

COMMON MARSH PLANTS OF THE UNITED STATES AND CANADA



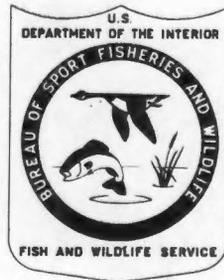
United States Department of the Interior
Fish and Wildlife Service
Bureau of Sport Fisheries and Wildlife

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COMMON MARSH PLANTS OF THE UNITED STATES AND CANADA

By

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Published by
Bureau of Sport Fisheries and Wildlife
Resource Publication 93
Washington, D.C. • December 1970

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COMMON MARSH PLANTS OF THE UNITED STATES AND CANADA

This is the fourth of a series of publications on field identification of North American marsh and water plants. It describes the emergent and semiemergent plants most likely to be found in inland and coastal marshes. It omits hundreds of uncommon marsh plants and plants less characteristic of marshes than of marsh edges, lake and stream shores, or wet meadows.

The first of the series, "Pondweeds and Pondweedlike Plants of Eastern North America," Circular 187, was broadened in scope as Resource Publication 44, "Underwater and Floating-leaved Plants of the United States and Canada," and is superseded by it. The present publication, widens the scope of "Bulrushes and Bulrushlike Plants of Eastern North America," Circular 221, and contains most of the species listed therein.

This guide is designed for identification of marsh plants without recourse to technical botanical keys. To use it, read pages 1 to 4 and then look at the drawings. To identify a plant, find the group in which it fits, then find a drawing and description that match it.

Each description is headed by a common name and a scientific name. In parentheses are alternative names used by Merritt Lyndon Fernald in "Gray's Manual of Botany, Eighth Edition" (1950), by Herbert L. Mason in "A Flora of the Marshes of California" (1957), and by John Kunkel Small in "Manual of the Southeastern Flora" (1933).

Because of low temperature and infertile soil, marsh plants are scarce east of the Mackenzie River Valley and north of the latitude of James Bay. Elsewhere they grow wherever soil is saturated or shallowly flooded with fresh or brackish water. Inland, most marshes have less water in summer than at other times. Along the coasts, the water level in many marshes changes twice a day with the tides; in other marshes, nearly cut off from the ocean, the water level is relatively constant. A few kinds of plants tolerate high salinity at the edge of the ocean and a few tolerate high alkalinity inland, but most kinds live only in fresh or slightly brackish water.

Marsh plants differ in height, from short plants that carpet the ground to plants three times the height of a man. Even one kind may vary widely in height or shape with different water or soil conditions, if it is crowded, or if it is damaged by man or animals. Most marsh plants grow upright; a few grow horizontally or lean on other plants. Most kinds live underground through winter and send up new aerial stems each spring; but Wildrice, Wild Millet, Walter Millet, some Smartweeds, and a few other plants come up from seed each year.

Seeds of Bulrushes, Threesquares, Spikerushes, Wildrice, Rice, Millets, and Smartweeds are important duck foods; and rootstocks and tubers of several kinds of marsh plants are important foods for wild geese and muskrats. Each plant described is food or shelter for animals while it is alive; is food for bacteria and protozoa and finally fishes after it dies. In shallow water, marsh plants help stabilize mud and sand bottoms and help protect shores from wave erosion.

The plants are discussed in seven groups. Within each group, the kinds which resemble one another most closely are next to each other; wide-ranging kinds usually precede those with a smaller range; and northern kinds usually precede southern.

Group 1. Plants with upright or upslanted leafless stems; or similar plants with long, narrow leaves coming from the lower part of the stems; flowers usually individually inconspicuous, but crowded and numerous (show in Flowering-rush and Swamp-lily) (pages 5 to 22)

- | | |
|------------------------|----------------------------|
| Softstem Bulrush | Trianglestem Spikerush |
| Hardstem Bulrush | Water Spikerush |
| Slender Bulrush | Common Spikerush |
| Southern Bulrush | Walking Spikerush |
| Swamp Bulrush | Blunt Spikerush |
| Saltmarsh Fimbristylis | Saltmarsh Spikerush |
| Baltic Rush | Squarestem Spikerush |
| Soft Rush | Northern Jointed Spikerush |
| Soldier Rush | Southern Jointed Spikerush |
| Needlerush | Gulf Spikerush |
| Bog Rush | Broadleaf Cattail |
| Blackgrass | Narrowleaf Cattail |
| Seaside Arrowgrass | Southern Cattail |
| Southern Arrowgrass | Blue Cattail |
| Flowering-rush | Big Burreed |
| Common Threesquare | Eastern Burreed |
| Olney Threesquare | Shining Burreed |
| Torrey Threesquare | Slender Burreed |
| Ricefield Bulrush | Floating Burreed |
| Bluntscale Bulrush | Little Burreed |
| Rush Fuirena | Sweetflag |
| Slender Spikerush | Swamp-lily |
| Dwarf Spikerush | |

Group 2. Plants with upright or upslanted stems with grasslike leaves on two sides (one plane); flowers individually inconspicuous between scales which overlap in two rows to form spikelets; the spikelets clustered toward the top of stems (pages 23 to 36)

Phragmites	Rice Cutgrass
Tufted Hairgrass	Southern Cutgrass
Whitetop	Sloughgrass
Reed Mannagrass	Saltgrass
Western Mannagrass	Coast Dropseed
Low Mannagrass	Giant Setaria
Water Mannagrass	Sacciolepis
Sharpscale Mannagrass	Jointgrass
Bearded Sprangletop	Maidencane
Wildrice	Water Panicum
Giant Cutgrass	Prairie Cordgrass
Rice	Big Cordgrass
Wild Millet	Saltmeadow Cordgrass
Walter Millet	Saltmarsh Cordgrass
Reed Canarygrass	California Cordgrass

Group 3. Plants with upright stems with grasslike leaves on three sides; flowers individually inconspicuous between scales which usually overlap in several rows to form spikelets (two rows in Redroot Cyperus); the spikelets clustered toward the top of stems (pages 37 to 45)

Beaked Sedge	River Bulrush
Slough Sedge	Tuberous Bulrush
Lake Sedge	Saltmarsh Bulrush
Lyngbye Sedge	Redroot Cyperus
Pacific Sedge	Twig-rush
Saltmarsh Sedge	Sawgrass
Alkali Bulrush	Everglade Beakrush

Group 4. Plants with upright, sprawling, or horizontal stems with singly placed, nongrasslike, lance-shaped or wider, untoothed leaves; flowers clustered at the end of stems or single or clustered at the base of leaves (pages 46-55)

Water Smartweed	Roundleaf Mudplantain
Marsh Smartweed	Floating Waterprimrose
Nodding Smartweed	Marsh Dayflower
Swamp Smartweed	Marsh Boltonia
Dotted Smartweed	Atlantic Sea-blite
Southern Smartweed	Tidemarsch Waterhemp
Hairy Smartweed	Annual Saltmarsh Aster
Halberdleaf Tear-thumb	Perennial Saltmarsh Aster
Longleaf Mudplantain	

Group 5. Plants with upright, sprawling, or horizontal stems with paired, whorled, or otherwise clustered, lance-shaped or wider, untoothed leaves (sometimes little teeth in Sea-oxeye); or plants with leafless stems and paired or whorled branches; flowers single or clustered at the end of stems, in stalked heads along stems, or single or clustered at the base of leaves (pages 56-69)

Marestail	Alligatorweed
Water Horsetail	Jaumea
Slender Glasswort	Saltwort
Bigelow Glasswort	Saltflat-grass
Woody Glasswort	Frankenia
California Glasswort	Seaside Gerardia
Marsh-purslane	Saltmarsh Loosestrife
Goldenpert	Little Sea-pink
Purple Loosestrife	Big Sea-pink
Swamp Loosestrife	Coast Milkweed
Waterwillow	Sea-oxeye
Creeping Rush	Coast Bacopa
Lemon Bacopa	

Group 6. Plants with both their lance-shaped or wider, untoothed leaves and the stalks of their solitary flowers or flower clusters coming from underground stems or underwater stems (pages 70 to 86)

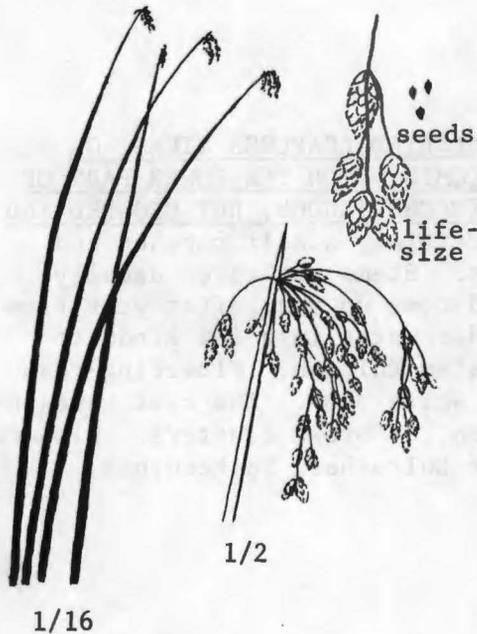
Spatterdock	Bulltongue
American Lotus	Broadleaf Waterplantain
Pickerelweed	Narrowleaf Waterplantain
Arrow-arum	Upright Burhead
Northern Arrowhead	Creeping Burhead
Broadleaf Arrowhead	Damasonium
Engelmann Arrowhead	Sea-lavender
Hooded Arrowhead	Goldenclub
Long-barb Arrowhead	American Frogbit
Bur Arrowhead	Water-hyacinth
Slender Arrowhead	Waterlettuce
Delta Duckpotato	

Group 7. Plants with tooth-edged to deeply divided leaves or leaflets (pages 87 to 94)

Marsh Cinquefoil	Water-parsley
Waterparsnip	Marsh Hibiscus
Bulblet Waterhemlock	Saltmarsh Pluchea
Nodding Beggarticks	Mock-bishopweed
Marsh Mermaidweed	Marsh Eryngo
Cutleaf Mermaidweed	Saltmarsh Mallow
Parrotfeather	

Group 1. PLANTS WITH UPRIGHT OR UPSLANTED LEAFLESS STEMS; OR SIMILAR PLANTS WITH LONG, NARROW LEAVES COMING FROM THE LOWER PART OF THE STEMS; FLOWERS USUALLY INDIVIDUALLY INCONSPICUOUS, BUT CROWDED AND NUMEROUS; growing inland in fresh and moderately alkali marshes and along the coasts in fresh to salt marshes. Stems or leaves usually stand close to each other in colonies and come up year after year from rootstocks. They vary from sometimes under water in a few kinds to more than twice as high as a man in Hardstem Bulrush. Flowering-rush has showy pink flowers, Swamp-lily showy white ones. The rest have inconspicuous flowers in greenish, yellowish, or brown clusters. Flowers are often lacking; then identification of Bulrushes, Spikerushes, Cattails, and Burreeds is difficult.

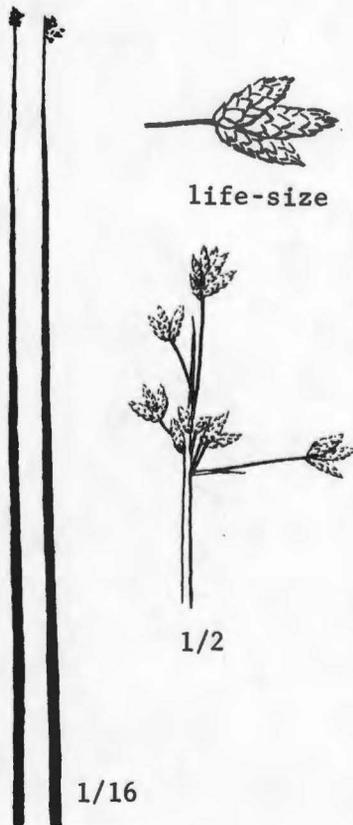
SOFTSTEM BULRUSH, *Scirpus validus*
(*Scirpus steinmetzii*)



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.



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.

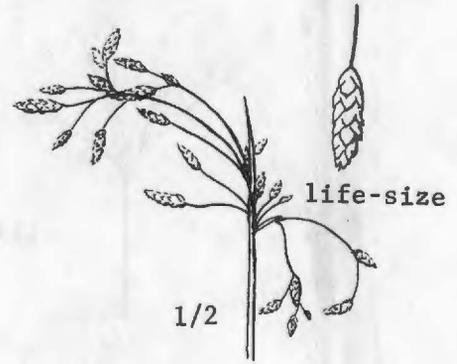
Resembles Softstem, Slender, and Southern Bulrushes; but those species usually have droopy clusters of smaller spikelets; and Softstem usually has grayish-green soft stems and smaller, shorter-scaled spikelets; Slender has singly placed spikelets; Southern has bluntly triangular stems.

