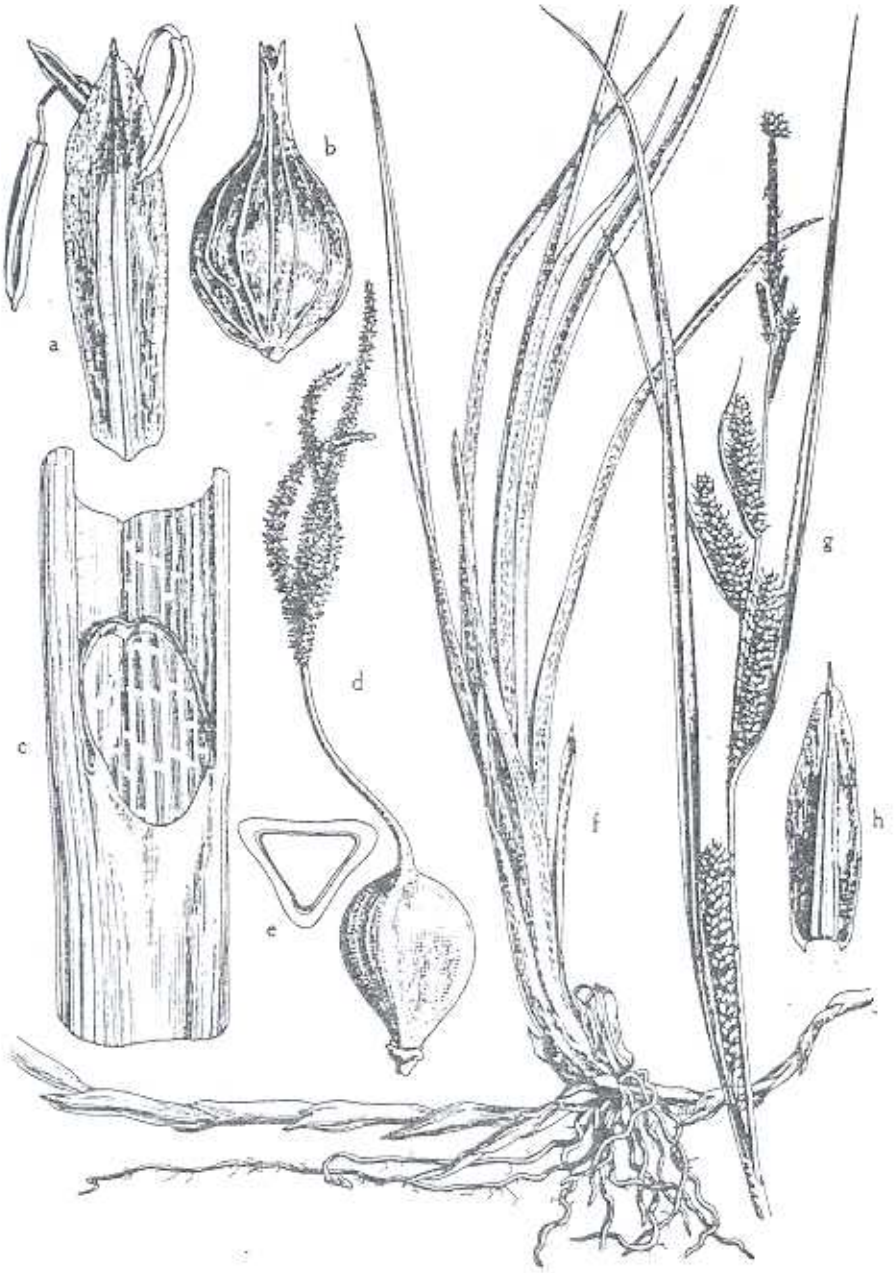
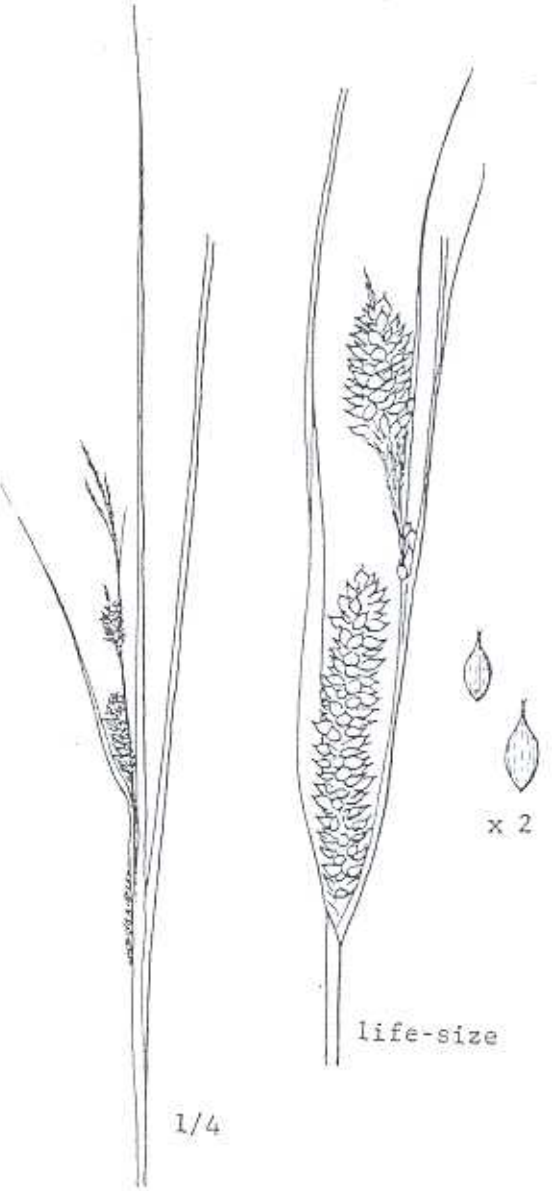



Fig. 272: *Carex rostrata*: a, staminate flower and subtending scale, X 8; b, perigynium, showing the slender erect bidentate beak, X 8; c, ligule, X 6; d, pistillate flower with perigynium removed, showing the substipitate achene and curved style, X 12; e, achene (cross section), X 12; f, habit, lower part of plant, showing the long horizontal rhizomes, X ⅔; g, upper part of culm, the lower spikes pistillate, the staminate spikes terminal, some of the staminate spikes bearing perigynia at apex, X ⅔; h, scale of pistillate flower, X 8. (From Mason, Fig. 122).

Source: Correll and Correll, 1972 OBL




BEAKED SEDGE, Carex rostrata

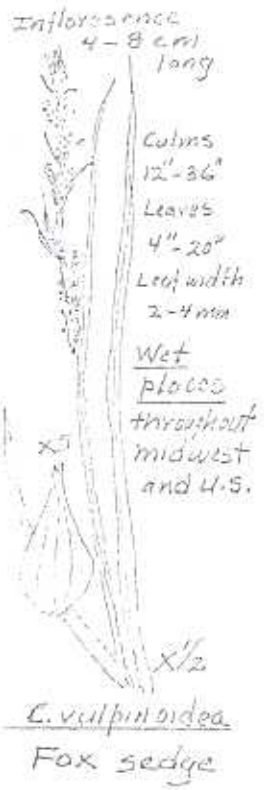
Inland fresh marshes; Alaska to Newfoundland, California, New Mexico, and West Virginia.

Stems less than knee-high to waist-high, single or in small clumps, overtopped by leaves to 1/2 inch wide. Female spikelets two to five, 1/4 to 3/4 inch thick. Seed sacs roundish in end view, partly hidden under sharp-tipped to bristle-tipped scales.

Source: Hotchkiss, 1970


Source: Heerwagen, 1966

FACW




Source: Heerwagen, 1966


*Carex vulpinoidea*: i, inflorescence, X 1; j, pistillate scale, X 12; k, perigynium, dorsal view, X 12; l, perigynium, ventral view, X 12.

Source: Correll and Correll

OBL

16. **Cyperus acuminatus** T. & H. Fig. 224.

Short-lived perennial, flowering the first year, tufted; culms 1–4 dm. long, erect, basally with a few leaves and 0.7–1.2 mm. thick, just beneath the inflorescence 0.4–0.8 mm. thick, roundly triquetrous, smooth or with more or less abundant microscopic knobs more or less at right angles to the culm; leaves few, 0.5–2 mm. broad, the longer ones sometimes equaling the culms, basally not septate; inflorescence (excluding bracts) 2–8 cm. long, of 2 to 5 very unequal primary peduncles, the shorter of which bear nearly hemispherical to spherical glomerules of 13 to 25 spikelets, the longer ones with such glomerules (rarely compound or with secondary peduncles) of up to 55 spikelets; bracts 3 or 4, the longer ones nearly erect and far-surpassing the inflorescence; spikelets 4–10 mm. long, 1.5–2.5 mm. broad, nearly linear, with 12 to 44 flowers, stramineous to brownish-stramineous or rarely tawny-stramineous, laterally compressed, the axis slightly flattened, wingless and persistent as a unit after the scales and achenes have fallen; scales laterally membranous, inconspicuously cellular, medially firm-membranous, 1.3–1.9 mm. long, in the proximal fifth to fourth the length with a flattish area about 0.2 mm. broad dorsally (abaxially), the 2 lateral parts 0.4–0.6 mm. broad (the scale spread out 0.8–1.2 mm. broad, ovate or narrowly so), tapering distally to the acute apex, with 3 nerves (the inconspicuous midnerve plus on each side a conspicuous nerve about three eighths to two fifths the distance from the midnerve to the margin), the dorsal (median) portion of the scale (as the scale is folded in position in the spikelet) incurved in the lower part, in the distal part either straight or usually with a slight to marked excurvature so that the whole is weakly S-shaped; stamen 1; achene elliptic, 0.9–1.1 mm. long, 0.35–0.45 mm. thick, sharply trigonous, basally short-stipitate, apically prolonged-acuminate, pale-brown, occasionally maturing to brown. *C. cyrtolepis* T. & H.

