum jubatum

OTHER NAMES - squirrel tail grass, wild barley, ticklegrass.

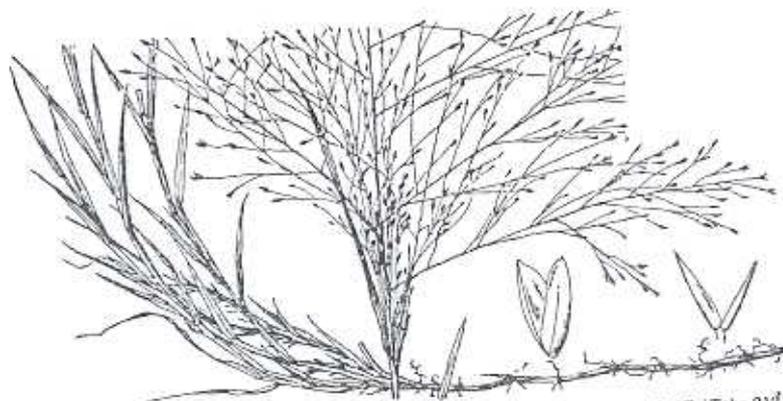
Foxtail barley is a perennial, reproducing by seed. It is found in pastures, meadows and roadsides. It usually appears in salty areas or grasslands that have been overgrazed, burned or closely mowed. Hay containing more than a trace is graded "sample," by the U. S. Federal hay standards. The bristles or awns stick to clothing, hair and wool. These awns may work into nos-

trils, mouth and eyes of farm animals.

Foxtail barley grows 1 to 2 feet tall, branching at the base from a fibrous root system. The leaves are rough and 1 to 5 inches long. The head is 2 to 5 inches long and has a large number of stiff, brittle, rough awns or bristles measuring 1 to 2½ inches in length.

Source: South Dakota Weeds

FACW



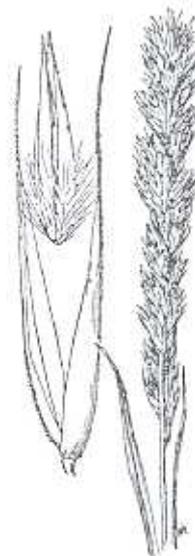
Muhlenbergia asperifolia. Plant, X 1; glumes and floret, X 10. (Griffiths 212, S. Dak.)

Figure 90.—Alkali muhly

Scratch grass

Source: Hitchcock, 1968

FACW



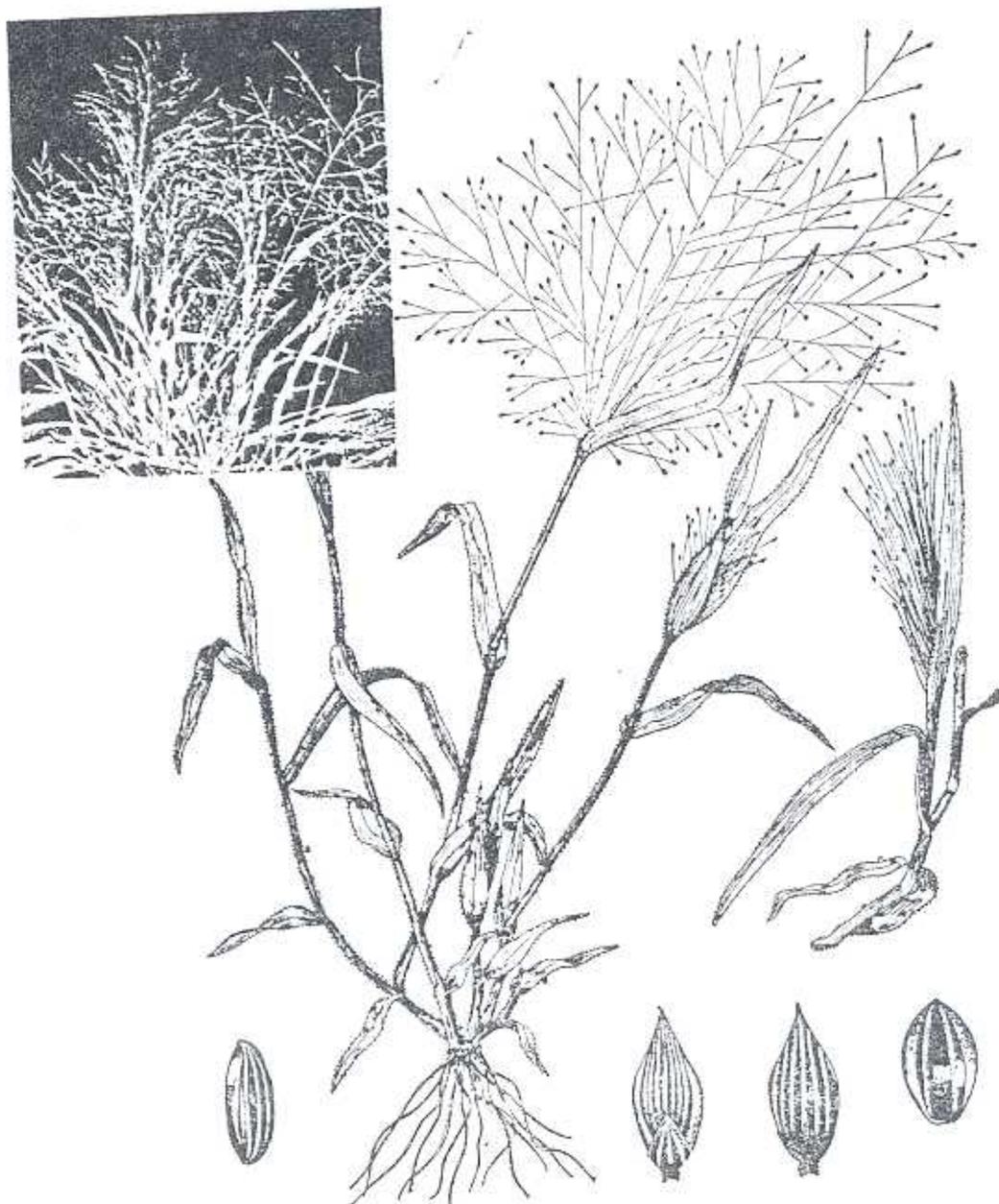
5743, Utah.)