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.

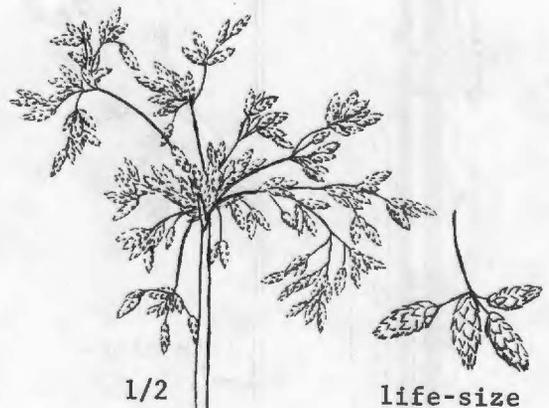


SOUTHERN BULRUSH, *Scirpus californicus*

Inland fresh and alkali marshes and coastal fresh and brackish marshes; California to South Carolina, Texas, and Florida.

Stems similar to Hardstem Bulrush, but bluntly triangular in cross section. Cluster of spikelets usually droopy. Spikelets reddish-brown, stalkless or nearly so. Seeds similar to Softstem Bulrush.

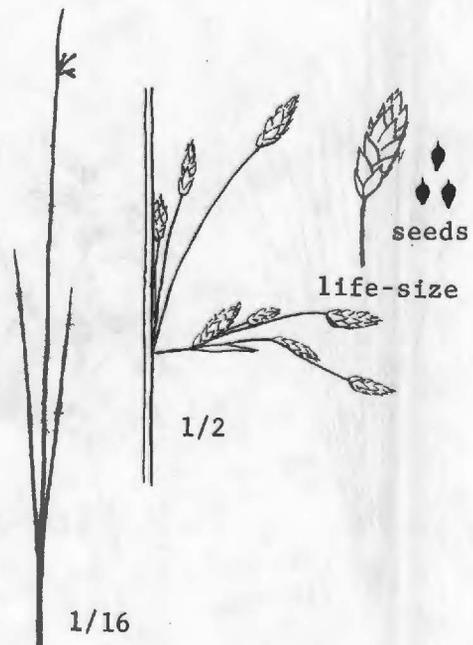
Resembles Softstem, Hardstem, and Slender Bulrushes, but those species have stems which are round in cross section; Softstem usually has grayish-green soft stems; Hardstem has stiff-branched clusters of spikelets; Slender has singly placed spikelets.

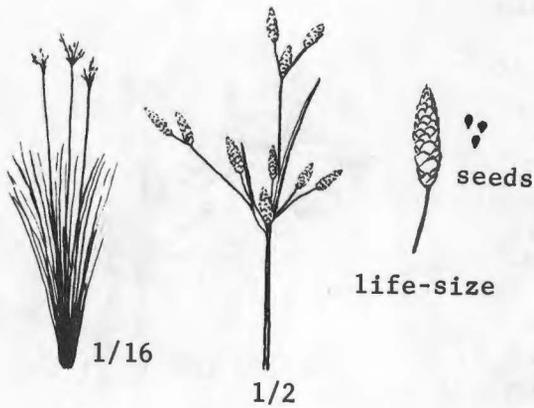


SWAMP BULRUSH, *Scirpus etuberculatus*

Inland and rarely coastal fresh marshes; Missouri; Delaware to Florida and Louisiana.

Stems waist-high to as high as a man, with 1 to 3 long leaves coming from near their base. Spikelets greenish-brown. Ripe seeds dark-brown.

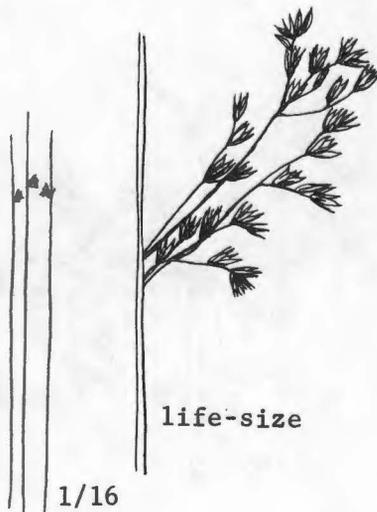




SALTMARSH FIMBRISTYLIS,
Fimbristylis spadicea
 (*Fimbristylis castanea*)

Coastal salt and brackish marshes; New York to Florida and Texas.

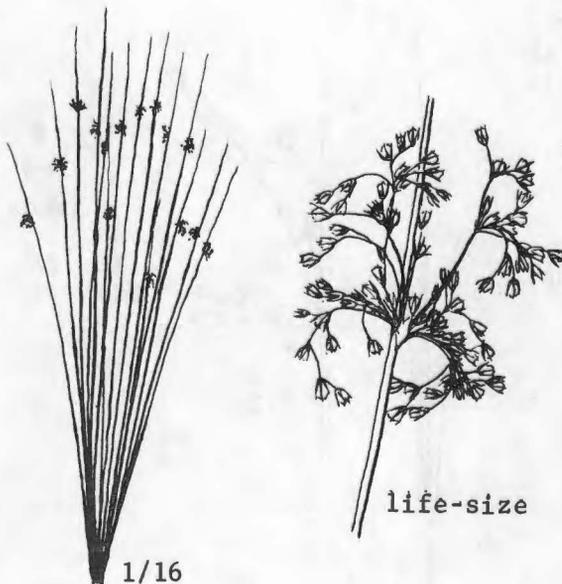
Stems less than knee-high to waist-high, usually in clumps with many wiry basal leaves. Spikelets brown, oval or oblong. Ripe seeds brown.



BALTIC RUSH, *Juncus balticus*
 (*Juncus leseurii*, *mexicanus*,
 and *textilis*)

Inland fresh and alkali marshes; Alaska to Labrador, California, Texas, and Pennsylvania.

Stems less than knee-high to as high as a man, not in big clumps. Flower clusters greenish to dark-brown, each long-lasting flower with 3 taper-tipped sepals and 3 similar petals.



SOFT RUSH, *Juncus effusus*

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

Stems knee-high to as high as a man, in big clumps. Flower clusters greenish to brown. Flowers similar to those of Baltic Rush, except smaller and usually lighter-colored.

SOLDIER RUSH
Juncus militaris

Inland fresh marshes;
Ontario to Newfoundland,
Indiana, and Maryland.

Stems less than knee-
high to waist-high,
topped with a brown clus-
ter of flowers, and with
a long midstem leaf
standing high above it.
Often there are limp
threadlike underwater
leaves. Flowers are in
bunches within a cluster.
Individually they re-
semble flowers of
Baltic Rush.



1/16



life-size

NEEDLERUSH,
Juncus roemerianus

Coastal brackish and
salt marshes; Maryland
to Texas.

Stems and stemlike
leaves knee-high to
shoulder-high, usually in
dark-green or dark-gray
colonies which look about
the same the year around.
Tips of stems and leaves
are so hard and sharp that
they often puncture skin.
Flower clusters brown.
Flowers are in bunches
within a cluster. In-
dividually they resemble
flowers of Baltic Rush.



1/16



life-size



life-size

life-size

BOG RUSH, *Juncus pelocarpus*

Inland fresh marshes; Minnesota to Labrador, Indiana, and Maryland.

Stems ankle-high to less than knee-high. Flower clusters greenish, each flower with 3 blunt-tipped sepals and 3 similar petals. Plants often have tufts of tiny leaves where the drawing shows flowers. Underwater plants are merely small clumps of tapered leaves.

BLACKGRASS, *Juncus gerardi*

Coastal brackish marshes and rarely inland brackish marshes; British Columbia to Washington; Utah; North Dakota to Newfoundland, Illinois, and Virginia.

Stems ankle-high to waist-high, with a few long leaves coming from near the base. Flowers have lengthwise dark-brown and yellowish stripes, each flower with 3 blunt-tipped sepals and 3 similar petals.

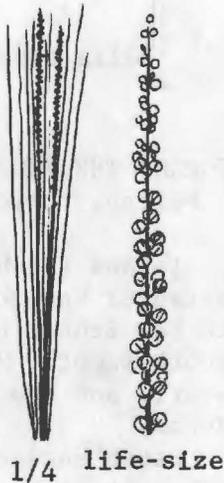
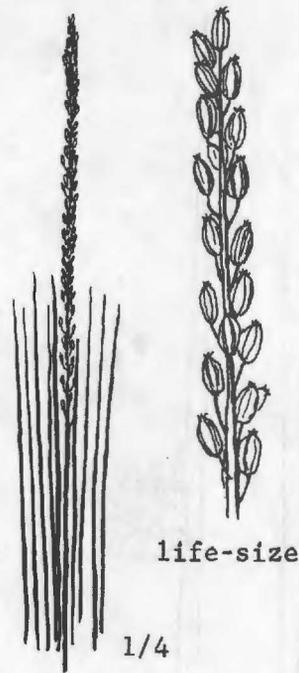


life-size

SEASIDE ARROWGRASS, *Triglochin maritima*
(*Triglochin concinna*)

Inland fresh, brackish, and alkali marshes and coastal brackish and salt marshes; Alaska to Newfoundland, California, New Mexico, Nebraska, and Delaware.

Stems ankle-high to waist-high. Leaves about as thick as the stems. Tiny greenish flowers produce a seed pods which are oval in side view and 6-sided or triangular in end view. Ripe pods split lengthwise into 6 parts, each containing one seed.



SOUTHERN ARROWGRASS, *Triglochin striata*

Coastal brackish and salt marshes; Oregon to California; Delaware to Louisiana.

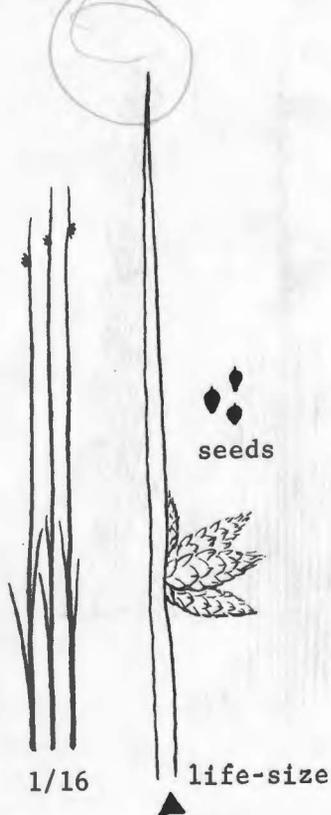
Resembles Seaside Arrowgrass, but Southern Arrowgrass is less than knee-high, and its ripe seed pods are roundish in side view and triangular in end view and they split lengthwise into 3 parts.

FLOWERING-RUSH, *Butomus umbellatus*

This native of Europe is common in fresh marshes along the tidal St. Lawrence River and has been found west to Illinois and in Idaho.

Stems knee-high to shoulder-high, topped with a cluster of pink flowers. Leaves about the same thickness as stems. Six pods develop in the center of each flower. Nonflowering plants with limp leaves are occasional under water.



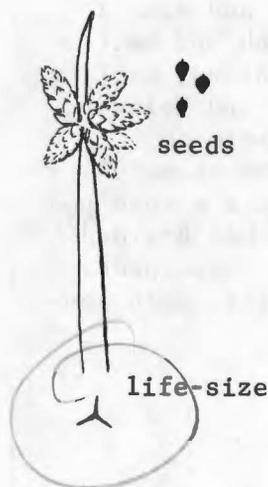


COMMON THREESQUARE,
Scirpus americanus

Inland fresh and alkali marshes and coastal fresh, brackish, and (on Pacific Coast) salt marshes; Alaska to Newfoundland and the southernmost states.

Stems knee-high to as high as a man, triangular in cross section, long-tapering to a sharp tip above the spikelets. Spikelets reddish-brown to dark-red, sharp-tipped. Ripe seeds brownish-gray.

Resembles Olney Threesquare, but the stems of that species are 3-winged in cross section and short above the spikelets. Resembles Torrey Threesquare; but the stems of that species narrow only a little to a round tip, and the spikelets are light-brown.