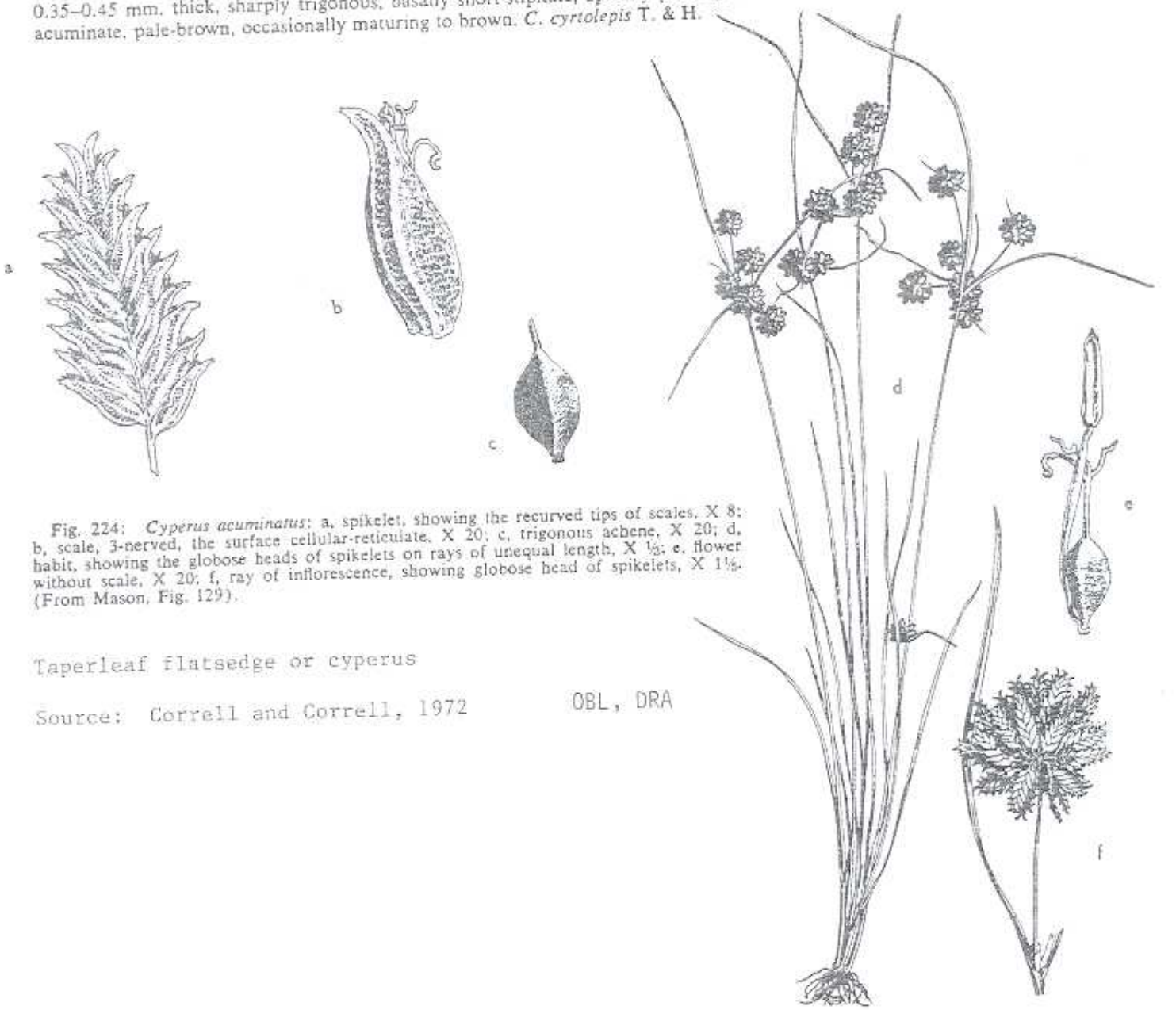



Fig. 224: *Cyperus acuminatus*: a, spikelet, showing the recurved tips of scales, X 8; b, scale, 3-nerved, the surface cellular-reticulate, X 20; c, trigonous achene, X 20; d, habit, showing the globose heads of spikelets on rays of unequal length, X ⅛; e, flower without scale, X 20; f, ray of inflorescence, showing globose head of spikelets, X 1½. (From Mason, Fig. 129).

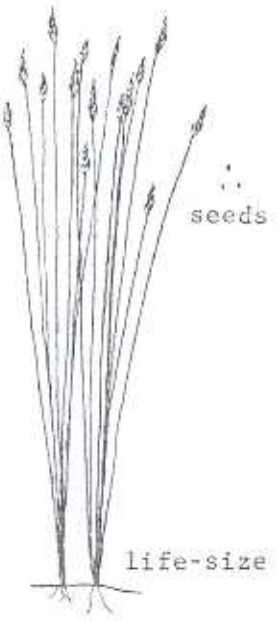
Taperleaf flatsedge or cyperus

Source: Correll and Correll, 1972 OBL, DRA

## SPIKERUSHES, Eleocharis

Inland, several kinds of Spikerush grow in fresh, slightly brackish, and slightly alkali marshes; along the coasts, several grow in fresh and brackish marshes. Their green, leafless stems vary from less than ankle-high to shoulder-high, and from as thin as thread to as thick as a pencil. They grow in clumps or make a turf, either in colonies or mixed with other kinds of plants. Slender, Dwarf, and Water Spikerushes are sometimes under water. Mature stems are tipped with a single lance-shaped, oval, or oblong, scaly spikelet which is yellowish, brown, reddish, or blackish. One seed is produced under each scale.

Some kinds look so much alike that they can be told apart only by using magnification to study their seeds and the tubercle which caps a seed. Besides the species described here, there are about 30 others which grow along the landward edge of marshes, in damp meadows, on the shores of lakes, ponds, and streams, or in bogs. More than half of the North American species are described in Gray's Manual; and all of them by Henry Svenson in the New York Botanical Garden's North American Flora, volume 18, part 9.




### SLENDER SPIKERUSH, Eleocharis acicularis (Eleocharis bella and radicans)

Inland fresh marshes; Far North to the southernmost States (commonest in southeastern Canada and northeastern United States).

Stems usually making a turf no more than ankle high; sometimes under water with limp stems up to a foot long. Spikelets oval or lance-shaped, usually whitish-and-red-streaked. Ripe seeds whitish.

Resembles Dwarf Spikerush; but that species usually has thicker stems and tiny underground tubers and is common in brackish Atlantic Coast marshes.

Source: Hotchkiss, 1970 OBL

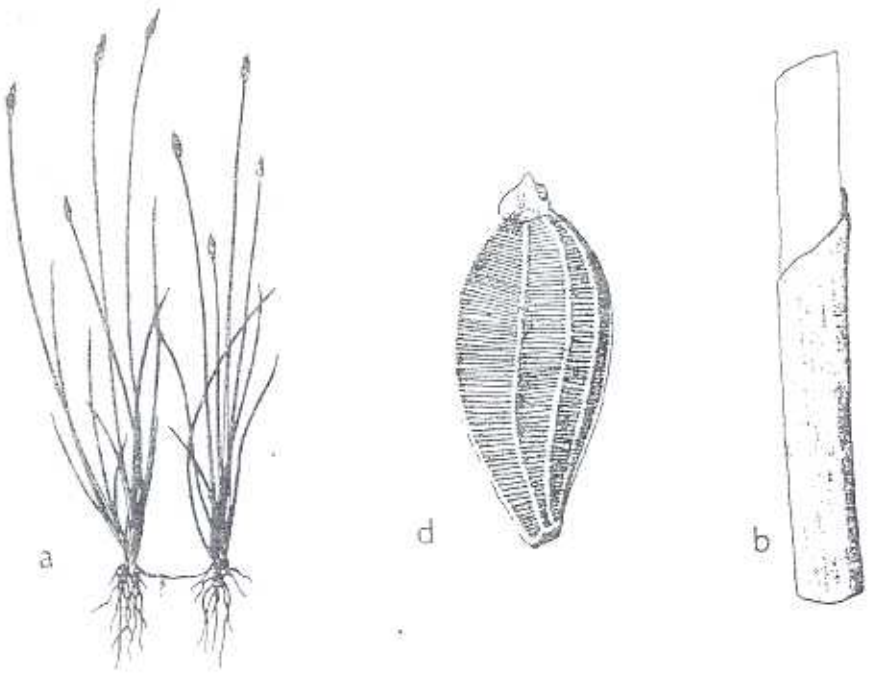



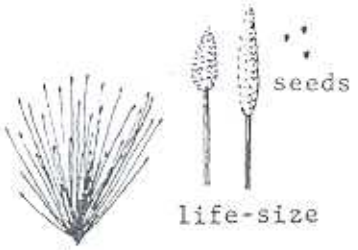

Fig. 187: a-d, *Eleocharis acicularis*: a, habit, X ½; b, sheath, X 12; c, spikelet, X 8; d, achene, X 50. e, *Eleocharis radicans*: e, achene, X 50. (Courtesy of R. K. Godfrey).