Muhlenbergia racemosa. Panicle, X 1; glumes and floret, X 10. (V. H. Chase 940, Ill.)

Figure 99.—Green muhly

Source: Hitchcock, 1968

FACW



Witchgrass

Panicum capillare

OTHER NAMES — old witchgrass, ticklegrass, tumblegrass, tumble weed.

Witchgrass is an annual, reproducing by seed. It is found in cultivated fields, waste places, gardens and roadsides. The head often breaks off and tumbles with the wind scattering its seed as it travels.

Witchgrass grows 1 to 2 feet tall and is densely hairy along the stems and leaves. It sends up

a number of branches or stems from the base. The leaves are 6 to 12 inches long. The heads are bushy, 8 to 14 inches long and have many branches. Each small branch bears one small, shiny, green or grayish seed. Seeds are commonly found in grass, clover and alfalfa seed.

Source: South Dakota Weeds

FAC, DRA

***Panicum capillare* L. WITCHGRASS. Fig. 163.**

Annual, freely branched from the base; culms usually somewhat spreading from the base, 2-8 dm. long, papillose-hispid to rarely nearly glabrous; sheaths hispid; ligule 1-3 mm. long; blades 10-25 cm. long, 5-15 mm. broad, hispid on both surfaces; panicles many-flowered, diffuse, often making up half the total length of the plant, included at base until maturity, the branches finally divaricately spreading, the whole panicle breaking away and rolling before the wind; spikelets 2-3.3 mm. long, pointed or attenuate at the tip, 7- to 9-nerved, glabrous; first glume large, clasping; fertile lemma and palea smooth and shining, usually olive-brown at maturity. Incl. var. *occidentale* Rydb.