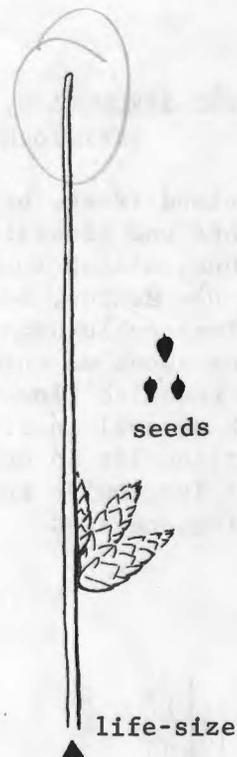


OLNEY THREESQUARE,
Scirpus olneyi

Coastal brackish marshes and inland alkali marshes; Washington to Wyoming, California, and Texas; Nova Scotia to Louisiana.

Stems knee-high to higher than a man, 3-winged in cross section, the part above the spikelets usually not longer than the length of the spikelet cluster. Spikelets brown, blunt-tipped. Ripe seeds brownish-gray.

Resembles Common Threesquare; but the stems of that species are triangular in cross section and long-tapering above the spikelets.



TORREY THREESQUARE,
Scirpus torreyi

Inland fresh marshes; Manitoba to New Brunswick, South Dakota, Missouri, and New Jersey.

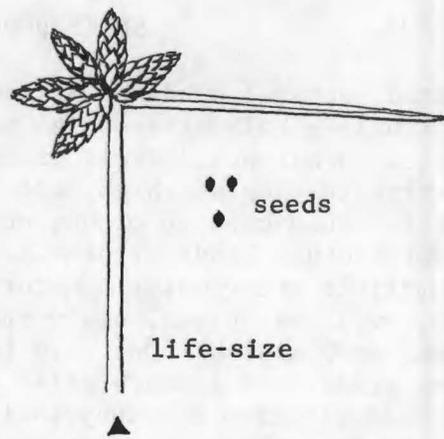
Stems knee-high to waist-high, triangular in cross section, narrowing only a little above the spikelets to a round tip. Spikelets light-brown, sharp-tipped. Ripe seeds brown.

Resembles Common Threesquare; but the stems of that species taper to a sharp tip above the spikelets, and the spikelets are usually reddish.

RICEFIELD BULRUSH,
Scirpus mucronatus

Rice fields in the Sacramento Valley, California.

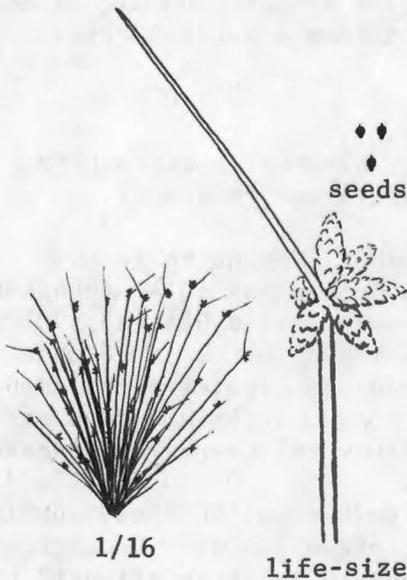
Stems knee-high to waist-high, in clumps, sharply triangular in cross section, the part above the spikelets often growing sideways. Spikelets greenish, their scales edged with brown. Ripe seeds black.



BLUNTSCALE BULRUSH,
Scirpus smithii
(*Scirpus debilis* and *purshianus*)

Inland and occasionally coastal fresh marshes; Minnesota to Quebec, Alabama, and Georgia.

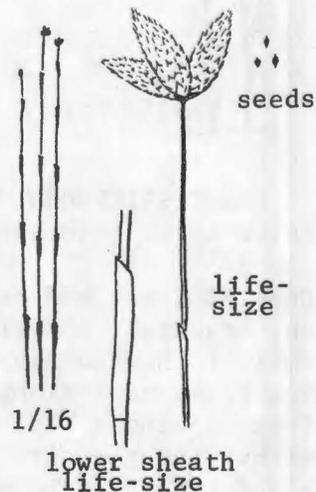
Stems ankle-high to knee-high, in clumps, bluntly triangular to round in cross section, the part above the spikelets often growing sideways. Spikelets greenish to light-brown. Ripe seeds black.



RUSH FUIRENA, *Fuirena scirpoidea*
(*Fuirena longa*)

Inland fresh marshes; Texas to Florida and southern Georgia.

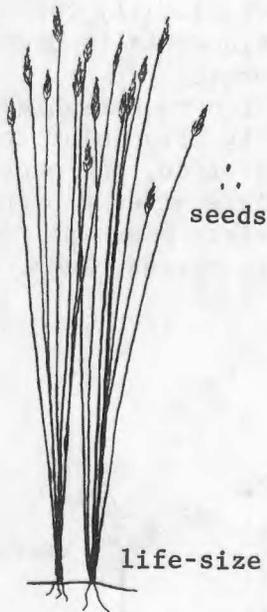
Stems less than knee-high to waist-high, with loose, usually bladeless leaf sheaths. Spikelets dark-brown. Ripe seeds dark-brown.



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.

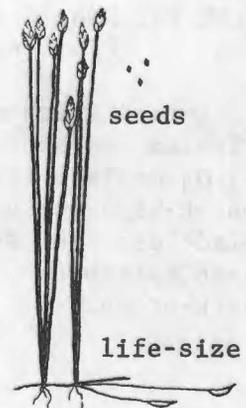
Resembles Dwarf Spikerush; but that species usually has thicker stems and tiny underground tubers and is common in brackish Atlantic Coast marshes.

DWARF SPIKERUSH, *Eleocharis parvula* (*Eleocharis coloradoensis*, *Scirpus nanus*)

Coastal fresh and brackish marshes and inland fresh, brackish, and alkali marshes; British Columbia to Newfoundland and the southernmost States (commonest along the Atlantic Coast).

Stems making a turf no more than ankle-high; sometimes under water. In summer and fall has tiny underground tubers. Spikelets oval, greenish or brown. Ripe seeds yellowish or brown.

Resembles Slender Spikerush (see above).



TRIANGLESTEM SPIKERUSH,
Eleocharis robbinsii

Inland fresh marshes; Minnesota to Nova Scotia and Florida.

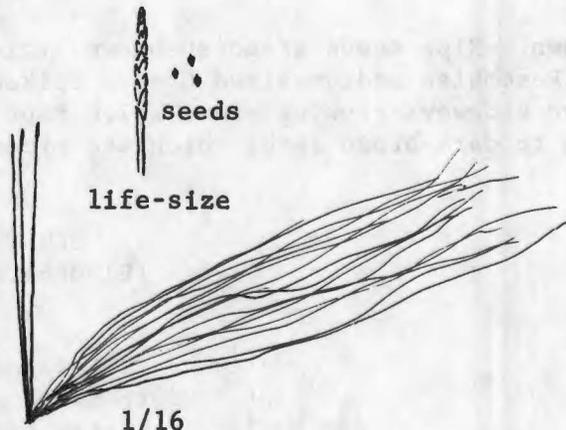
Stems ankle-high to less than waist-high, triangular in cross section; sometimes with additional threadlike underwater stems. Spikelets lance-shaped, greenish. Ripe seeds brown.



WATER SPIKERUSH,
Eleocharis elongata

Inland fresh marshes and water; Louisiana to Florida and southern Georgia.

Stems usually under water, threadlike, to 3 feet long, and flowerless; a few thicker stems, with spikelets, reaching a little out of water. Spikelets lance-shaped, green-and-brown-streaked. Ripe seeds light-brown.

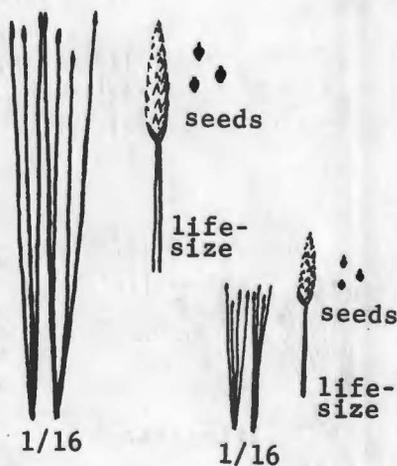


COMMON SPIKERUSH, *Eleocharis palustris*
(*Eleocharis ambigens, calva, fallax, halophila, macrostachya, smallii, and uniglumis*)

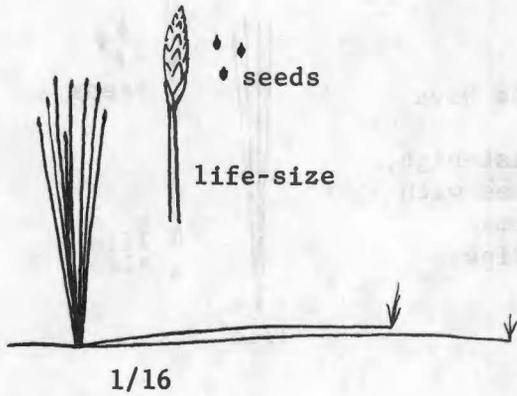
Inland fresh and alkali marshes and coastal fresh and brackish marshes; Alaska to Labrador and the southernmost States (commonest in southern Canada and the northern half of United States).

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.



WALKING SPIKERUSH,
Eleocharis rostellata



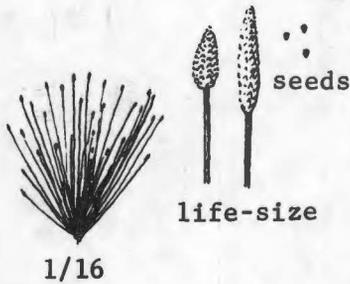
Inland alkali and fresh marshes; British Columbia to Alberta, California, and Texas; Minnesota to Nova Scotia and Florida (rare in the southeastern States).

Stems more than ankle-high to waist-high, usually in clumps, often with long sideways-growing stems which root at the tip. Spikelets lance-shaped or oval, yellowish or

brown. Ripe seeds greenish-brown, triangular in end view.

Resembles medium-sized Common Spikerush; but that species does not have sideways-growing stems which root at the tip, and it has yellowish to dark-brown seeds which are biconvex in end view.

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

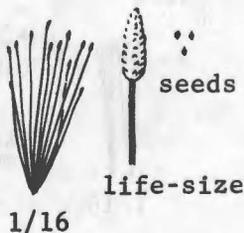


Inland fresh marshes; British Columbia to Newfoundland and the southernmost States (commonest in the eastern half of the United States).

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

Plants with short 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.

SALTMARSH SPIKERUSH, *Eleocharis albidula*



Coastal brackish marshes; Delaware to Texas.

Stems ankle-high to less than knee-high, in clumps. Spikelets oval or oblong, yellowish. Ripe seeds brown, triangular in end view.

Resembles plants of Blunt Spikerush with short spikelets, but that species grows in inland fresh marshes and has brown spikelets, and its seeds are biconvex in end view.

SQUARESTEM SPIKERUSH,
Eleocharis quadrangulata

Inland and coastal fresh marshes;
California; Wisconsin to Massachusetts,
Texas, and Florida.

Stems knee-high to waist-high, squarish
or rarely triangular in cross section.
Spikelets linear-oblong, yellowish. Ripe
seeds brown.

NORTHERN JOINTED SPIKERUSH,
Eleocharis equisetoides

Inland fresh marshes; Wisconsin to
Massachusetts, Texas, and Florida (com-
monest in the Southeast).

Stems knee-high to waist-high, round
in cross section, with cross partitions
about the same distance apart (split a
stem lengthwise to make sure). Spike-
lets and seeds resembling those of
Squarestem Spikerush.

Resembles Southern Jointed Spikerush;
but the stems of that species have cross
partitions much closer to each other just
below a spikelet than farther down.
Resembles Gulf Spikerush; but the stems
of that species do not have partitions.

SOUTHERN JOINTED SPIKERUSH,
Eleocharis interstincta

Inland fresh marshes; Texas and Florida.