Needle spikerush

Source: Correll and Correll, 1972 OBL

Engelmann's spikerush, E. engelmanni

BLUNT SPIKERUSH, Eleocharis obtusa
(Eleocharis diandra, engelmanni, macounii, and ovata)



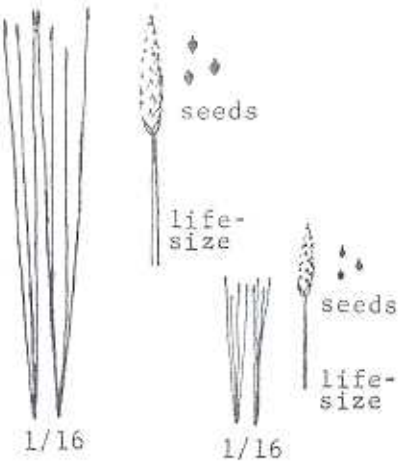

Inland fresh marshes; British Columbia to Newfoundland and the southernmost States (commonest in the eastern half of the United States).

Stems ankle-high to knee-high, in big clumps. Spikelets oval or oblong, brown. Ripe seeds brown, biconvex in end view.

Plants with shot spikelets resembling Salt-marsh Spikerush; but that species grows in Atlantic-Coast brackish marshes and has yellowish spikelets, and its seeds are triangular in end view.

Source: Hotchkiss, 1970 FACW

COMMON SPIKERUSH, Eleocharis palustris or Creeping spikerush
(Eleocharis ambigens, calva, fallax, halophila, macrostachya, smallii, and uniglumis)




Inland fresh and alkali marshes and coastal fresh and brackish marshes; Alaska to Labrador and the southernmost States (commonest in southern Canada and the northern half of United States).

Stems ankle-high to shoulder-high. Spikelets lance-shaped or rarely oval, yellowish, brown, reddish-streaked, or dark-red. Ripe seeds yellowish to dark-brown, biconvex in end view.

Medium-sized plants resemble Walking Spikerush, but that species often has long, sideways-growing stems which root at the tip, and greenish-brown seeds which are triangular in end view.

Source: Hotchkiss, 1970 OBL

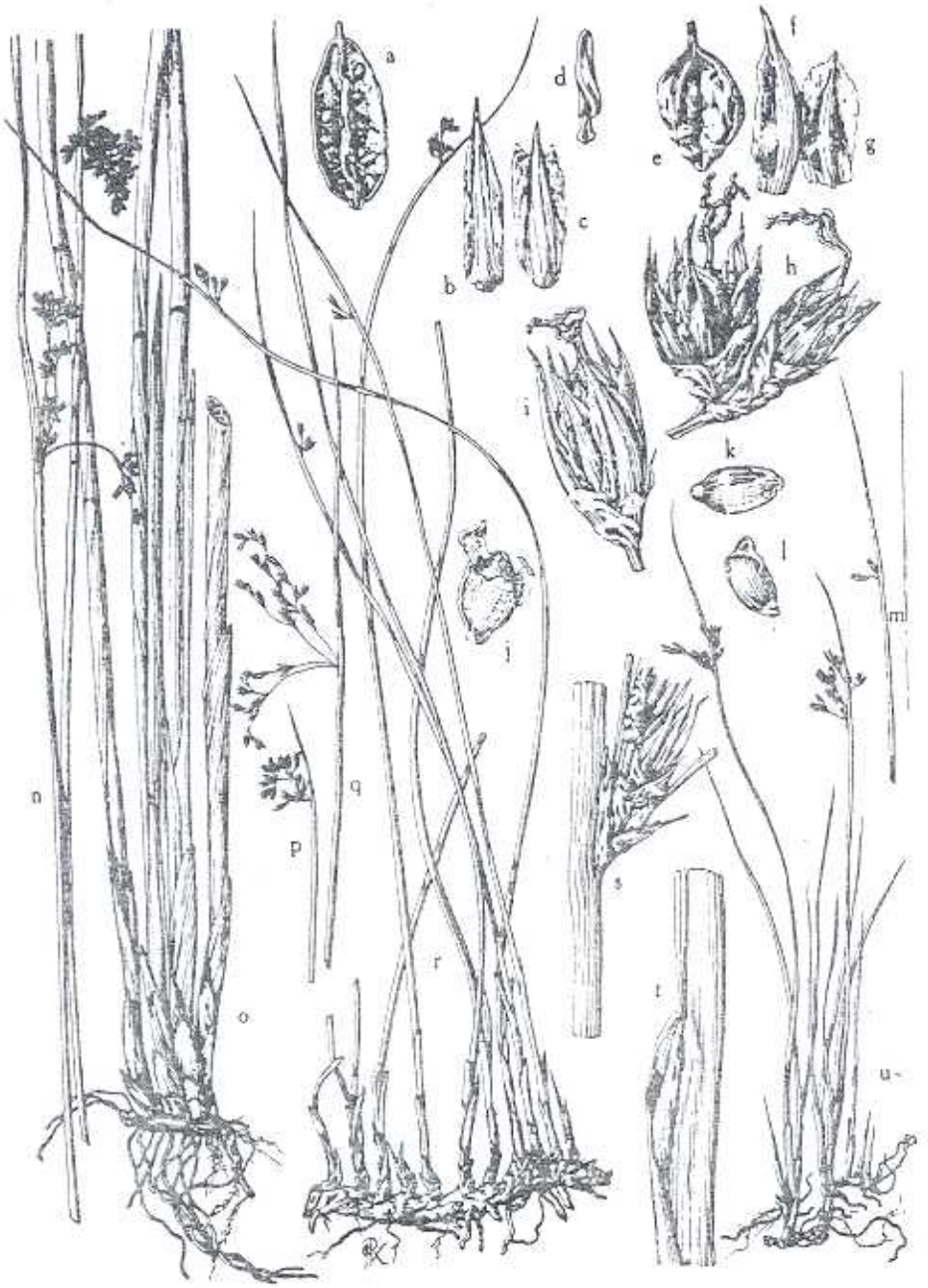



Fig. 310: *Juncus balticus*: a, capsule valve, showing seeds, X 5; b, outer perianth segment, X 5; c, inner perianth segment, X 5; d, stamen, X 5; e, mature capsule, X 5; f, outer perianth segment, X 5; g, inner perianth segment, X 5; h, part of inflorescence, X 5; i, flower, X 5; j-l, seeds, some with and some without membranous coat, X 16; m, simple inflorescence, X ⅔; n, habit, upper part of plant, showing inflorescences, X ⅔; o, habit, basal part of plant, showing rootstock and sheaths, X ⅔; p and q, variation in inflorescences, X ⅔; r, habit, showing creeping rootstock, X ⅔; s and t, enclosing sheath of inflorescence, X 3; u, habit variation, X ⅔. (From Mason, Fig. 171).