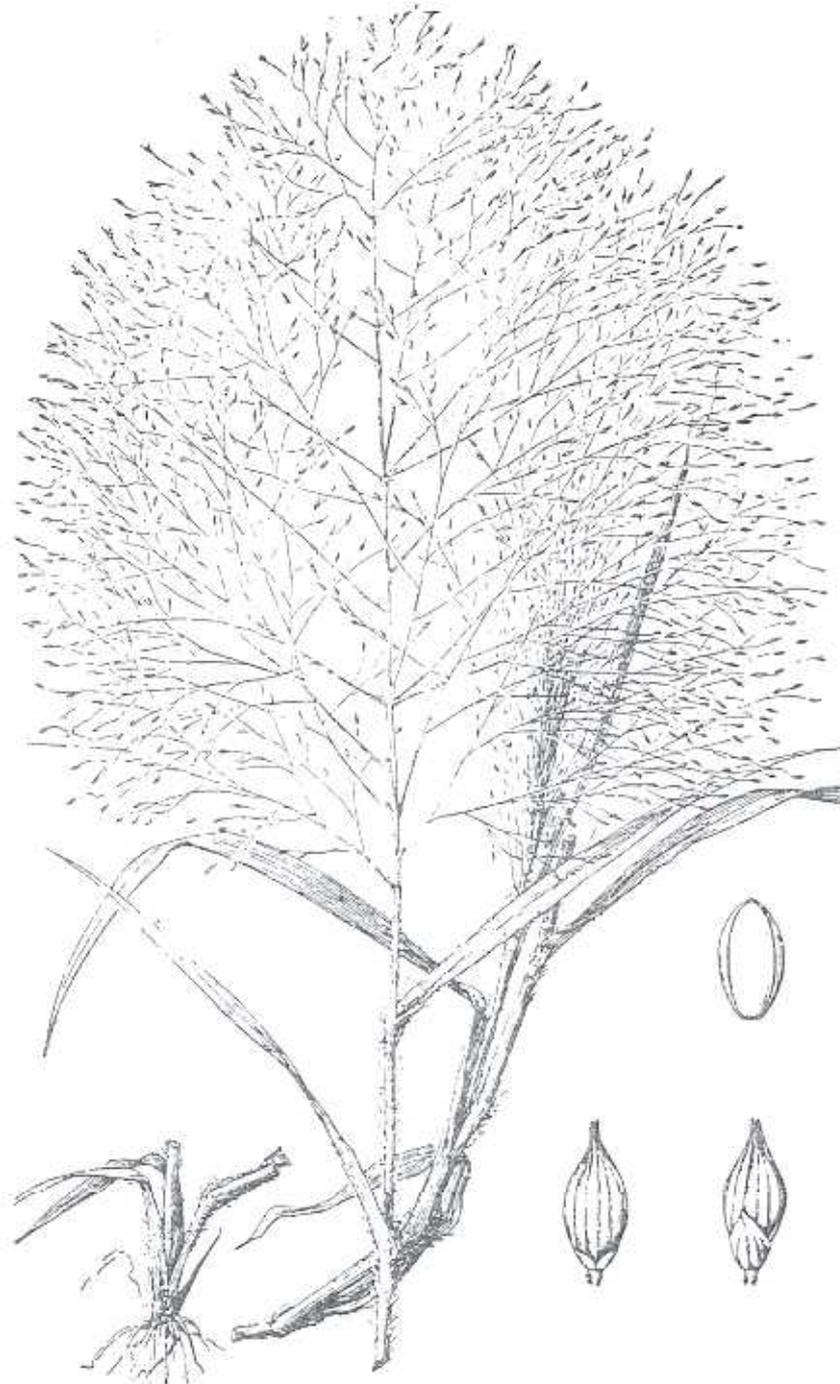
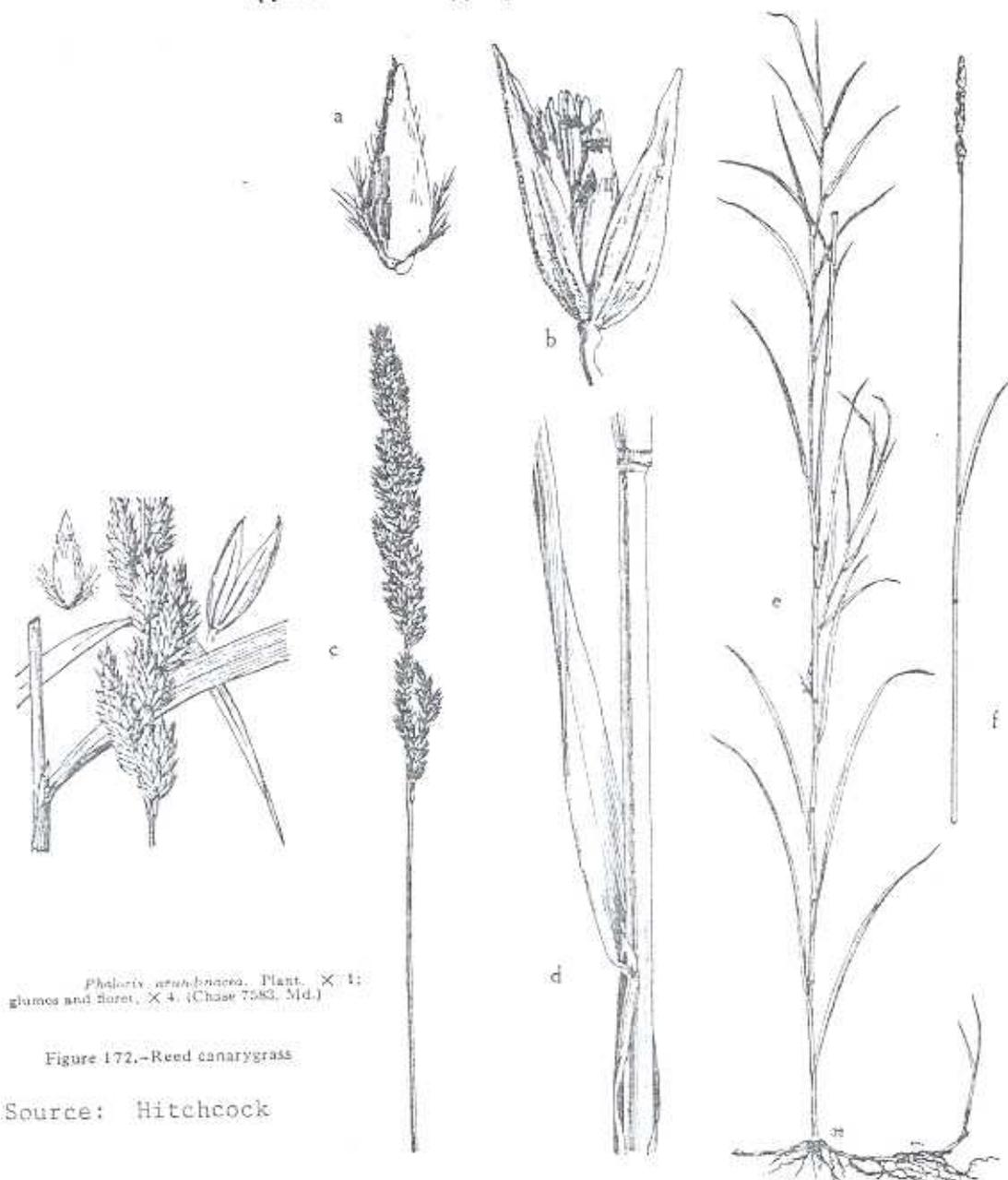


Fig. 163: *Panicum capillare*: plant, X $\frac{1}{2}$; two views of spikelet and floret, X 10. (From Hitchcock & Chase).

1. *Phalaris arundinacea* L. REED CANARY GRASS.

Perennial with creeping rhizomes, glaucous; culms erect, 6-15 dm. tall, glabrous; panicle 5-20 cm. long, pale green or tinged with purple, narrow and dense or interrupted below, the branches spreading during anthesis, the lower ones as much as 5 cm. long; spikelets 5-6 mm. long; glumes about 5 mm. long, sharply keeled, narrow, acute, longer than the lemmas, the keels scabrous, wingless or very narrowly winged; fertile lemma lanceolate, 3-4 mm. long, shining, with a few appressed hairs in upper part; narrow, scale-like sterile lemmas villous, 1 mm. long.



Phalaris arundinacea. Plant, X 1; glumes and floret, X 4. (Chase 7583, Md.)