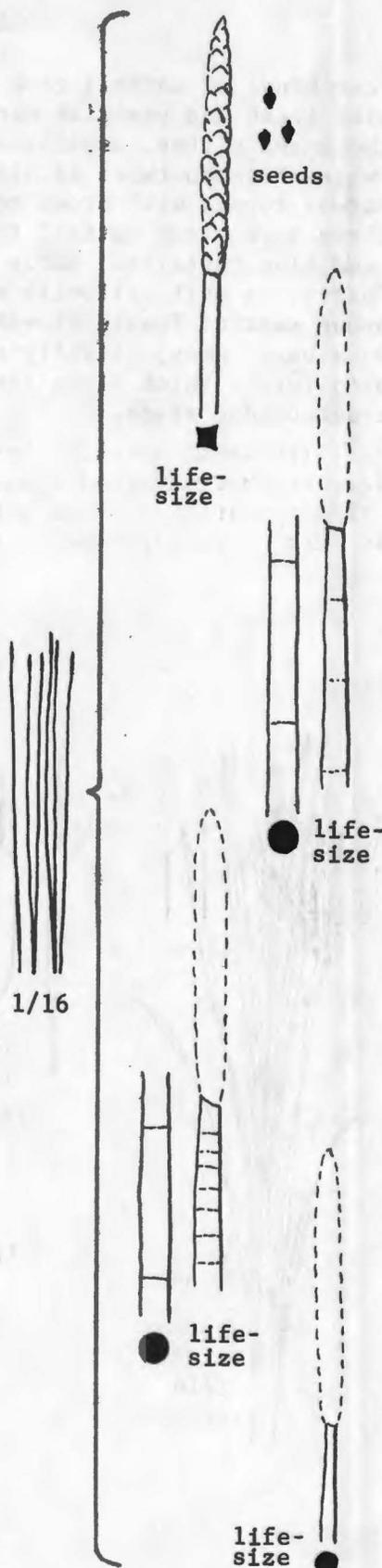
Resembles Northern Jointed Spikerush,
except that the cross partitions in a stem
are much closer to each other just below
a spikelet than farther down.

GULF SPIKERUSH, *Eleocharis cellulosa*

Coastal fresh and brackish marshes, and
rarely inland fresh marshes; Texas to
Florida and North Carolina.

Stems less than knee-high to less than
waist-high, round or rarely triangular in
cross section. Spikelets and seeds re-
sembling those of Squarestem Spikerush.

Resembles the Jointed Spikerushes; but
the stems of those species have partitions.



CATTAILS, Typha

Four kinds of Cattail grow in inland fresh and alkali marshes and coastal fresh and brackish marshes from Alaska to Newfoundland and the southernmost States, usually as dense colonies of upright leaves which are waist-high to twice as high as a man. Among the leaves in summer are stems topped with brown seed spikes from an inch or two long in the smallest Narrowleaf Cattail to a foot and a half in the biggest Southern and Blue Cattails. Early in a growing season, these spikes are in two parts: a soft yellowish mass of male flowers above and a firm green or brown mass of female flowers below. The male flowers soon fall and leave a bare, gray, slightly rough piece of stem; the female flowers develop into a thick long-lasting spike of innumerable closely packed hair-surrounded seeds.



BROADLEAF CATTAIL, *Typha latifolia*

Alaska to Newfoundland and the southernmost States.

Leaves waist-high to higher than a man, 1/2 inch to nearly an inch wide. Spike-topped stems about the height of the leaves. Male and young green female spikes usually touching each other. When a female spike is mature and dark-greenish-brown to reddish-brown, the bare stem just above it is gray and slightly rough, not green and smooth as in the other Cattails.

NARROWLEAF CATTAIL, *Typha angustifolia*
(part of *Typha angustifolia* in Small's Manual)

Washington to Nova Scotia and the southernmost States (commonest in the northeastern quarter of United States).

Leaves usually shorter than a man and no wider than a pencil. Spike-topped stems shorter than the leaves. Male and young dark-brown female spikes usually separated by a green, smooth piece of stem several times as long as a spike is thick. Mature dark-brown female spikes not as thick as this green piece of stem is long. Above the green, the stem is gray and slightly rough.



1/8

SOUTHERN CATTAIL, *Typha domingensis*
(part of *Typha angustifolia* in Small's Manual)

California to Delaware and the southernmost States (only along or near the coast east of the Great Plains).

Leaves as high as a man to twice as high and to about 1/2 inch wide. Spike-topped stems about the height of the leaves. Male and young light-brown female spikes usually separated by a green, smooth piece of stem 2 or 3 times as long as a spike is thick. Mature light-brown female spikes about as thick as this green piece of stem is long. Above the green, the stem is gray and slightly rough.



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BLUE CATTAIL, *Typha glauca*

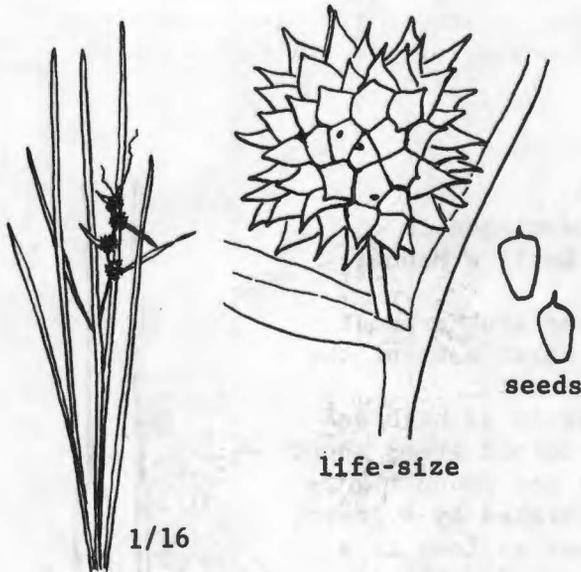
Not pictured.

Washington to Maine and the southernmost States (commonest in central New York and along Delaware and Chesapeake Bays).

Resembles Southern Cattail, except that mature female spikes are reddish-brown.

BURREEDS, Sparganium

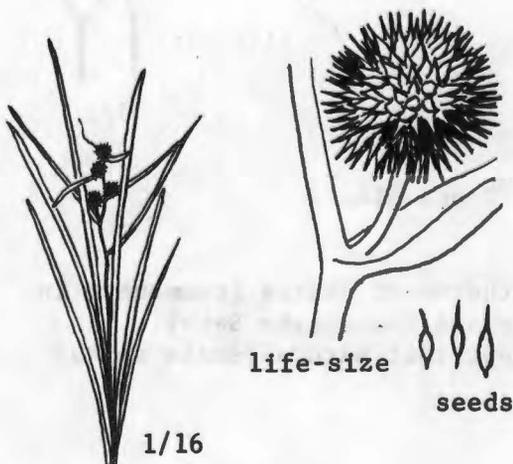
Burreeds grow in fresh marshes and water, usually inland. Early leaves are usually under water. Mature leaves stand ankle-high to shoulder-high, or they sprawl or float. Leaves are less than an inch wide; and out-of-water ones are usually triangular in cross section. Half-hidden among the leaves are stems which toward their end have a few round, tight clusters of flowers. The upper clusters are male flowers, which soon wither. The lower clusters are female flowers, which become hard balls of seeds. These balls are on short or long stalks, or are stalkless. Ripe seeds are greenish or brown. Without the seeds it is hard to identify most kinds.



BIG BURREED, *Sparganium eurycarpum*

Inland and coastal fresh marshes; British Columbia to Nova Scotia, California, Kansas, and Virginia.

Mature leaves knee-high to shoulder-high. Ripe seeds wedge-shaped below a spiny tip.



EASTERN BURREED, *Sparganium americanum*

Inland fresh marshes; Minnesota to Newfoundland, Texas, and Florida.

Mature leaves to waist-high, or sometimes floating. Seed balls 1/2 inch to 1 inch in diameter, each one usually attached to the stem at the base of a leaf. Ripe seeds rather dull, tapering into a spiny tip; the main part of a seed 3/16 to 1/4 inch long.

SHINING BURREED, *Sparganium androcladum*

Not pictured.

Inland fresh marshes; Minnesota to Quebec, Oklahoma, and Virginia.

Mature leaves knee-high to waist-high. Seed balls similar to Eastern Burreed, except more than an inch thick. Ripe seeds also similar, except rather shiny and with the main part about 5/16 inch long.

SLENDER BURREED, *Sparganium simplex*

(*Sparganium angustifolium*, *chlorocarpum*, and *multipedunculatum*)

Not pictured.

Inland fresh marshes and water; Alaska to Labrador, California, New Mexico, and North Carolina.

Mature leaves to waist-high, or floating. Seed balls similar to Eastern Burreed, except usually attached to the stem well above the base of a leaf. Ripe seeds also similar, except rather shiny.

FLOATING BURREED,
Sparganium fluctuans

Inland fresh water; British Columbia to Saskatchewan and Idaho; Minnesota to Newfoundland and Pennsylvania.

Mature leaves floating. Flower clusters usually branched. Seed balls a little smaller than Eastern Burreed, and seeds a little fatter and usually with a much-curved tip.



LITTLE BURREED, *Sparganium minimum*
(*Sparganium hyperboreum*)

Inland fresh marshes; Alaska to Greenland, New Mexico, and New Jersey.

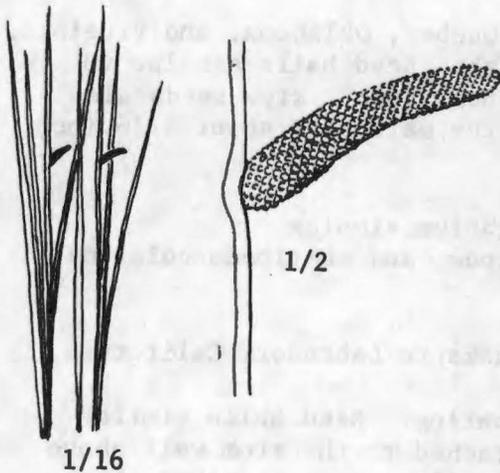
Mature leaves sprawling or floating. Seed balls less than 1/2 inch through. Ripe seeds blunt or with a spiny tip which is less than 1/16 inch long.



SWEETFLAG, *Acorus calamus*

Inland and coastal fresh marshes; Northwest Territories to Nova Scotia, California, Colorado, Texas, and Florida (commonest in the northeastern quarter of United States).

Leaves waist-high to as high as a man, up to an inch wide, tapering to a sharp tip, the main vein nearer one edge than the other and equally conspicuous on each side. Flower spikes yellowish-brown. Leaves, stems, and rootstocks spicy-scented when crushed.



SWAMP-LILY,
Crinum americanum

Inland fresh marshes; Texas to Florida.

Stems to less than waist-high. Leaves to 4 feet long and $1\frac{3}{4}$ inches wide. Flowers white, fragrant. Seed pods irregularly globular $1\frac{1}{2}$ to $2\frac{1}{2}$ inches thick.

Group 2. PLANTS WITH UPRIGHT OR UPSLANTED STEMS WITH GRASSLIKE LEAVES ON TWO SIDES (ONE PLANE); FLOWERS INDIVIDUALLY INCONSPICUOUS BETWEEN SCALES WHICH OVERLAP IN TWO ROWS TO FORM SPIKELETS, THE SPIKELETS CLUSTERED TOWARD THE TOP OF STEMS; growing inland in fresh and moderately alkali marshes and along the coasts in fresh to salt marshes. Stems usually stand so close to each other in colonies that their leaves interlace. Most kinds come up year after year from rootstocks, but a few grow each year from seed. They vary from no more than ankle-high in Low Mannagrass and Coast Dropseed to three times as high as a man in Phragmites. Flowers are in greenish, yellowish, brown, or purplish spikelets which sometimes are in showy clusters.

PHRAGMITES,
Phragmites communis
 (*Phragmites phragmites*)

Inland fresh marshes and coastal fresh and brackish marshes; Northwest Territories to Nova Scotia and the southernmost States.

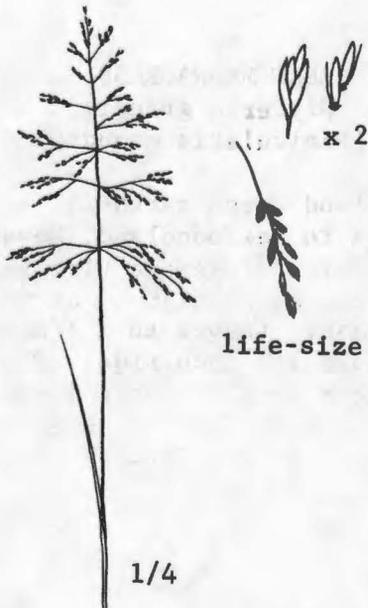
Stems from usually higher than a man to three times as high. Leaves grayish-green, close to each other and usually sticking out from stems at a big angle, to 2 feet long and 2 inches wide. Flower clusters to 1 1/2 feet long, often purple when young, usually whitish and fluffy when old. Each spikelet with 3 to 7 flowers, and with many long hairs on the axis between flowers.