Baltic rush

Source: Correll and Correll, 1972 OBL

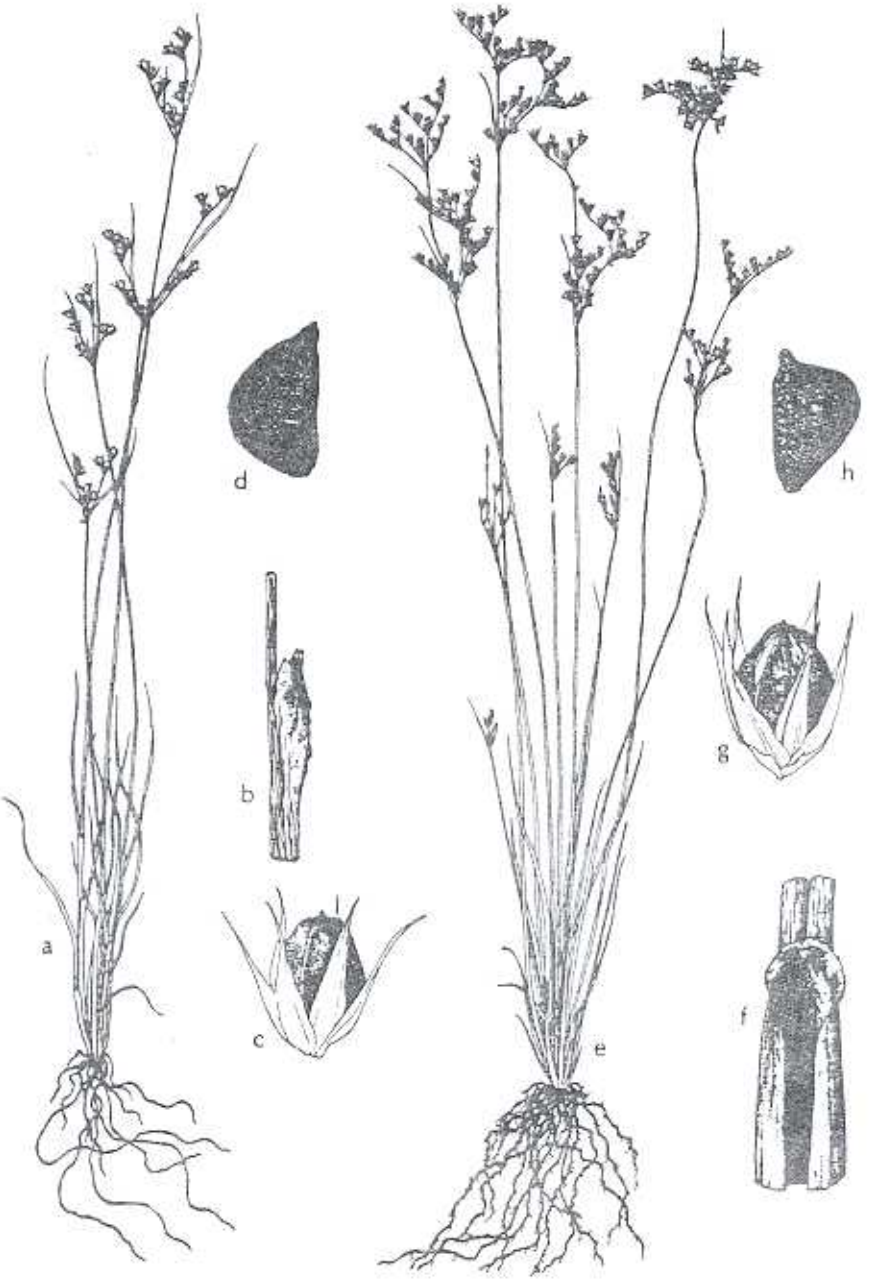



Fig. 316: a-d, *Juncus tenuis*: a, habit, X ½; b, sheath, X 5; c, perianth and capsule, X 5; d, seed, X 75. e-h, *Juncus dichotomus*: e, habit, X ½; f, sheath, X 10; g, perianth and capsule, X 5; h, not unusual asymmetrical seed, X 50. (Courtesy of R. K. Godfrey).

Slender rush or Dudley's rush

Source: Correll and Correll, 1972 FAC

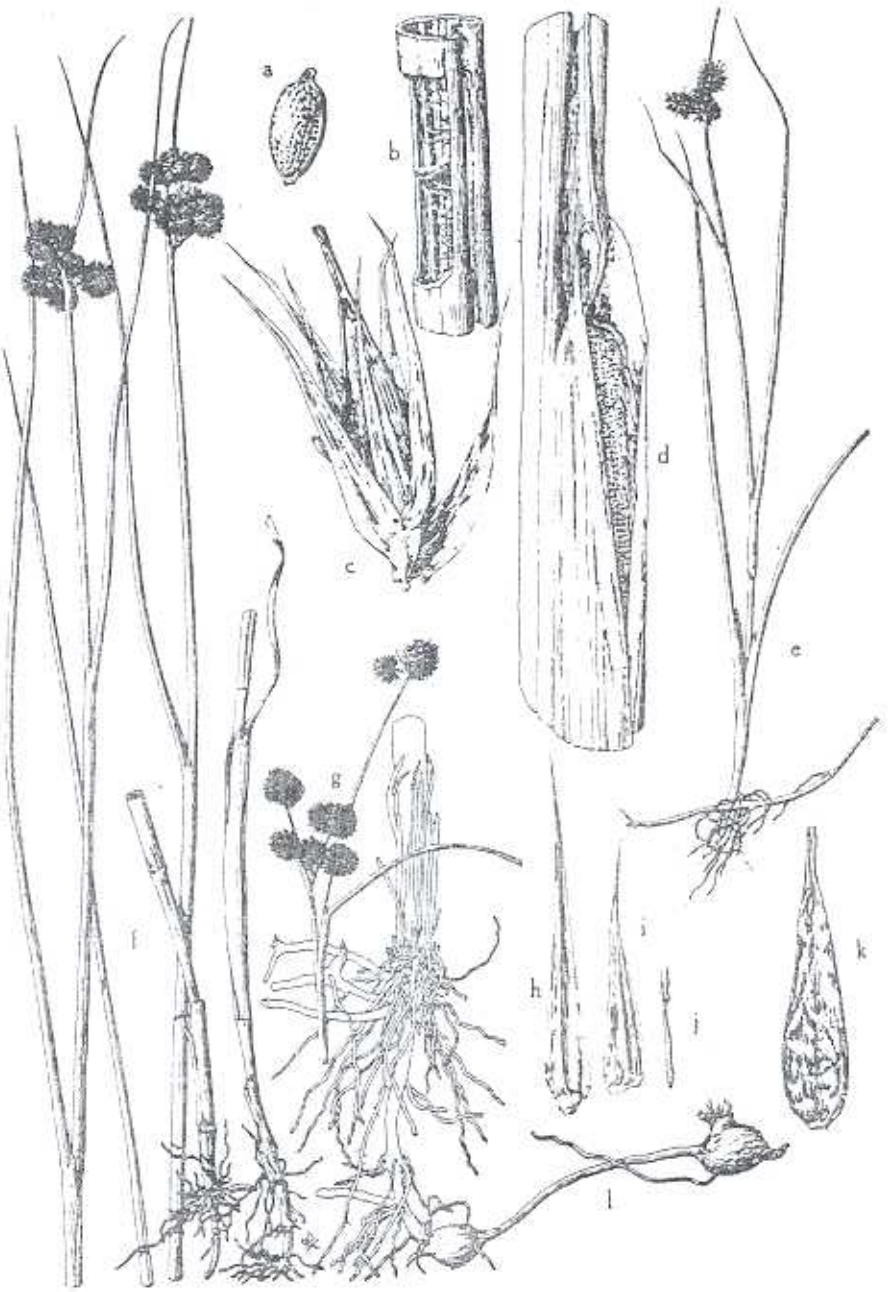



Fig. 324: *Juncus Torreyi*: a, mature seed, X 24; b, leaf, with a part of it removed to show septum, X 3; c, flower, X 8; d, ligulate auricled leaf sheath, X 3; e, habit, X ⅔; f, habit, lower and upper parts of plant, the inflorescence of globose heads, X ⅔; g, inflorescence, more branched type, X ⅔; h, outer perianth segment, X 8; i, inner perianth segment, X 8; j, stamen, X 8; k, capsule, X 8; l, basal part of plant, showing slender rootstock and tuberlike thickenings, X 1⅓. (From Mason, Fig. 175).

Torrey's rush

Source: Correll and Correll, 1972 FACW

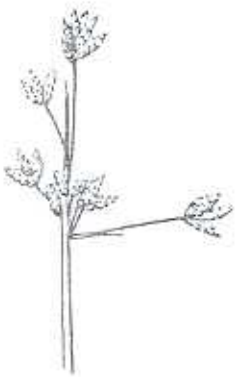
HARDSTEM BULRUSH, Scirpus acutus

Inland fresh and alkali marshes and coastal fresh and brackish marshes; British Columbia to Newfoundland, California, Texas, and North Carolina.

Stems as high as a man to more than twice as high, usually upright, usually dark-green and not easily crushed between fingers, round in cross section. Cluster of spikelets stiff-branched. Spikelets usually dull-brown, their scales much longer than the seeds hidden beneath them. Seeds similar to Softstem Bulrush.