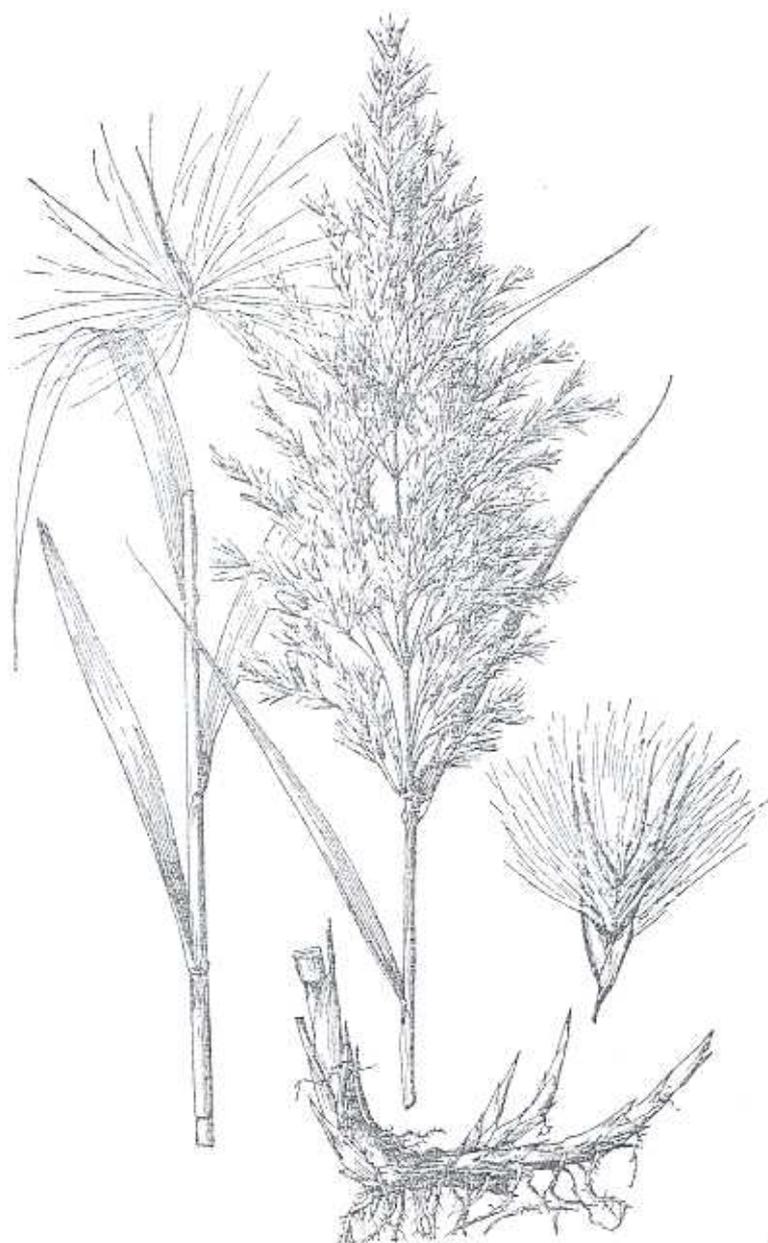
Figure 172.—Reed canarygrass

Source: Hitchcock

Fig. 131: *Phalaris arundinacea*; a, floret, showing fertile and sterile lemmas, X 8; b, spikelet, showing the strongly keeled glumes, fertile lemma and palea, X 8; c, panicle, interrupted below, X 3; d, leaf sheath, ligule, blade and node, X 1/2; e, habit, showing creeping rhizome, X 1/8; f, upper part of culm, showing panicle, X 1/8. (From Mason, Fig. 79).

Source: Correll and Correll

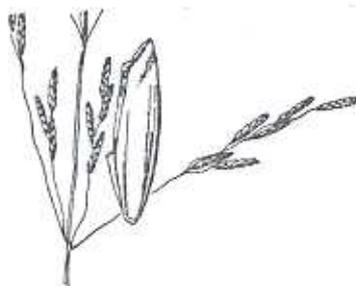
FACW



Phragmites communis, Plant, X 1/2, spikelet and base, X 3. (Hitchcock 5078, N. Dak.)

Figure 174.—Common reed
 Now *Phragmites australis*
 Source: Hitchcock, 1968

FACW



Puccinellia cirroides. Panicle, $\times 1$; floret, $\times 10$. (Rydberg 2135, Mont.)

Figure 189.—Nuttall alkaligrass (Hitchcock)

FACW

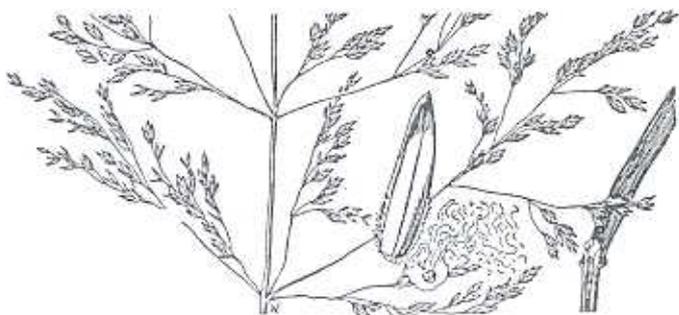
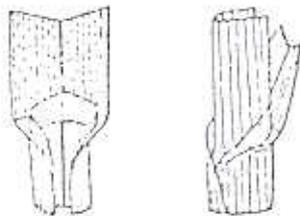


FIGURE 153.—*Poa palustris*. Panicle, $\times 1$; floret, $\times 10$. (Sukksdorf 7022, Wash.)
Figure 185.—Fowl bluegrass

POA PALUSTRIS L.