TUFTED HAIRGRASS,
Deschampsia cespitosa
 (*Aira caespitosa*)

Coastal fresh and brackish marshes; Alaska to California. Inland, usually in less-wet places; Alaska to Baffin Island, California, New Mexico, South Dakota, and North Carolina.

Stems knee-high to shoulder-high, in clumps with leaves which are to 2 feet long. Flower clusters to a foot long. Each spikelet with 2 flowers. Flower scales with a tiny bristle attached to the back just above its base.





WHITETOP,
Scolochloa festucacea

Inland fresh marshes;
Northwest Territories to
Oregon and Iowa.

Stems waist-high to as
high as a man. Leaves to
1 1/2 feet long and 3/8
inch wide. Flower clus-
ters to a foot long.
Each spikelet with 3 or
4 flowers.



REED MANNAGRASS,
Glyceria grandis
(*Panicularia grandis*)

Inland fresh marshes;
Alaska to Newfoundland, Nevada,
New Mexico, Iowa, and Virginia.

Stems waist-high to as high
as a man. Leaves to 1 1/2 feet
long and 1/2 inch wide. Flower
clusters to 1 1/4 feet long,
usually purplish. Each spike-
let with 4 to 8 flowers.

WESTERN MANNAGRASS,
Glyceria pauciflora

Inland fresh marshes;
Alaska to South Dakota, Cali-
fornia, and New Mexico.

Stems less than knee-high
to more than waist-high.
Leaves to 10 inches long and
5/8 inch wide. Flower clus-
ters to 8 inches long, green
or purplish. Each spikelet
with 4 to 10 flowers.

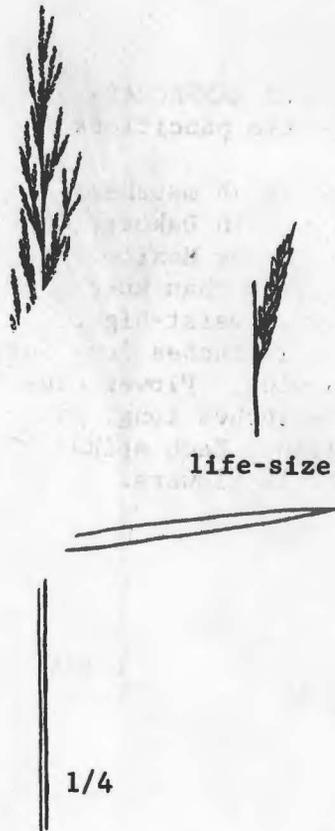


LOW MANNAGRASS, *Glyceria pallida*
(*Glyceria fernaldii*, *Panicularia*
pallida)

Inland fresh marshes; British
Columbia to Newfoundland, Wyo-
ming, Missouri, and North
Carolina.

Stems from almost horizontal
to waist-high. Leaves to 8
inches long and 3/8 inch wide.
Flower clusters to 8 inches
long, green. Each spikelet
with 3 to 7 flowers.





WATER MANNAGRASS,
Glyceria fluitans
 (*Glyceria arkansana, borealis,*
leptostachya, occidentalis,
 and *septentrionalis*; *Panicu-*
laria septentrionalis)

Inland fresh marshes; Alaska
 to Newfoundland, California,
 Texas, and Georgia.

Stems knee-high to shoulder-
 high. Leaves to a foot long
 and 3/4 inch wide. Flower
 clusters to 2 feet long, their
 branches sometimes horizontal
 when coming into bloom. Each
 spikelet with 6 to 15 flowers.



SHARPSCALE MANNAGRASS,
Glyceria acutiflora
 (*Panicularia acutiflora*)

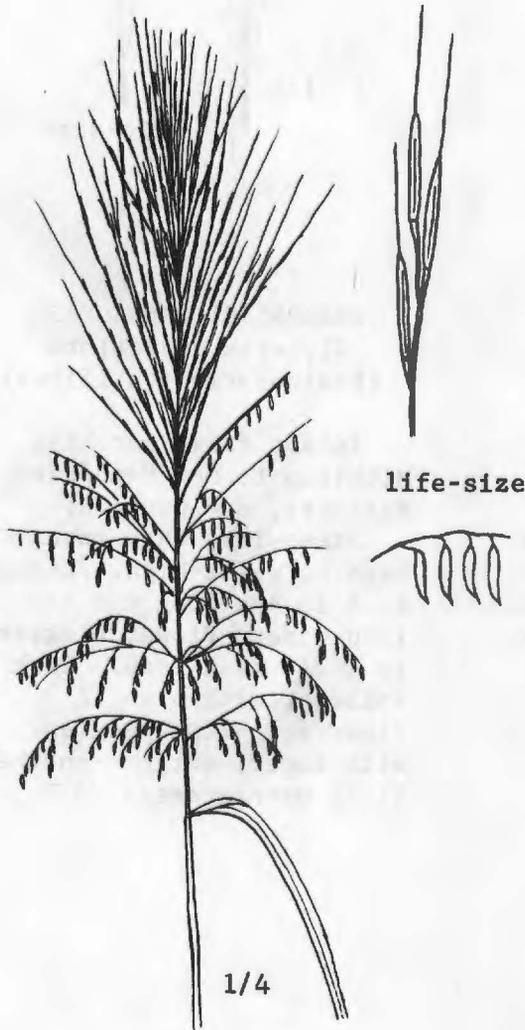
Inland fresh marshes;
 Michigan to New Hampshire,
 Missouri, and Georgia.

Stems less than knee-
 high to waist-high. Leaves
 to 8 inches long and 1/4
 inch wide. Flower clusters
 to 1 1/4 feet long. Each
 spikelet with 5 to 12
 flowers. Flower scales
 with tapering tips--unlike
 other Mannagrasses.

BEARDED SPRANGLETOP,
Leptochloa fascicularis
 (*Diplachne acuminata*, *fascicularis*,
 and *maritima*)

Inland fresh and alkali marshes and coastal brackish and fresh marshes; Washington to New Hampshire and the southernmost States (rare inland east of Mississippi River).

Stems less than knee-high to waist-high. Leaves to 1 1/2 feet long and 3/16 inch wide, often overtopping the flower clusters. Each spikelet with 6 to 12 flowers.



WILDRICE, *Zizania aquatica*

Inland and coastal fresh marshes; Manitoba to Nova Scotia, Texas, and Florida (only close to the coast in the southeastern States). Rarely established from planting; Washington to Alberta and California.

Stems waist-high to twice as high as a man. Leaves to 4 feet long and 2 inches wide, with very rough edges. Flower clusters to 2 feet long, their lower branches with dangling short-lived male spikelets, their upper branches with upright one-flowered female spikelets. The scales of matured female flowers tightly enclose a long, narrow seed.

GIANT CUTGRASS,
Zizaniopsis miliacea

Inland and coastal fresh marshes; Illinois to Maryland, Texas, and Florida.

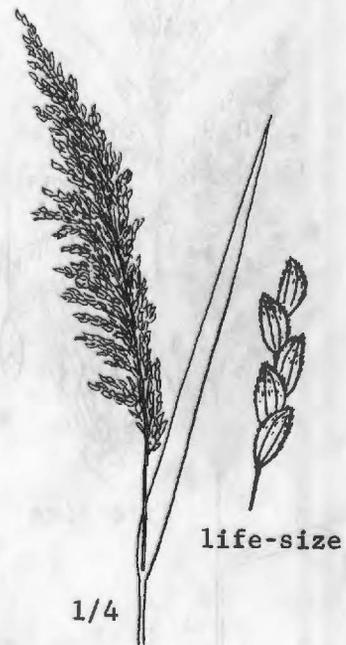
Stems waist-high to twice as high as a man. Leaves to 4 feet long and 1 1/2 inches wide, with very rough edges. Flower clusters to 2 feet long, their widely spreading or drooping branches with separate but similar-looking, one-flowered male and female spikelets on the same branch. The scales of matured female flowers are loose around an oval seed.

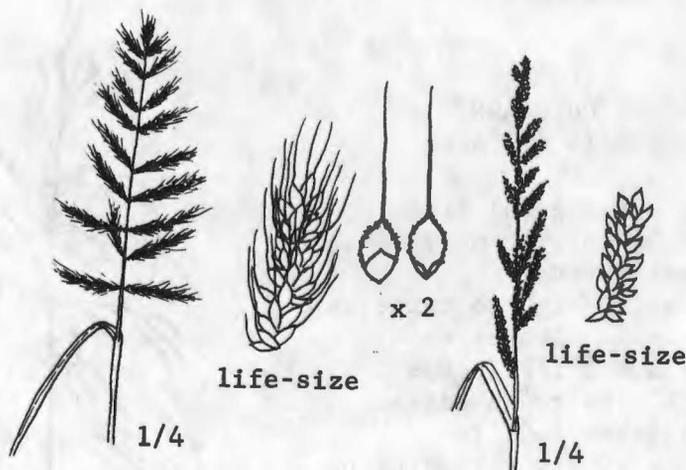


RICE, *Oryza sativa*

Cultivated as a marsh plant; California; Missouri to South Carolina, Texas, and Louisiana.

Stems waist-high to as high as a man. Leaves to 1 1/2 feet long and 1/2 inch wide. Flower clusters to 1 1/2 feet long, usually with drooping branches. Spikelets one-flowered, flattish, their scales rough to touch, sometimes tipped with a bristle.



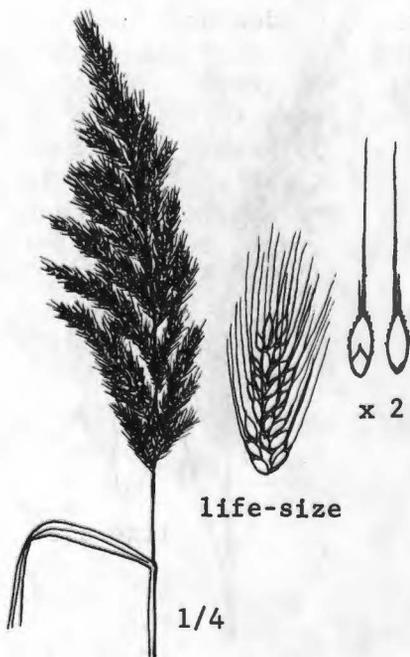


WILD MILLET, *Echinochloa crusgalli*
(*Echinochloa pungens*)

Inland and coastal fresh marshes and less-wet places; British Columbia to Prince Edward Island and the southernmost States.

Stems knee-high to as high as a man. Leaves to 1 1/2 feet long and 1 inch wide. Leaf sheaths hairless. Flower clusters to 1 1/2 feet long, green to purple, loose to dense. Spikelets one-flowered, fine-hairy, with or without bristle tips.

A form which has dense clusters of bristle-tipped spikelets resembles Walter Millet; but the lower leaf sheaths of that species are usually hairy and the bristle tips of its spikelets are longer.

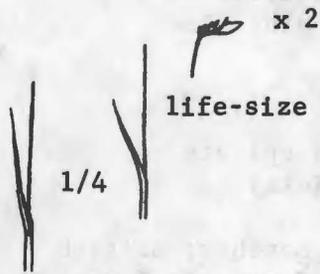


WALTER MILLET, *Echinochloa walteri*

Inland fresh marshes and coastal fresh and brackish marshes; Minnesota to Quebec, Texas, and Florida.

Stems waist-high to higher than a man. Leaves to 1 1/2 feet long and 1 inch wide. Lower leaf sheaths usually coarse-hairy. Flower clusters to 1 1/2 feet long, green or purplish, usually dense. Spikelets one-flowered, fine-hairy, with bristle tips to 1 1/2 inches long.

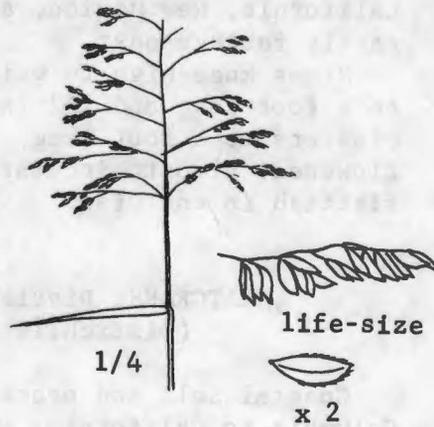
Resembles a form of Wild Millet which has dense clusters of bristle-tipped spikelets; but that species has hairless leaf sheaths, and the bristle tips of its spikelets are usually shorter.