Resembles Softstem, Slender, and Southern Bulrushes; but those species usually have droopy clusters of smaller spikelets; and Softstem usually has grayish-green soft stems and smaller, shorter-scaled spikelets; Slender has singly placed spikelets; Southern has bluntly triangular stems.

life-size



1/2

Source: Hotchkiss, 1970

OBL

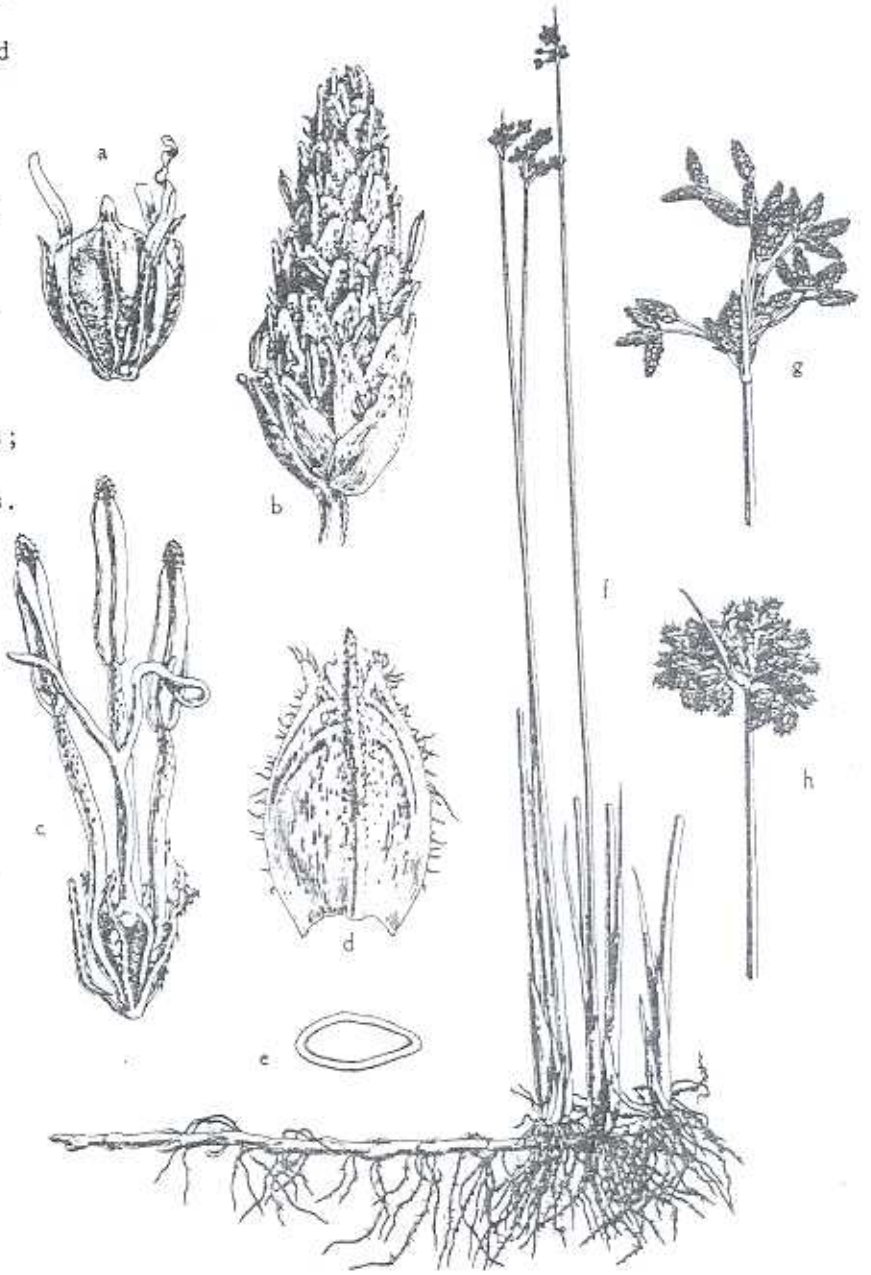



Fig. 184: *Scirpus acutus*: a, mature achene, the subtending bristles with conspicuous retrorse barbs, X 8; b, spikelet, X 4; c, flower without the scale, X 12; d, carinate scale, showing the short awn and the cleft ciliate apex, X 8; e, achene (cross section), X 8; f, habit, showing stout rhizome, basal sheaths and erect culms, X ⅛; g and h, inflorescences, showing variation, X ⅜. (From Mason, Fig. 157).

Source: Correll and Correll, 1972

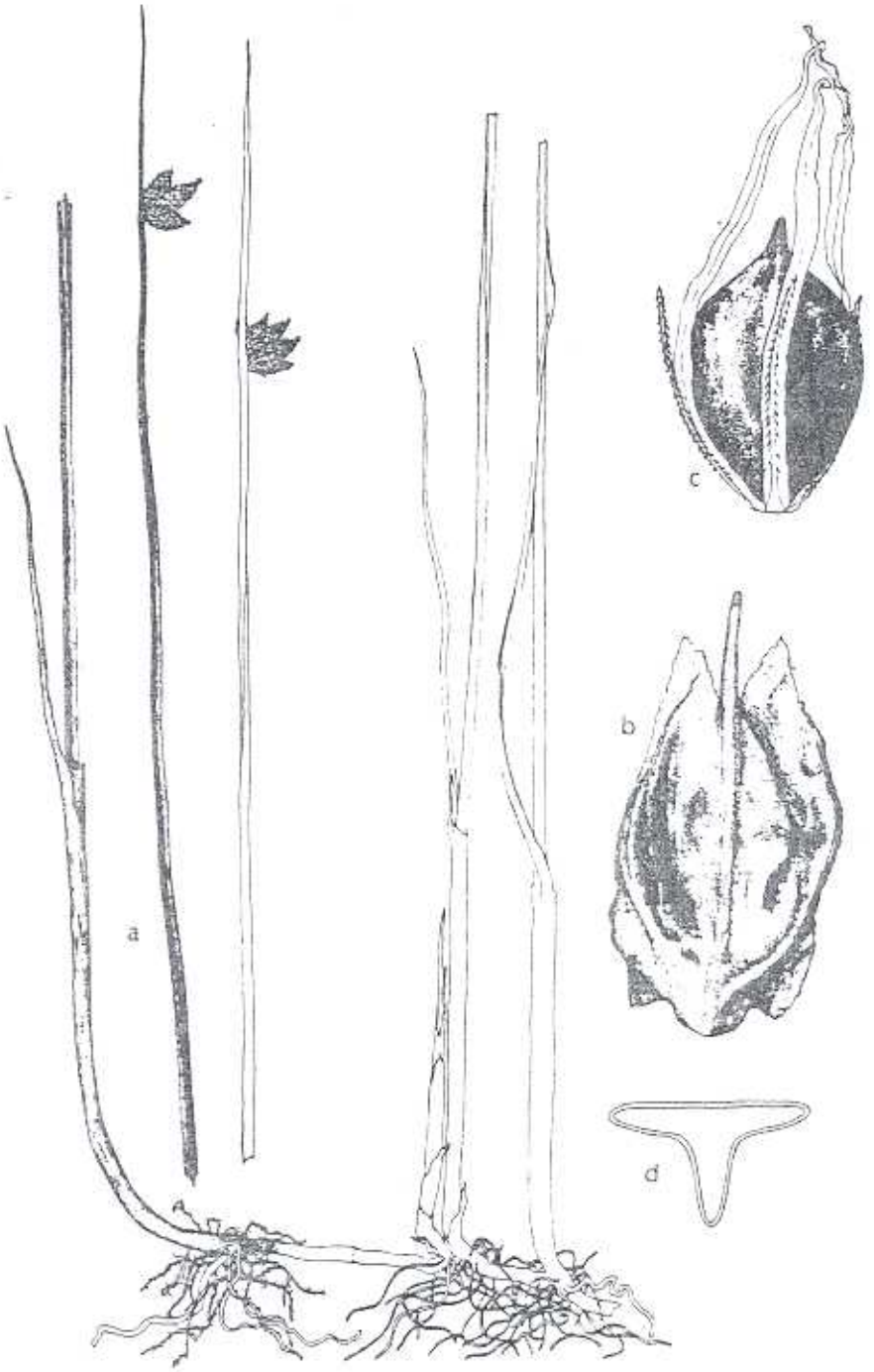



Fig. 181: *Scirpus americanus*: a, habit, X ½; b, scale, X 12; c, achene, X 12; d, cross section of stem, X 14. (Courtesy of R. K. Godfrey).