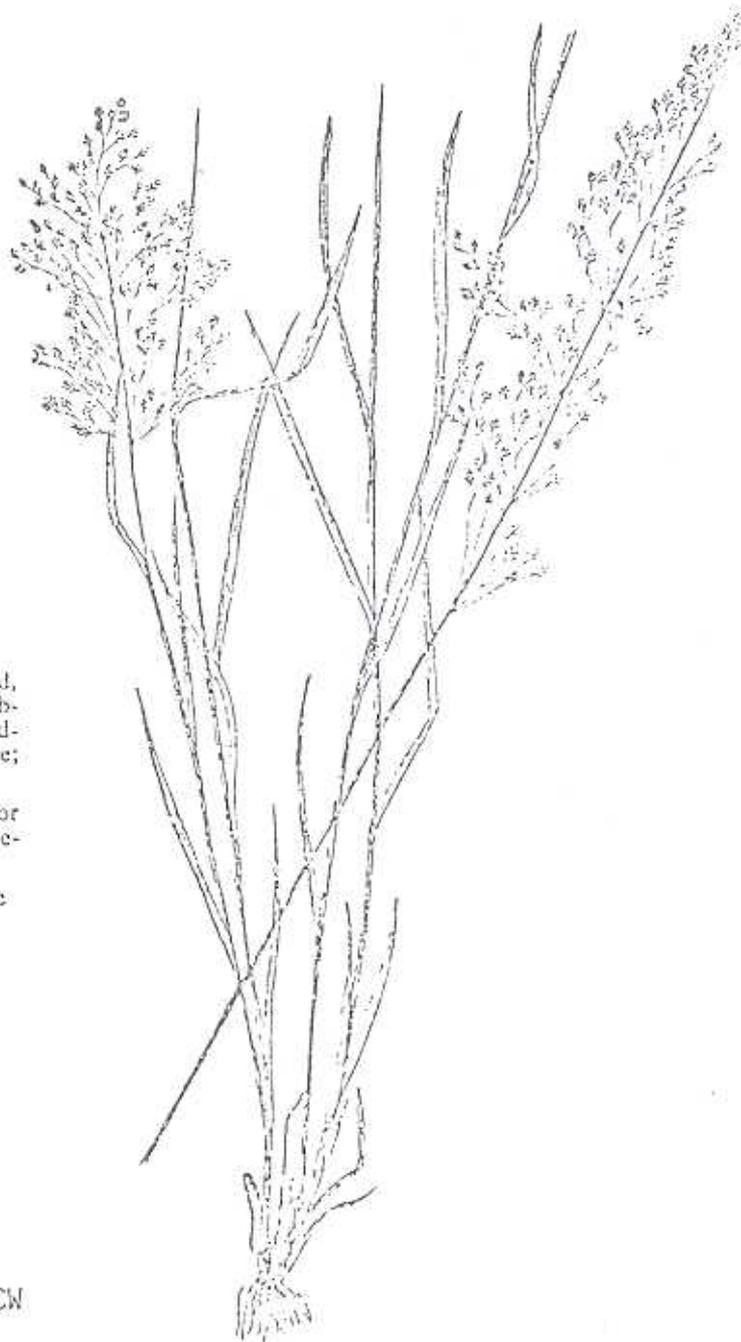
fowl blue grass

Growth habit	tall, loosely tufted, perennial, with fibrous roots
Blade	to 4 mm wide, 7 to 15 cm long; lax, flat or V-shaped, with heart-shaped tip, broad at base; acuminate, scabrous on scarious margins and on both surfaces; mid-vein and two lateral veins evident on lower surface; folded at emergence
Sheath	flattened and keeled, split, distinctly veined, smooth or slightly scabrous, pale green or purplish-tinged at decumbent base; margins overlapping, hyaline
Ligule	to 4 mm long, membranous, acute, entire or lacerate
Collar	distinct, divided, pale green, glabrous
Auricles	absent
Where found	throughout area in marshy places



Source: Hitchcock, 1968

FACW





Scolochloa festucacea. Plant, $\times \frac{1}{2}$; spikelet and floret, $\times 5$. (Griffiths 870, S. Dak.)

Figure 191.—Rivergrass
White top

Source: Hitchcock, 1968

08L

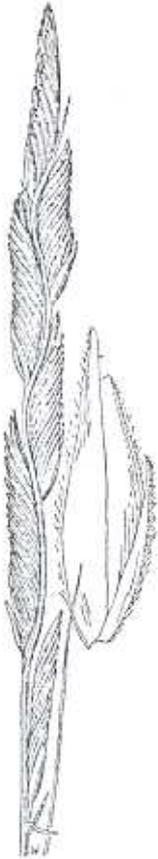
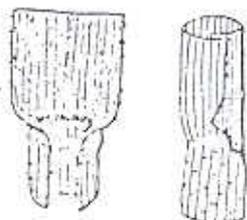


FIGURE 748.—*Spartina gracilis*.
Panicle, $\times 1$; spikelet, $\times 5$.
(Rydberg 2080, Mont.)

Spartina gracilis Trin. ALKALI
CORDGRASS. (Fig. 748.) Culms 60 to
100 cm. tall; blades flat, becoming in-
volute, 15 to 20 cm. long, very sea-
brous above, mostly less than 5 mm.
wide; spikes 4 to 8, closely appressed,
2 to 4 cm. long; spikelets 6 to 8 mm.
long; glumes ciliate on the keel,
acute, the first about half as long as
the second; lemma nearly as long as
second glume, ciliate on the keel;
palea as long as lemma, obtuse. σ
—Alkaline meadows and plains, Sas-
katchewan to British Columbia,
south to Kansas and New Mexico,
and through eastern Washington to
Arizona.