REED CANARYGRASS,
Phalaris arundinacea

Inland fresh marshes and less-wet places; Alaska to Newfoundland, California, New Mexico, and North Carolina.

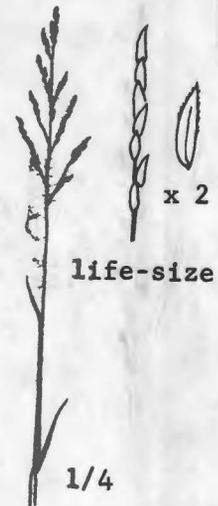
Stems knee-high to as high as a man. Leaves to a foot long and $\frac{3}{4}$ inch wide, grayish-green. Flower clusters to 8 inches long, usually standing high above leaves, rather open when coming into bloom. Spikelets one-flowered. Scales of matured flowers leathery and tight around a seed.



RICE CUTGRASS,
Leersia oryzoides
(*Homalocenchrus oryzoides*)

Inland and coastal fresh marshes; British Columbia to Nova Scotia and the southernmost states (commoner in eastern half of this range).

Stems knee-high to shoulder-high. Leaves to 10 inches long and $\frac{1}{2}$ inch wide, their blades and sheaths usually so rough that they abrade skin and clothing. Flower clusters to 8 inches long. Spikelets one-flowered, flattish, blunt-tipped.



SOUTHERN CUTGRASS,
Leersia hexandra
(*Homalocenchrus hexandrus*)

Inland fresh marshes; Texas to Virginia and Florida.

Stems ankle-high to waist-high. Leaves to 10 inches long and $\frac{1}{4}$ inch wide, their blades and sheaths not as rough as Rice Cutgrass. Flower clusters to 4 inches long. Spikelets one-flowered, flattish, sharp-tipped.

Resembles Rice Cutgrass; but the flower clusters of that species are wider and the flower scales are blunter.

SLOUGHGRASS, Beckmannia syzigachne

Inland fresh marshes; Alaska to Ontario, California, New Mexico, and Wisconsin, and rarely farther east.

Stems knee-high to waist-high. Leaves to a foot long and 1/2 inch wide. Flower clusters to a foot long. Spikelets one-flowered, almost circular in side view, flattish in end view.

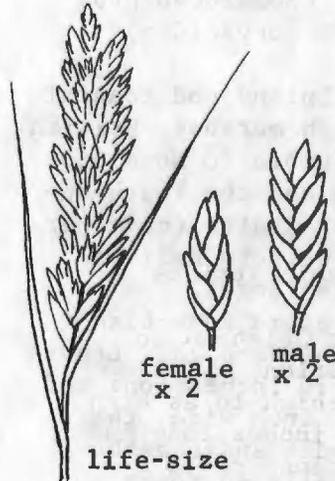
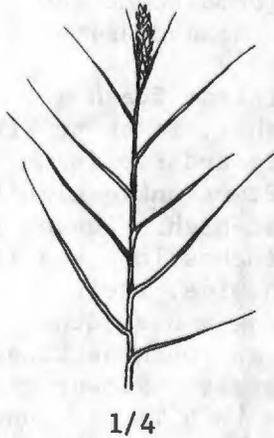


**SALTGRASS, Distichlis spicata
(Distichlis stricta)**

Coastal salt and brackish marshes; British Columbia to California; Nova Scotia to Texas. Inland alkali marshes; British Columbia to Manitoba, California, and Texas.

Stems ankle-high to knee-high. Leaves to 6 inches long and 1/8 inch wide, usually close to each other and standing out from the stem at a wide angle. Flower clusters to 3 inches long. Male spikelets are as much as an inch long and have as many as 20 flowers. Female spikelets are on separate plants, and are shorter and have fewer flowers.

Stems and leaves resemble those of Coast Dropseed.

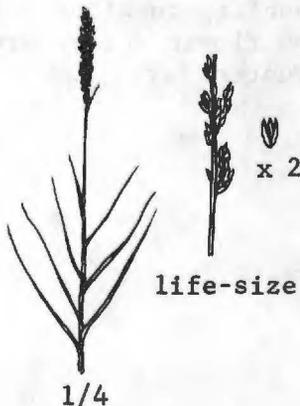


COAST DROPSEED, Sporobolus virginicus

Coastal salt marshes; Texas to North Carolina.

Stems ankle-high to knee-high. Leaves to 4 inches long and 1/8 inch wide, usually close to each other and standing out from the stem at a wide angle. Flower clusters to 3 inches long. Spikelets one-flowered.

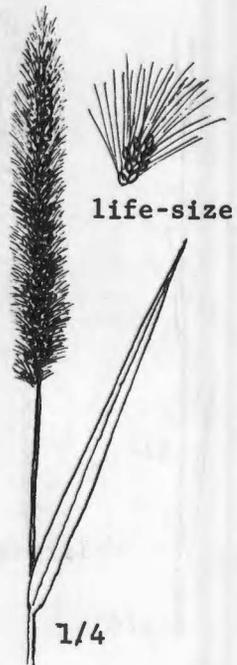
Stems and leaves resemble those of Saltgrass.



**GIANT SETARIA, *Setaria magna*
(*Chaetochloa magna*)**

Coastal and rarely inland brackish and fresh marshes; Texas to New Jersey and Florida.

Stems waist-high to twice as high as a man. Leaves to 2 feet long and 1 1/2 inches wide. Flower clusters to 2 feet long. Spikelets one-flowered, crowded among long bristles.



SACCIOLEPIS, *Sacciolepis striata*

Inland fresh marshes; Oklahoma to Delaware, Texas, and Florida.

Stems less than knee-high to as high as a man. Leaves to 10 inches long and 3/4 inch wide. Flower clusters to a foot long. Spikelets one-flowered, on tiny stalks, dropping early.

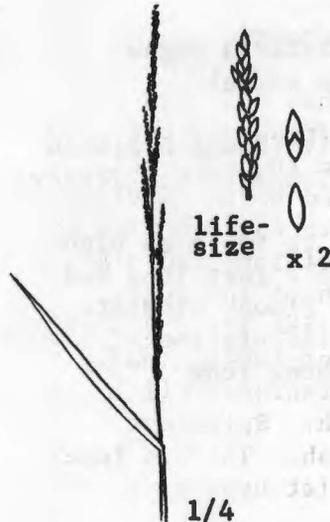




JOINTGRASS,
Paspalum distichum
 (*Paspalum vaginatum*)

Inland fresh marshes and coastal fresh and brackish marshes; Washington to Oklahoma, New Jersey, and the southernmost States.

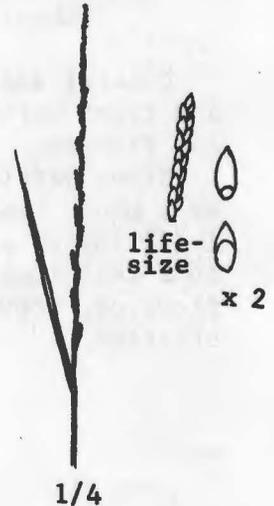
Stems horizontal, with ankle-high to knee-high branches. Leaves to 6 inches long and 1/4 inch wide. Flower clusters usually 2-branched. Spikelets one-flowered, overlapping in rows along branches.



MAIDENCANE,
Panicum hemitomon

Inland and coastal fresh marshes; Texas to New Jersey and Florida.

Stems knee-high to as high as a man, often with their bases in a foot or two of water. Leaves to a foot long and 3/4 inch wide. Flower clusters to a foot long, their upper branches much shorter than the lower and much more overlapping. Spikelets one-flowered, irregularly clustered along branches.



WATER PANICUM,
Panicum paludivagum

Inland fresh marshes; South Carolina, Texas, and Florida.

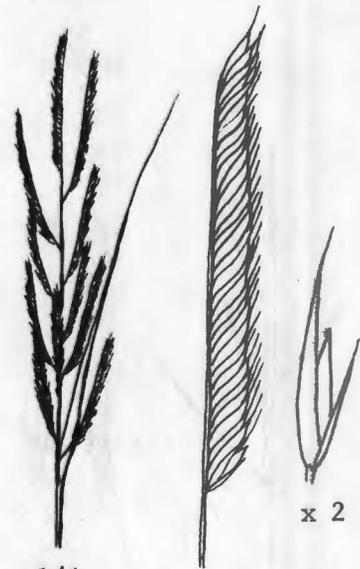
Lower part of stems usually horizontal and under water, upper part vertical and as much as waist-high above water. Leaves to a foot long and 1/4 inch wide. Flower clusters to a foot long, their upper branches only a little shorter than the lower and a little more overlapping. Spikelets one-flowered, overlapping in rows along branches.

PRAIRIE CORDGRASS,
Spartina pectinata
 (*Spartina michauxiana*)

Inland fresh marshes and less-wet places, and coastal fresh and brackish marshes; Saskatchewan to Newfoundland Washington, Texas, and North Carolina.

Stems waist-high to as high as a man. Leaves to 4 feet long and 5/8 inch wide, very rough on the edges, tapering to a threadlike tip. Flower clusters to 1 1/2 feet long, usually with fewer than 20 branches, all about the same length. Spikelets one-flowered, flattish. The two lower scales of each spikelet usually bristle-tipped.

Along the coast between Massachusetts and North Carolina, sometimes grows near and resembles Big Cordgrass; but the flower clusters of that species usually have more branches, and the branches at the top of its clusters are usually much shorter than those at the bottom.



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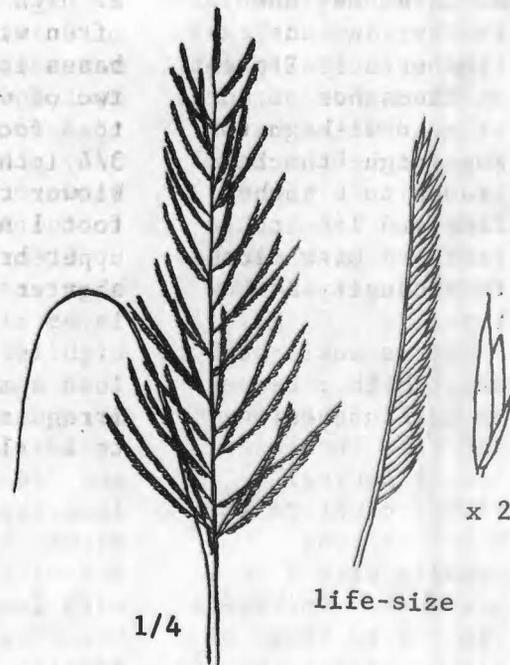
life-size

x 2

BIG CORDGRASS,
Spartina cynosuroides

Coastal brackish marshes; Massachusetts to Florida and Texas.

Stems waist-high to half again as high as a man. Leaves to an inch wide. Flower clusters to 1 1/2 feet long, usually with more than 30 branches and with the branches at the top of a cluster usually much shorter than those at the bottom. Spikelets similar to Prairie Cordgrass, except that none of the scales are bristle-tipped.



1/4

life-size

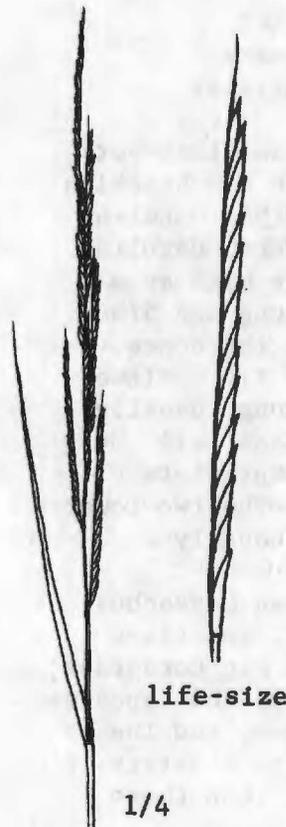
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SALTMADOW CORDGRASS,
Spartina patens

Coastal brackish marshes; Newfoundland to Florida and Texas (the principal plant on thousands of acres of meadowlike marsh just above the level of ordinary high tides). Rare in inland brackish marshes in Michigan and New York.

Stems ankle-high to waist-high. Leaves to 1 1/2 feet long and 1/16 inch wide, long-tapering. Flower clusters to 8 inches long, usually with 3 to 6 branches. Spikelets similar to those of Big Cordgrass, except usually smaller.