Source: Correll and Correll, 1972 OBL

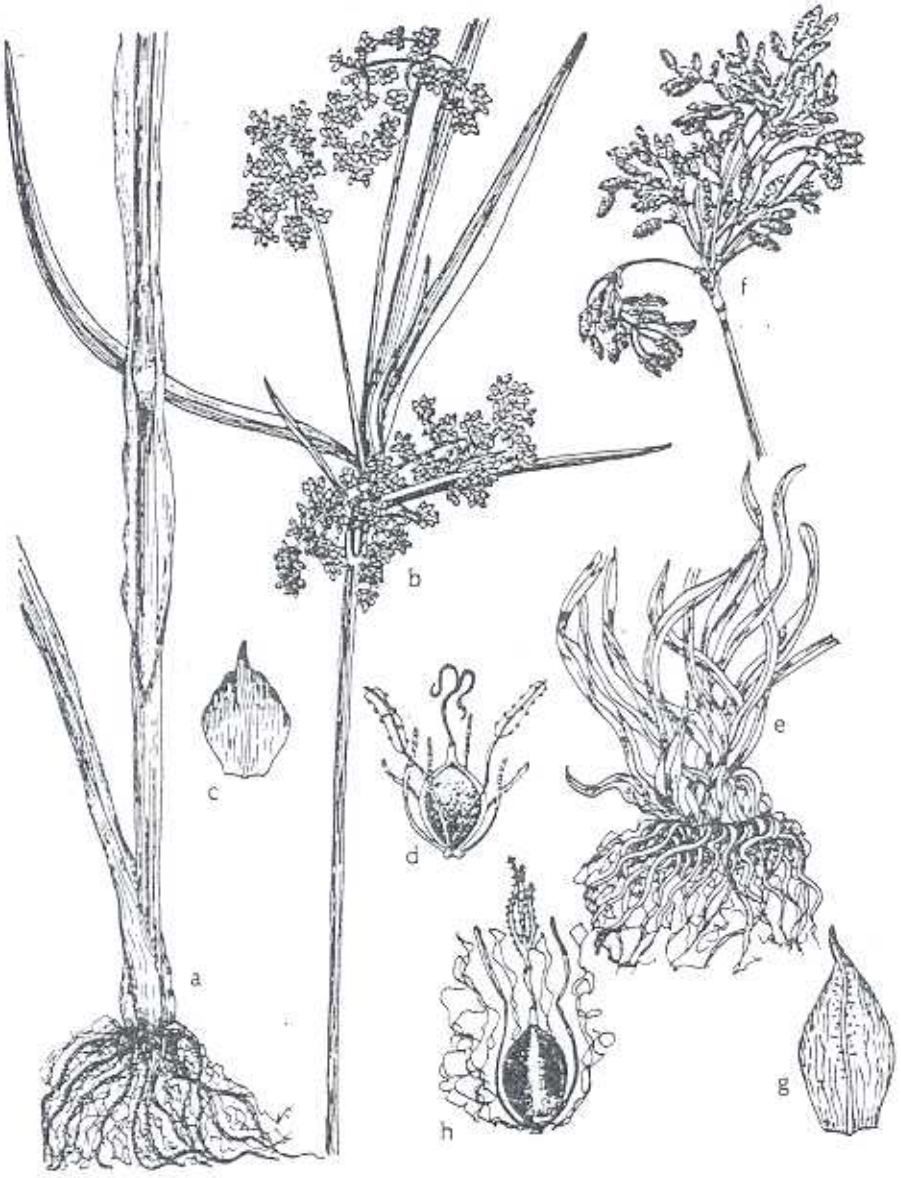
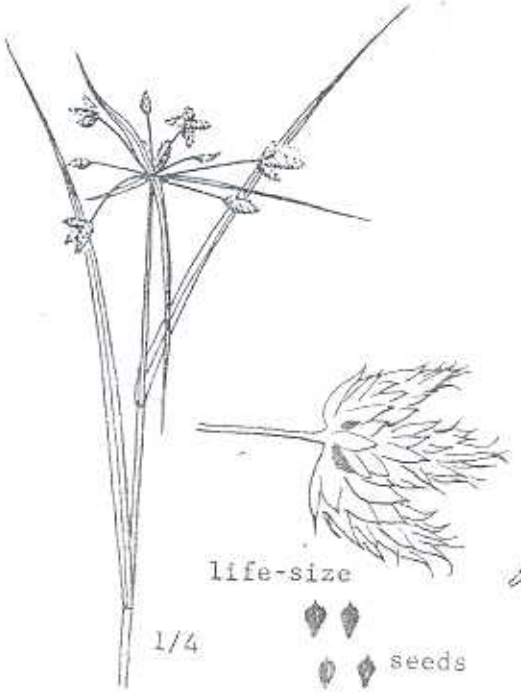



Fig. 179: a-d, *Scirpus atrovirens*: a, basal part of plant, X ½; b, upper part of plant, X ½; c, scale, X 10; d, achene, X 10. e-h, *Scirpus lineatus*: e, basal part of plant, X ½; f, inflorescence X ½; g, scale, X 10; h, achene, X 10. (V. F.).

Dark-green or green bulrush

Source: Correll and Correll, 1972 08L




RIVER BULRUSH,
Scirpus fluviatilis

Inland and coastal fresh marshes; Saskatchewan to New Brunswick, California, New Mexico, and Virginia (commonest in the northeastern quarter of United States).

Stems waist-high to as high as a man. Flowering stems with 4 or 5 leaves. In dryish marshes, often without flowers and with a dozen or more leaves to a stem. Leaves to 2 feet long and an inch wide. Mature spikelets dull-brown. Ripe seeds greenish-brown, triangular in end view.

Source: Hotchkiss, 1970

OBL

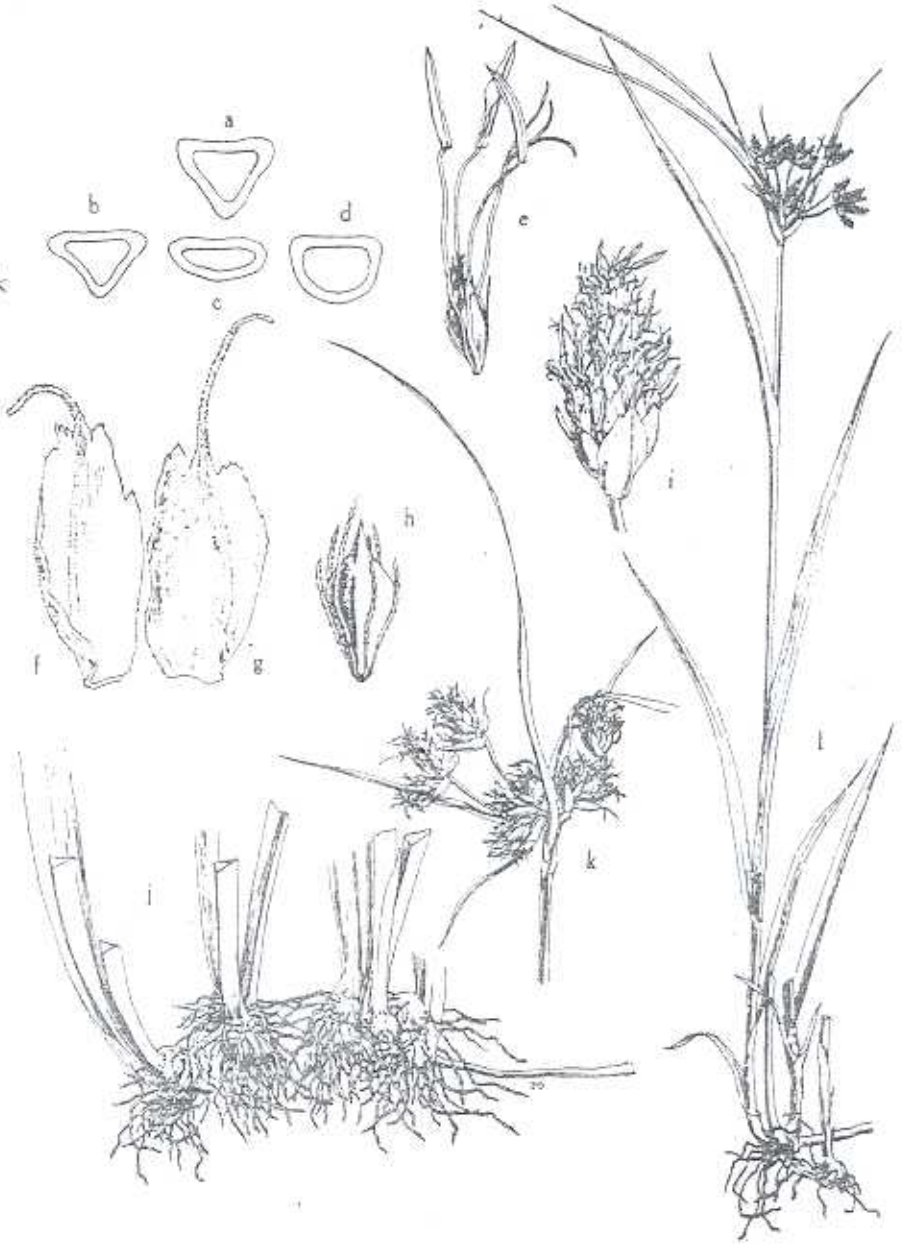
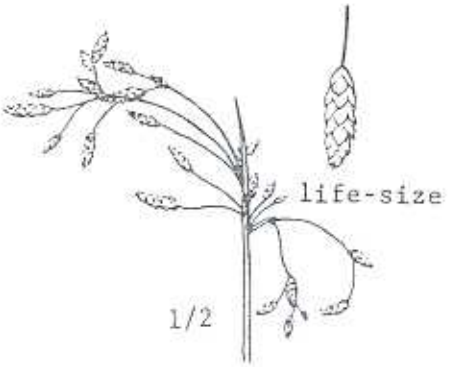



Fig. 175: *Scirpus fluviatilis*: a-d, achenes, showing variation in shape (cross section), X 6; e, flower, style slender and trifid, the bristles unequal in length, X 3; f and g, awned scales, X 4; h, achene, the subtending bristles unequal in length, X 4; i, spikelet, X 1½; j, rhizome, tubers and sharply triangular culms, X ⅔; k, inflorescence with nearly sessile rays and longer primary rays, X ⅔; l, habit, showing rhizomes, tubers, sheathing culm leaves and umbellate inflorescence with the involucral leaves unequal in length, X ⅛. (From Mason, Fig. 148).