Source: Hitchcock, 1950

FACW

*SPARTINA PECTINATA* Link

prairie cord grass

Growth habit	tall, stout, perennial, with scaly rhizomes
Blade	to 15 mm wide, 10 to 60 cm long, flat to involute, coriaceous, long acuminate, distinctly veined above and below, very scabrous on margins and upper surface, smooth and shiny underneath, medium to light green, drooping; rolled at emergence
Sheath	round, split, distinctly veined, glabrous, pinkish at base, margins scarious
Ligule	to 4 mm long, a fringe of hairs, fused at the base
Collar	broad, continuous, glabrous, yellow or brownish grey
Auricles	absent
Where found	eastern part of area, on moist prairie and in swamps; often abundant locally

Source: ND Bio. Tech Note 12

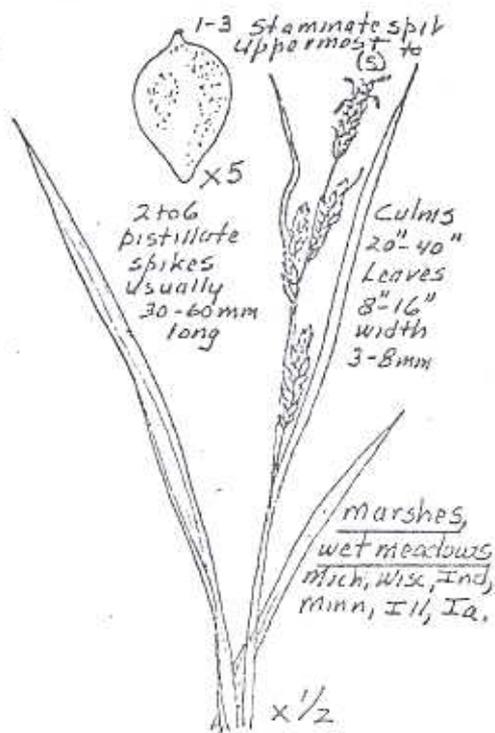
*Spartina pectinata*. Plant, $\times \frac{1}{4}$; spikelet and floret, $\times 5$. (Worthern, Mass.)

Figure 196.—Prairie cordgrass

Source: Hitchcock, 1960

FACW

77.



131. *C. aquatilis*
Water Sedge

Source: Heerwagen

OBL

SLOUGH SEDGE

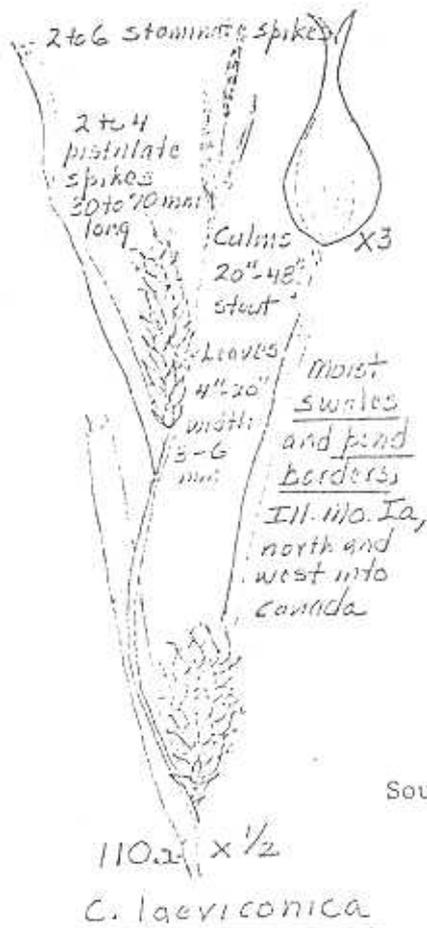
Carex atherodes

Inland fresh marshes; Yukon to Maine, California, Missouri, and North Carolina.

Stems less than knee-high to shoulder-high, in small clumps, overtopping or overtopped by leaves to 1/2 inch wide. Female spikelets two to four, 3/8 to 5/8 inch thick. Seed sacs 1/4 to 1/2 inch long, hairless or fine-hairy, roundish in end view, partly hidden under sharp-tipped to bristle-tipped scales.