SALTMARSH CORDGRASS,
Spartina alterniflora

Coastal salt marshes; Washington; Newfoundland to Florida and Texas (the only plant on thousands of acres next to the Atlantic).

Stems from ankle-high where the ground is barely flooded by high tides to higher than a man along marsh creeks. Leaves to 1 1/2 feet long and 3/4 inch wide, long-tapering. Flower clusters to a foot long, usually with long, upright branches. Spikelets similar to those of Big Cordgrass.



CALIFORNIA CORDGRASS,
Spartina foliosa

Coastal salt marshes, where the ground is shallowly flooded by high tides; California.

Stems less than knee-high to shoulder-high. Leaves to 1 1/2 feet long and 1/2 inch wide, long-tapering. Flower clusters to 10 inches long, usually with short, upright branches. Spikelets similar to those of Big Cordgrass.

Group 3. PLANTS WITH UPRIGHT STEMS WITH GRASSLIKE LEAVES ON THREE SIDES; FLOWERS INDIVIDUALLY INCONSPICUOUS BETWEEN SCALES WHICH USUALLY OVERLAP IN SEVERAL ROWS TO FORM SPIKELETS, THE SPIKELETS CLUSTERED TOWARD THE TOP OF STEMS; growing inland in fresh and alkali marshes and along the coasts in fresh to brackish marshes. Stems usually stand so close to each other in colonies that their leaves interlace. Most kinds come up year after year from rootstocks. They vary from ankle-high in Redroot Cyperus to half again as high as a man in Sawgrass. Redroot Cyperus grows from seed each year, and is the only one of the group which has spikelet scales overlapping in only two rows. Flowers are in greenish, yellowish, brown, or blackish spikelets which are not very showy, even when clustered.

SEDGES, *Carex*

Inland, several kinds of Sedge grow in fresh marshes; along the coasts, several grow in fresh, brackish, and salt marshes. Their leafy stems, single or in clumps, vary from less than ankle-high to shoulder-high. Toward the top they bear upright to dangling spikelets of closely packed, individually inconspicuous flowers which are partly hidden by greenish, yellowish, brown, purplish, or blackish scales. Some kinds have male and female flowers in different parts of each spikelet; others have male flowers in spikelets at the top of stems, female flowers in different-looking spikelets farther down.

Male flowers soon wither. Each female flower is in a sac which grows bigger and finally contains one ripe seed.

Besides the species described here, there are many which grow along the landward edge of marshes, in damp meadows, on the shores of lakes, ponds, and streams, or in bogs. Many others grow in well-drained soils. About half of the more than 500 North American species are described in Gray's Manual, and all of them by Kenneth Mackenzie in the New York Botanical Garden's North American Flora, volume 18, parts 1 to 7.



BEAKED SEDGE, *Carex rostrata*

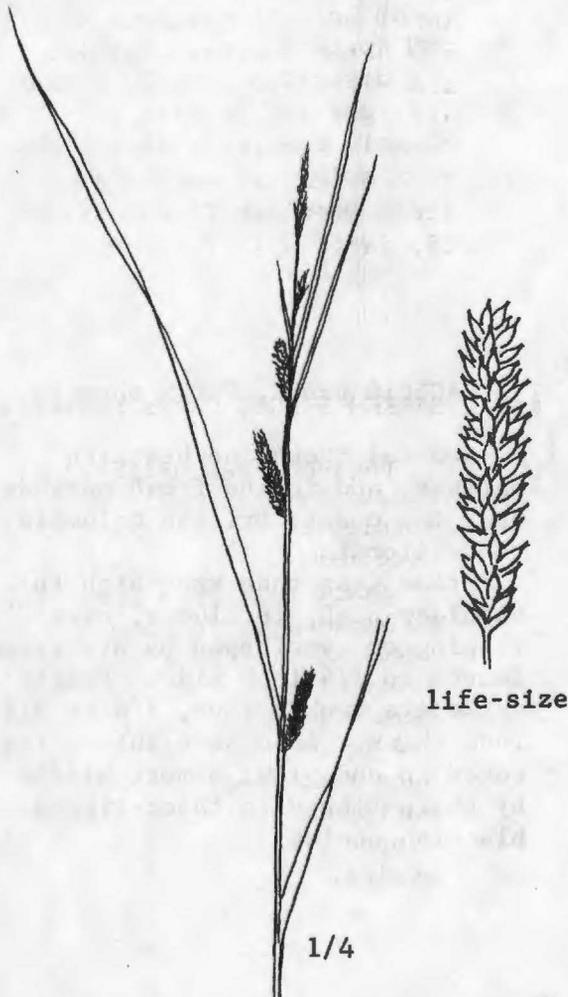
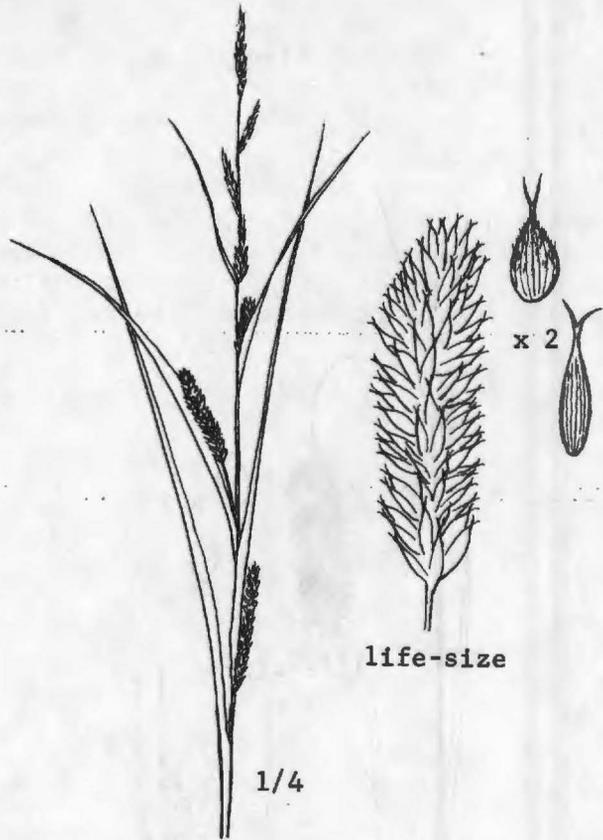
Inland fresh marshes; Alaska to Newfoundland, California, New Mexico, and West Virginia.

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.

SLOUGH SEDGE,
Carex trichocarpa
 (*Carex atherodes*, *laevicon-*
ica, *sheldonii*, and
subimprensa)

Inland fresh marshes;
 Yukon to Maine, California,
 Missouri, and North Caro-
 lina.

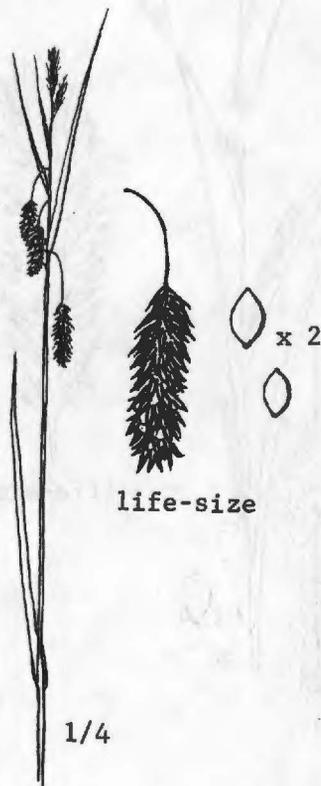
Stems less than knee-
 high to shoulder-high, in
 small clumps, overtopping
 or overtopped by leaves
 to 1/2 inch wide. Female
 spikelets two to four, 3/8
 to 5/8 inch thick. Seed
 sacs 1/4 to 1/2 inch
 long, hairless or fine-
 hairy, roundish in end
 view, partly hidden
 under sharp-tipped to
 bristle-tipped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



LAKE SEDGE, *Carex riparia*
 (*Carex hyalinolepis* and
lacustris)

Inland and coastal
 fresh marshes; Alberta to
 Newfoundland, Texas, and
 Florida.

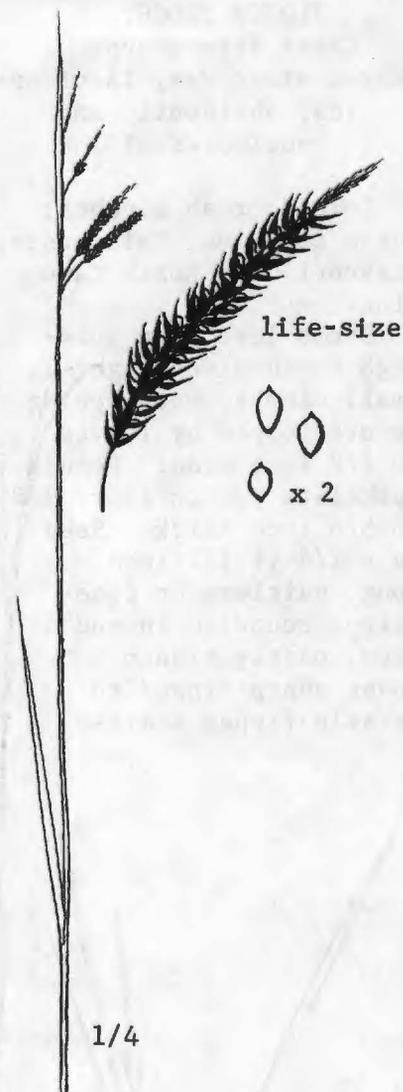
Stems knee-high to
 shoulder-high, in small
 clumps, overtopping or
 overtopped by leaves to
 5/8 inch wide. Female
 spikelets two to four,
 3/8 to 5/8 inch thick.
 Seed sacs roundish in
 end view, partly hidden
 under sharp-tipped to
 bristle-tipped scales.



LYNGBYE SEDGE, *Carex lyngbyei*

Coastal brackish and salt marshes; Alaska to California; Greenland to Quebec.

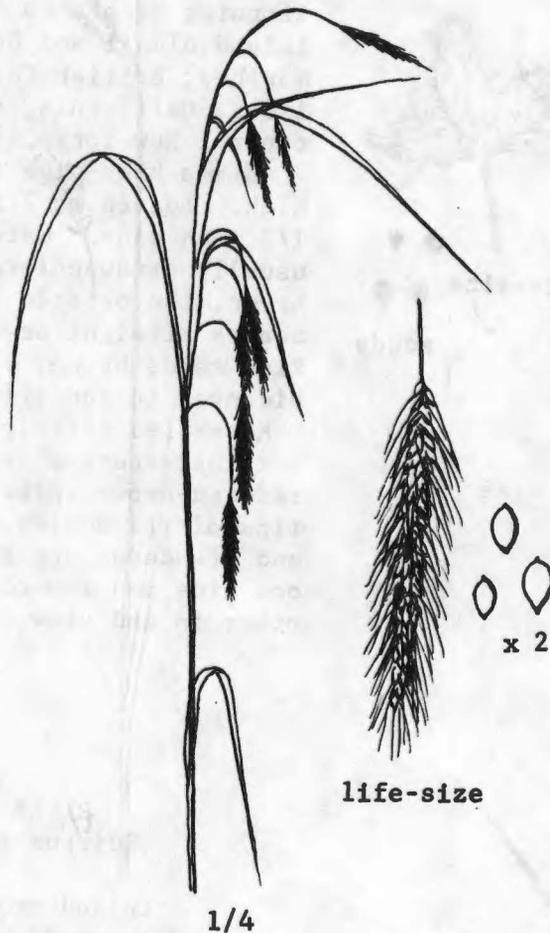
Stems less than knee-high to waist-high in clumps, overtopping leaves to 1/2 inch wide. Female spikelets two to four, usually dangling, 3/16 to 3/8 inch thick. Seed sacs not shiny, two-edged in end view, partly hidden by sharp-tipped to bristle-tipped, brown to blackish scales.



PACIFIC SEDGE, *Carex obnupta*

Coastal fresh and brackish marshes, and inland fresh marshes near the coast; British Columbia to California.

Stems less than knee-high to shoulder-high, in clumps, overtopping or overtopped by evergreen leaves to 1/4 inch wide. Female spikelets two to four, 1/8 to 3/8 inch thick. Seed sacs shiny, two-edged in end view, almost hidden by sharp-tipped to taper-tipped, blackish scales.