Source: Correll and Correll, 1972

95. SLENDER BULRUSH, Scirpus heterochaetus




Inland fresh marshes; Washington to Quebec, Oregon, Tennessee, and New York.

Stems similar to Hardstem Bulrush, except usually slimmer and shorter. Cluster of spikelets usually droopy. Spikelets light-brown, singly placed. Seeds similar to Softstem Bulrush.

Resembles Softstem, Hardstem, and Southern Bulrushes, but those species have some spikelets bunched; Softstem usually has grayish-green soft stems; Hardstem has stiff-branched clusters of spikelets; Southern has bluntly triangular stems.

Source: Hotchkiss, 1970 OBL


ALKALI BULRUSH
Scirpus robustus

Coastal brackish and salt marshes; British Columbia to California; Quebec to New Jersey. Inland alkali and brackish marshes; British Columbia to Manitoba, California, and Texas; central New York.

Stems knee-high to shoulder-high. Leaves to 2 feet long and 1/2 inch wide. Mature spikelets usually straw-colored or light-brown, the bristle tips of their scales straight or curved out. Ripe seeds brown, slightly biconvex in end view.

Resembles Saltmarsh Bulrush; but that species usually has reddish-brown spikelets, the tips of its scales are recurved, and its seeds are flattish on one side and low-convex on the other in end view.

Source: Hotchkiss, 1970 OBL

SOFTSTEM BULRUSH, Scirpus validus
(Scirpus steinmetzii)


Inland fresh marshes and coastal fresh and brackish marshes; Alaska to Newfoundland and the southernmost States.

Stems waist-high to twice as high as a man, often leaning, usually grayish-green and easily crushed between fingers, round in cross section. Cluster of spikelets usually droopy. Spikelets reddish-brown, their scales about the same length as the brownish-gray ripe seeds which are partly exposed beneath them, a seed under each scale.

Resembles Hardstem, Slender, and Southern Bulrushes; but those species usually have dark-green, firm stems; and Hardstem has stiff-branched clusters of larger, longer-scaled spikelets; Slender has singly placed spikelets; Southern has bluntly triangular stems.

Source: Hotchkiss, 1970 OBL

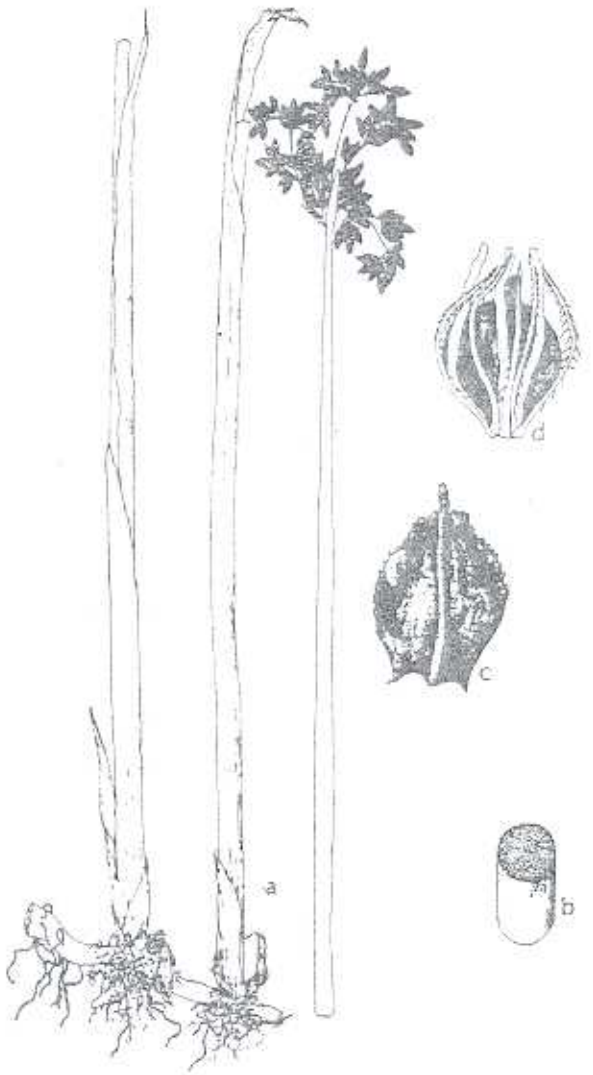



Fig. 182: a-d. *Scirpus validus*: a, habit, X ¼; b, cross section of upper stem, X 1; c, scale, X 7; d, achene, X 10.

Source: Correll and Correll, 1972

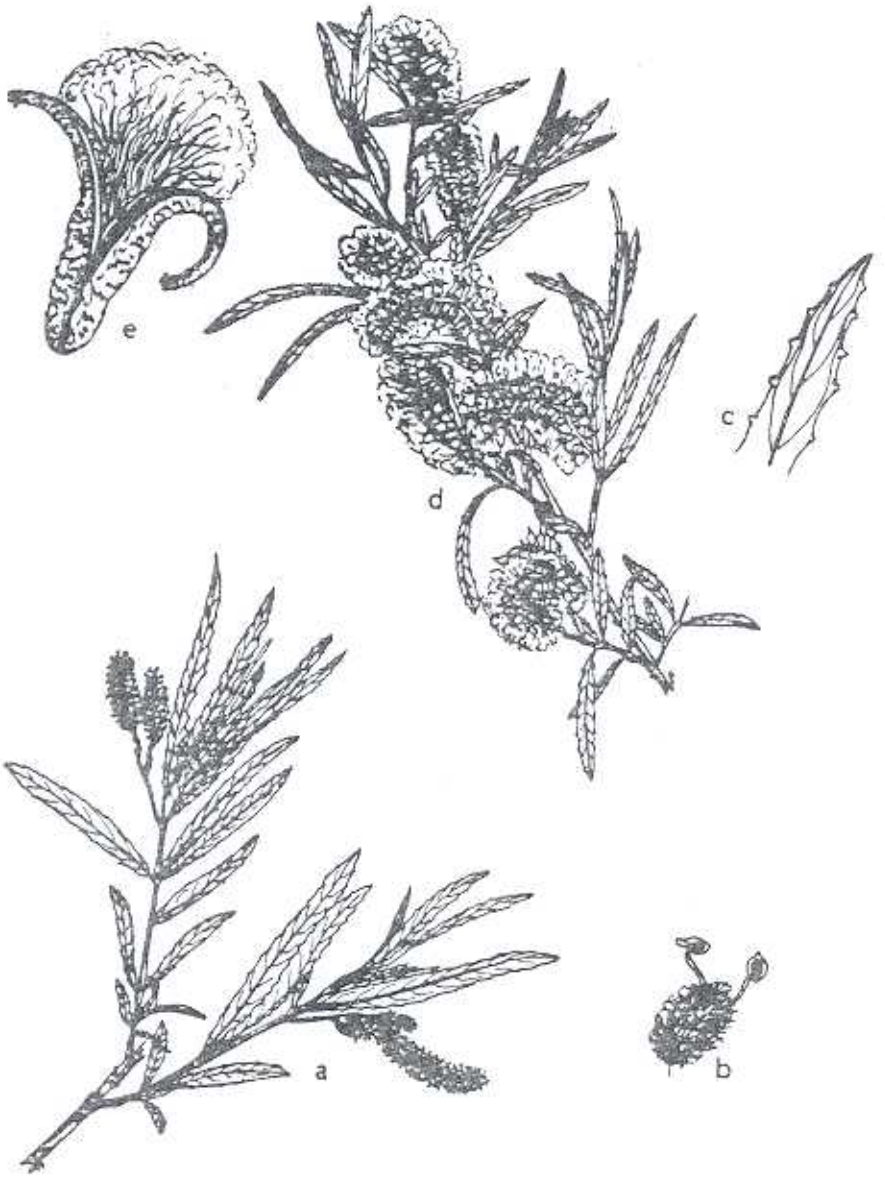



Fig. 388: *Salix exigua*: a, branch with male aments, x ½; b, male flower, x 5; c, tip of leaf, x 2; d, branch with female aments, x ½; e, fruit dehiscing, x 5. (V. F.).