Source: Hotchkiss, 1970

OBL

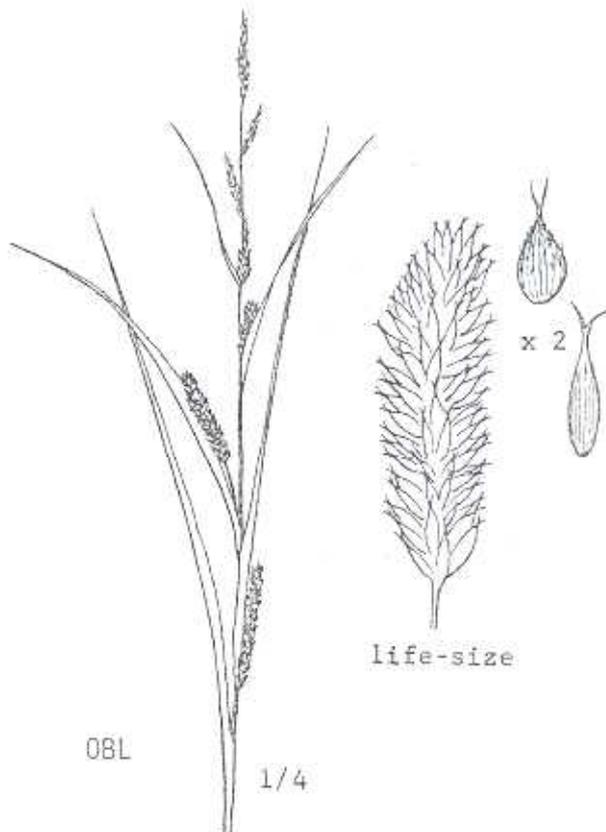


C. laeviconica

Source: Heerwagen

OBL

Smoothcone sedge



Life-size

1/4

Perennial with branching rhizomes about 1.5 mm. thick and several cm. long (often broken off in prepared specimens); culms 3-6 dm. long, strictly erect, simple, in slender clumps, 2-4 mm. thick basally; blades 3-4 mm. broad, the sheath-orifices U-shaped, brownish-discolored and thickened; sheaths ventrally pale-brownish, basally with transverse septation between the nerves; spikes about 3 or 4, sessile or on very short peduncles, the upper 2 usually overlapping slightly, the upper one or 2 completely or almost completely staminate or with a few female flowers at the very base, female spike 25-30 mm. long, 5-7 mm. thick, with 30 to 60 spreading-ascending spikes; bract of lowest spike not sheathing, its blade about 2 mm. broad and equaling or exceeding the staminate spike; scales lanceolate, hyaline with green midrib, the body 1.5-2 mm. long and with a subulate mucro about 1 mm. long; perigynial body broadly ellipsoid, brown, firm-membranous, slightly inflated, about 2.5 mm. long, densely hirsutulous as seen under a lens (the nervature obscured), the beak about 1 mm. long and strongly bidentate apically; achene triangular with concave sides, 1.7-2 mm. long, 1.3 mm. wide, subulate, jointed with the very short straight style which

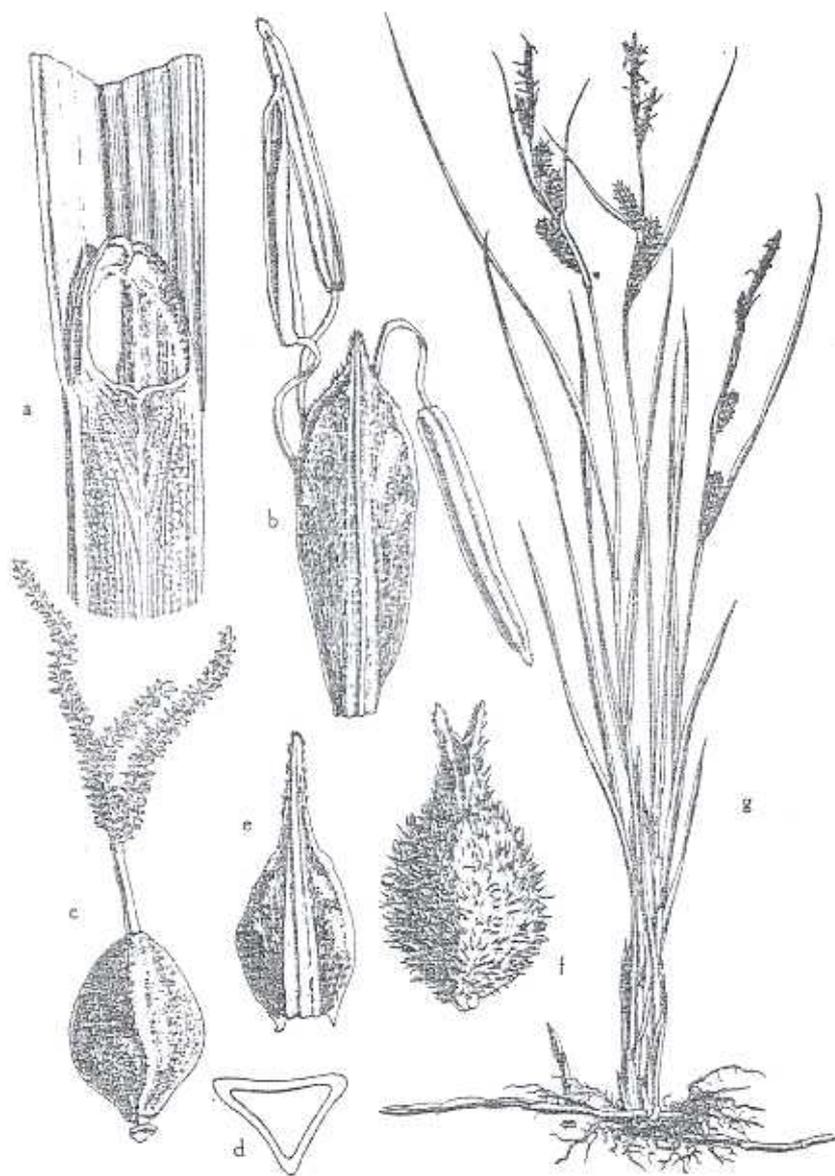


Fig. 278: *Carex lanuginosa*: a, ligule, X 6; b, staminate flower, the subtending scale acuminate and ciliate toward apex, X 12; c, pistillate flower with perigynium removed, showing the trigonous achene, X 12; d, achene (cross section), X 12; e, scale of pistillate flower, awned and ciliate upward (shorter than staminate scale), X 12; f, perigynium, showing the deeply bidentate beak and the dense ascending pubescence, X 12; g, habit, showing the rhizome, the basal leaf sheaths which become filamentous in age and the inflorescences with staminate spikes at apex, X 2. (From Mason, Fig. 109).