Sandbar willow

Source: Correll and Correll, 1972 FACW, DRA

# SHORT KEY TO WETLAND PLANTS

I. Submerged plants with floating or submerged leaves

1. Plant free-floating on the surface, not attached to bottom.
---- duckweeds (Lemna)
liverworts (Riccia)

1. Plant attached to bottom by underground stalks or stems, or free-floating beneath the surface.

2. Plant lacking submerged leaves, with floating leaves only.
---- water lilies (Nuphar, Nymphaea)

2. Plant with submerged leaves.

3. Submerged leaves dissected into many segments.
---- coontails (Ceratophyllum)
buttercups (Ranunculus)
milfoils (Myriophylum)
pondweeds (Potamogeton)
bladderworts (Utricularia)

3. Submerged leaves not dissected, leaves flat, linear or broad.
---- pondweed (Potamogeton)
waterweed (Elodea)
wild celery (Vallisneria)

II. Emergent plants, and plants growing entirely out of water (mudflats or shorelines).

4. Monocots - leafless or leaves with parallel venation, flower parts in multiples of 3's.

5. Plants with large, flat, eliptical or linear basal leaves.
---- cattail (Typa)
iris (Iris)
sweet flag (Acorus)
water plantain (Alisma)
arrowhead (Sagittaria)

5. Plants appearing leafless or with leaves along the stem.

6. Stems solid and leaves with closed sheaths.
---- sedges (Carex)
bulrushes (Scirpus)
spikerushes (Eleocharis)
cyperus or flat sedge (Cyperus)
burreeds (Sparganium)

6. Stems hollow or with open leaf sheat.
---- rushes (Juncus)
grasses

4. Dicots - leaves with netted venation, flower parts in multiples of 4's and 5's.

7. Leaves with sheathed bases.
---- smartweeds (Polygonum)
dock (Rumex)
water hemlock (Cicuta)
water parsnip (Sium)

7. Leaves without sheathed leaf bases.

8. Plants with distinct flowers, petals colored.

9. Plants with flowers clustered into heads or with square stems and leaves aromatic when crushed.
---- mints (Mentha, Lycopus, Scutellaria, Stachys, Teucrium)
sunflowers

9. Plants with individual flowers scattered along the stem. If stem is square, leaves not aromatic when crushed.
---- snapdragons
watercress

8. Plants with small inconspicuous green flowers, petals absent.
---- pigweeds (Amaranthus)
goosefoot (Chenopodium)

## DEFINITIONS

OBL - Obligate - Always ( 99% frequency) found in wetlands under natural conditions, but may persist in nonwetlands if planted there by man or in wetlands that have been drained, filled, or otherwise transformed into nonwetlands.

FACW - Facultative Wetland - Usually found in wetlands (67 - 99) frequency,) but occasionally found in nonwetlands.

FAC - Facultative - Sometimes found in wetlands (34 - 66% frequency,) but also occurs in nonwetlands.

FACU - Facultative Upland - Seldom found in wetlands (1 - 33% frequency) and usually occurs in nonwetlands.

UPL - Nonwetland - Not found (less than 1% frequency) in wetlands in this region.

DRA - Drawdown - Typically associated with the drier stages of wetlands, such as mud flats.

Temporary Drawdown

| Common Name | Scientific Name | indicator | references | page |
|---|---|---|---|---|
| barley, wild or foxtail | Hordeum jubatum | FACW | p.55 SD Weeds, p.63 Key to the native perennial grasses | 67 |
| barnyard grass | Echinochloa crusgalli | FACW, DRA | p.61 SD Weeds | 63 |
| beggarticks, common | Bidens frondosa | FACW | p.198 SD Weeds | 8 |
| cocklebur | Xanthium strumarium | FAC, DRA | p.179 SD Weeds | 52 |
| purselane speedwell | Veronica peregrina | NC - FACW, OBL | p.158 SD Weeds | 51 |
| purselane, false | Plagiobothrys scouleri | NC - FACW, OBL | | |
| quackgrass | Agropyron repens | NC - FACU | p.22 SD Weeds | 56 |
| smartweed, nodding | Polygonum lapathifolium | OBL | p.80 SD Weeds | 25 |

Temporary Type 1 & 2

| Common Name | Scientific Name | indicator | references | page |
|---|---|---|---|---|
| aster, false | Boltonia asteroides (B. latisquama) | FACW | p.53 Common marsh plants | 9 |
| aster, lowland white | Aster simplex | FACW | | 5 |
| barley, wild or foxtail | Hordeum jubatum | FACW | p.55 SD Weeds, p.63 Key to the native perennial grasses | 67 |
| bluegrass, fowl | Poa palustris | FACW | p.89 Key to the native perennial grasses | 73 |
| bluejoint | Calamagrostis canadensis | FACW | p.48 Key to the native perennial grasses | 59 |
| boltonia, marsh | Boltonia asteroides (B. latisquama) | FACW | p.53 Common marsh plants | 9 |
| bugleweed, rough | Lycopus asper | OBL | | 19 |
| buttercup, Macoun's | Ranunculus macounii | OBL | | 33 |
| cinquefoil, rough | Potentilla norvegica | FAC | p.109 S.D. Weeds | 31 |
| cordgrass, prairie | Spartina pectinata | FACW | p. 95 Key to the native perennial grasses | 76 |
| cress, marsh | Rorippa palustris | OBL | | |
| dock, narrowleaf or Mexican | Rumex mexicanus | FACW | p.75 S.D. Weeds | 37 |
| dock, western | Rumex occidentalis | OBL | | |
| dogbane, claspingleaf or prairie | Apocynum sibiricum | FAC | | |
| germander | Teucrium canadense | FACW | p.156 Weeds of NC States | 45 |
| hedgenettle, marsh | Stachys palustris | OBL | p.76 Van Bruggen 1983 | |
| ironweed, western | Vernonia fasciculata | FACW | p.180 SD Weeds | 50 |
| loosestrife, narrow-leafed or lanceleaf | Lysimachia hybrida | OBL | | |
| milkweed, showy | Asclepias speciosa | FAC | p.73 Van Bruggen 1983 | |
| mint, wild or field | Mentha arvensis | FACW | p.63 Van Bruggen 1983 | 21 |
| reedgrass, bluejoint | Calamagrostis canadensis | FACW | p.48 Key to the native perennial grasses | 59 |
| reedgrass, northern | Calamagrostis inexpansa | FACW | p.48 Key to the native perennial grasses | 60 |
| rush, Dudley's | Juncus tenuis (dudleyi) | FAC | p.45 Weeds of the North Central States | 89 |
| rush, Torrey's | Juncus torreyi | FACW | p.9 Van Bruggen 1983 | 90 |
| rush, baltic | Juncus balticus | OBL | p.8 Common marsh plants | 88 |
| rush, inland | Juncus interior | FACW | | |

Temporary (continued)

| | | | |
|---|---|---|---|
| sedge, Sartwell | Carex sartwellii | FACW | 82 |
| sedge, clustered field | Carex praegracilis | FACW | 79-80 |
| sedge, fox | Carex vulpinoidea | OBL | 82 |
| sedge, smooth cone | Carex laeviconica | OBL | 77 |
| sedge, wooley | Carex lanuginosa | OBL | 78 |
| sneezeweed | Helenium autumnale | FACW | 16 |
| sow-thistle, field | Sonchus arvensis | FAC | 43 |
| sweetgrass | Hierochloe odorata | FACW | 66 |
| thistle, Canada | Cirsium arvense | FACU, DRA | 14 |
| waterhorehound, western | Lycopus asper | OBL | 19 |
| willowherb, northern | Epilobium ciliatum | NC - FACU, FACW | |
| wormwood, biennial | Artemisia biennis | FAC | 3 |

p.6 Van Bruggen 1983
p.39 Common marsh plants
p.200 SD Weeds
p.14 SD Weeds
p. 63 Key to the native perennial grasses
p.12 SD Weeds
p.207 SD Weeds

# Seasonal Drawdown

| Common Name | Scientific Name | indicator | references | page |
|---|---|---|---|---|
| barley, wild or foxtail | Hordeum jubatum | FACW | p.55 SD Weeds, p.63 Key to the native perennial grasses | 67 |
| barnyard grass | Echinochloa crusgalli | FACW, DRA | p.61 SD Weeds | 63 |
| cocklebur | Xanthium strumarium | FAC, DRA | p.179 SD Weeds | 52 |
| cyperus | Cyperus acuminatus | OBL, DRA | | 84 |
| dock, golden | Rumex maritimus | NR - DRA, FACW | | 36 |
| fern, water | Marsilea vestita | OBL | p.112 Underwater & floating-leaved plants | 20 |
| flatsedge, taperleaf | Cyperus acuminatus | OBL, DRA | | 84 |
| goosefoot, red | Chenopodium rubrum | OBL | | |
| hedge hyssop | Gratiola neglecta | OBL, DRA | | 15 |
| kochia | Kochia scoparia | FAC, DRA | p.85 SD Weeds | 17 |
| pimpernel, false | Lindernia dubia | OBL, DRA | | 19 |
| quackgrass | Agropyron repens | NC - FACU | p.22 SD Weeds | 56 |
| ragwort, marsh | Senecio congestus | NR - DRA, FACW | | |
| spikerush, Engelmann's | Eleocharis engelmannii | FACW | p.16 Common marsh plants | 87 |
| spikerush, needle or slender | Eleocharis acicularis | OBL | p.14 Common marsh plants | 85-86 |
| water hyssop | Bacopa rotundifolia | OBL | p.28 Van Bruggen 1983, p.94 Underwater & floating-leaved plants | 7 |