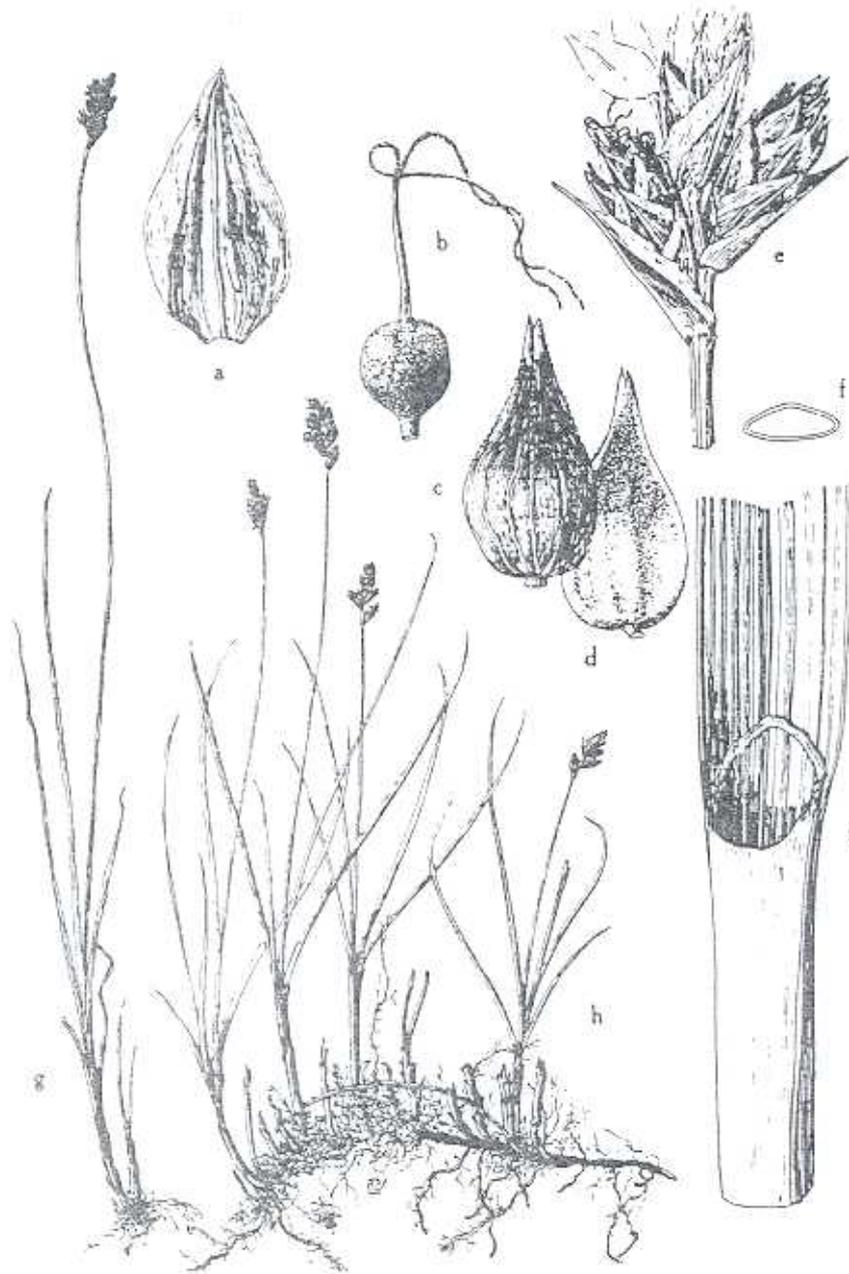


Fig. 257: *Carex praegracilis*: a, scale of upper pistillate flower, X 10; b, pistillate flower with perigynium removed, X 10; c, perigynium, lightly several-nerved, beak obliquely cut, abaxial view, X 10; d, perigynium, adaxial view, X 10; e, lower pistillate spikes with short subtending bracts, X 4; f, achene (cross section), X 10; g, habit, showing the erect-ascending leaf blades, X 5; h, habit, showing the dark basal sheaths and the culms extending above the leaves, X 35; i, ligule, X 10. (From Mason, Fig. 98).

Clustered field sedge

Source: Correll and Correll, 1972

FACW

Carex praegracilis W. Boott (19)*Carex praegracilis* W. Boott, Bot. Gaz. 9: 87. 1884.*C. marcidus* Boott, in Hook., Fl. Bor. Am. 2: 212. 1839, not J. F. Gmel. 1791.

Rootstocks thick, blackish, long-creeping; culms arising singly in small clumps, 20—75 cm. high, sharply triangular, usually roughened above and exceeding the leaves; leaves clustered near the base of the culms, flattened or somewhat channeled, 1.5—2 mm. wide, the sheaths truncate at the mouth, the ligule very short; spikes 5—15, densely aggregated into a linear-oblong or oblong-ovoid head 1—5 cm. long, 5—10 mm. thick, the lower spikes sometimes separate, androgynous (occasionally almost entirely staminate or pistillate), the staminate flowers inconspicuous; scales ovate, acuminate, or cuspidate, light chestnut with conspicuous hyaline margins and pale midrib, wider and longer than the perigynia; perigynia plane-convex, ovate to ovate-lanceolate, sharp-margined, 3—4 mm. long, about 1.5 mm. wide, brownish-black at maturity, coriaceous, dull, flat and nerveless ventrally, rounded and lightly several-nerved dorsally, short-stipitate, tapering into a serrulate beak half the length of the body or more, the orifice with overlapping hyaline edges; achenes lenticular, obovoid, about 1.25 mm. long; stigmas slender, reddish-brown.

A variable and very widely distributed species in the West, often abundant in moist, open habitats, chiefly on the plains, but occasionally up to 10,000 ft. in the mountains, Manitoba, Iowa, and Kansas westward to the Yukon, British Columbia, California, and Mexico, and adventive eastward.

Forage Value

Opinion varies on the palatability of this species, but it is generally agreed that it furnishes considerable winter grazing for horses and cattle, and in the North it is almost universally rated as excellent, especially for early forage. In the Big Horn country of southwestern Montana, where it is known as "nut-grass," it is highly esteemed for pasturage and hay, and cattle are said to fatten on it more than on any grass.

Source: North Dakota Tech. Note 12