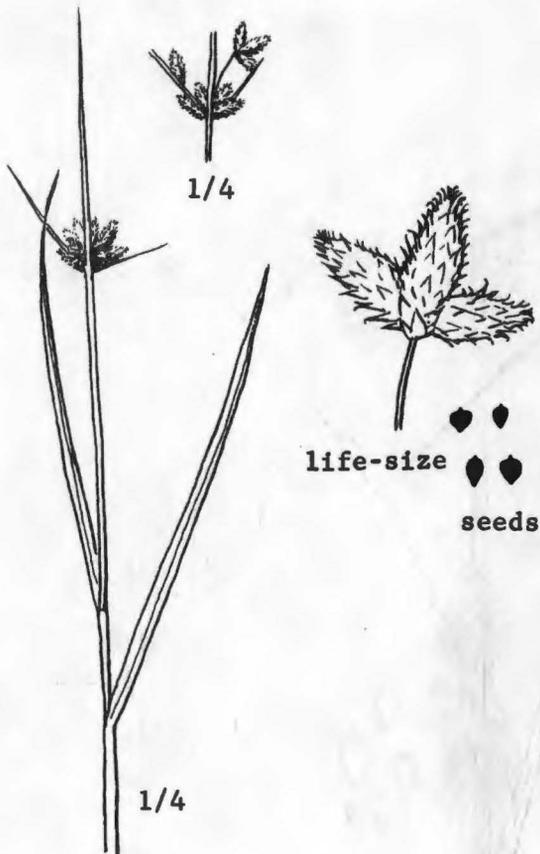


SALTMARSH SEDGE, *Carex paleacea*

Salt marshes; Manitoba to Newfoundland and Massachusetts.

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 six, usually dangling, 3/8 to 3/4 inch thick. Seed sacs two-edged in end view, almost hidden by long-bristle-tipped, brownish scales.

ALKALI BULRUSH, *Scirpus paludosus*
(part of *Scirpus robustus* in
Mason's Flora)

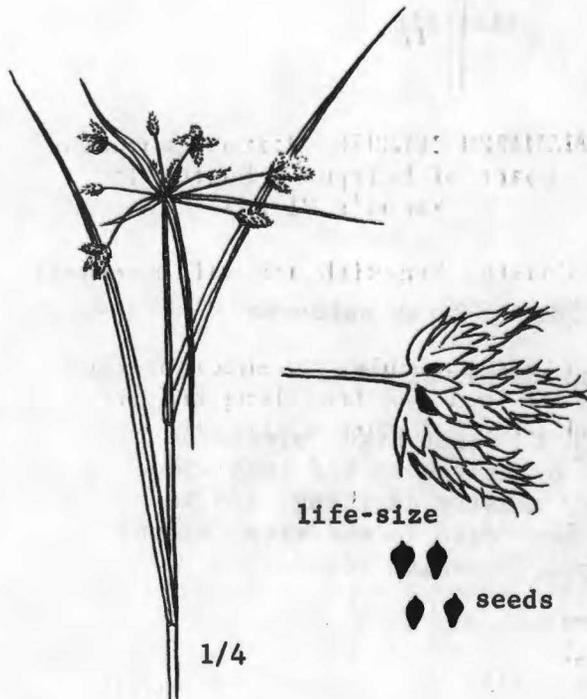


Coastal brackish and salt marshes; British Columbia to California; Quebec to New Jersey. Inland alkali and brackish marshes; British Columbia to Manitoba, California, and Texas; central New York.

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.

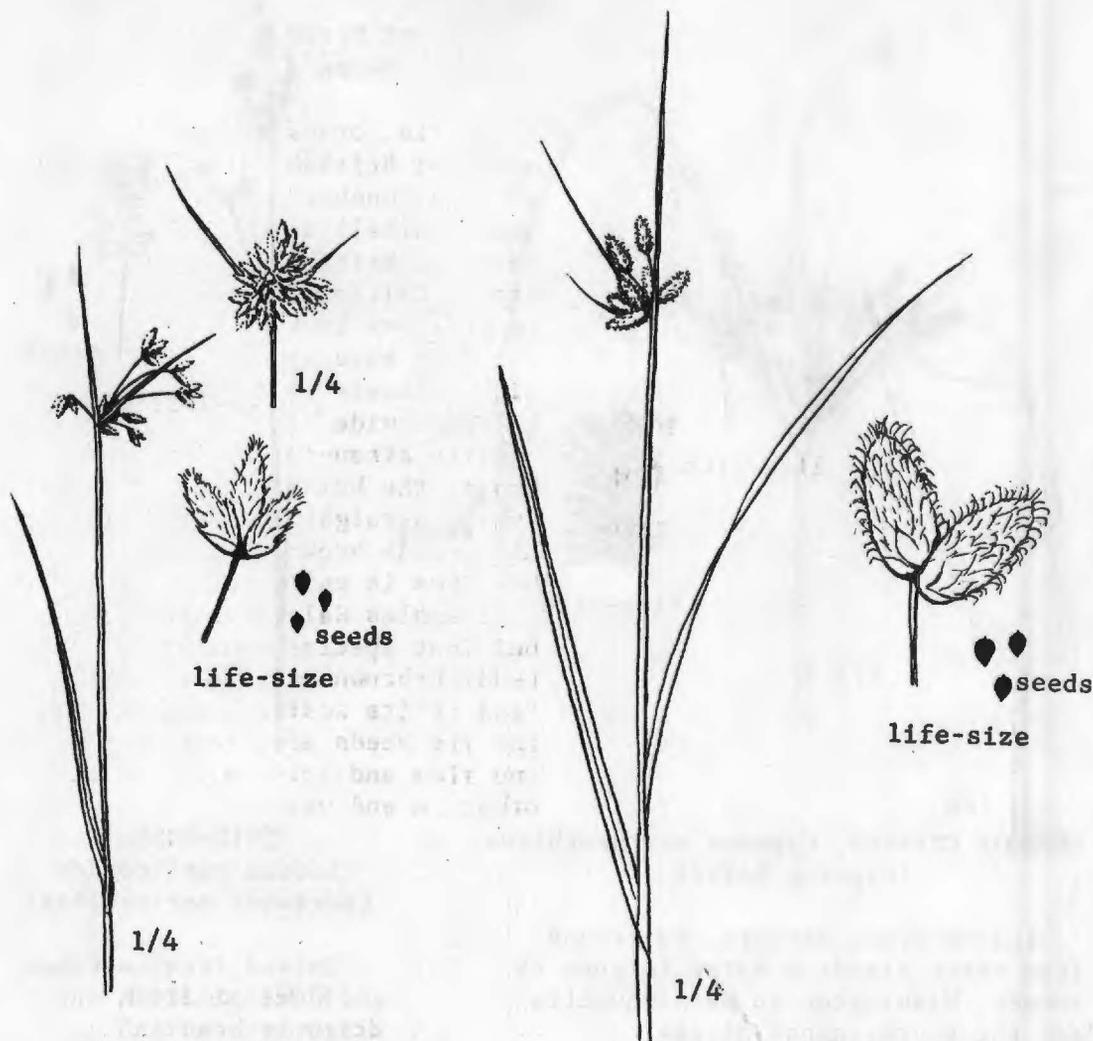
Resembles Saltmarsh Bulrush; but that species usually has reddish-brown spikelets, the tips of its scales are recurved, and its seeds are flattish on one side and low-convex on the other in end view.

RIVER BULRUSH, *Scirpus fluviatilis*



Inland and coastal fresh marshes; Saskatchewan to New Brunswick, California, New Mexico, and Virginia (commonest in the north-eastern 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.



TUBEROUS BULRUSH,
Scirpus tuberosus

A native of the Old World which has become abundant in a few inland fresh to slightly alkali marshes in Idaho and California.

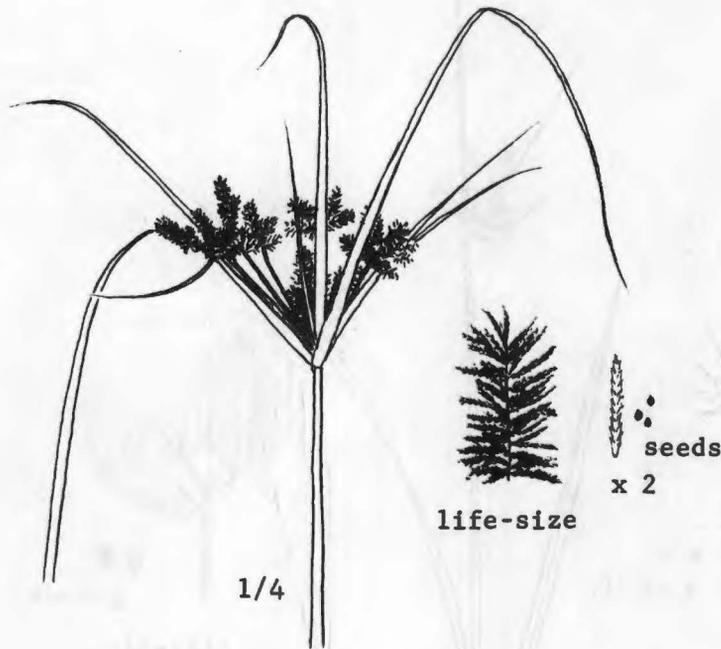
Stems knee-high to waist-high. Leaves to 1 1/2 feet long and 1/4 inch wide. Mature spikelets brown, in loose or dense clusters. Ripe seeds brown, flattish on one side and high-convex on the other in end view.

SALTMARSH BULRUSH, *Scirpus robustus*
(part of *Scirpus robustus* in
Mason's Flora)

Coastal brackish and salt marshes; Washington; California; New Brunswick to Texas.

Stems knee-high to shoulder-high. Leaves to 1 1/2 feet long and 3/8 inch wide. Mature spikelets usually reddish-brown, the bristle tips of their scales recurved. Ripe seeds brown, flattish on one side and low-convex on the other in end view.

Resembles Alkali Bulrush; but that species usually has straw-colored or light-brown spikelets, the tips of its scales are straight or curved out, and its seeds are slightly biconvex in end view.

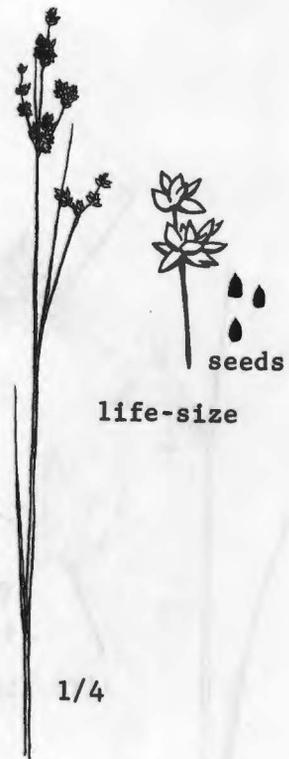


REDROOT CYPERUS, *Cyperus erythrorhizos*
(*Cyperus halei*)

Inland fresh marshes, on ground from which standing water is gone by summer; Washington to Massachusetts and the southernmost States.

Stems ankle-high to waist-high, single or in clumps, with several long leaves toward the base and a cluster of 4 to 10 leaves at the top. Roots and the sheaths of lower leaves reddish. Mature spikelets reddish-brown, 1/8 to 3/4 inch long. Ripe seeds light-brown or gray.

More than a dozen other kinds of *Cyperus* grow in marshes, along the edge of marshes, or on the shores of lakes, ponds, and streams. Most of them resemble Redroot Cyperus in having a cluster of tiny-flowered spikelets surrounded by leaves at the top of a stem, but differ from it and from each other in flower scales and seeds.



TWIG-RUSH,
Cladium mariscoides
(*Mariscus mariscoides*)

Inland fresh marshes and coastal fresh and slightly brackish marshes; Saskatchewan to Newfoundland, Alabama, and Florida.

Stems knee-high to waist-high. Leaves about the height and width of stems. Flower clusters to a foot long. Mature spikelets brown. Ripe seeds brown, roundish in end view.



SAWGRASS, *Cladium jamaicense*
(*Cladium californicum*, *Mariscus jamaicensis*)

Inland and coastal fresh marshes; California through the southern border States to Virginia.

Stems waist-high to half again as high as a man. Leaves to 6 feet long and $\frac{3}{8}$ inch wide, their edges very rough when rubbed downward. Flower clusters to 3 feet long. Mature spikelets brown. Ripe seeds brown, roundish in end view.

EVERGLADE BEAKRUSH, *Rhynchospora tracyi*

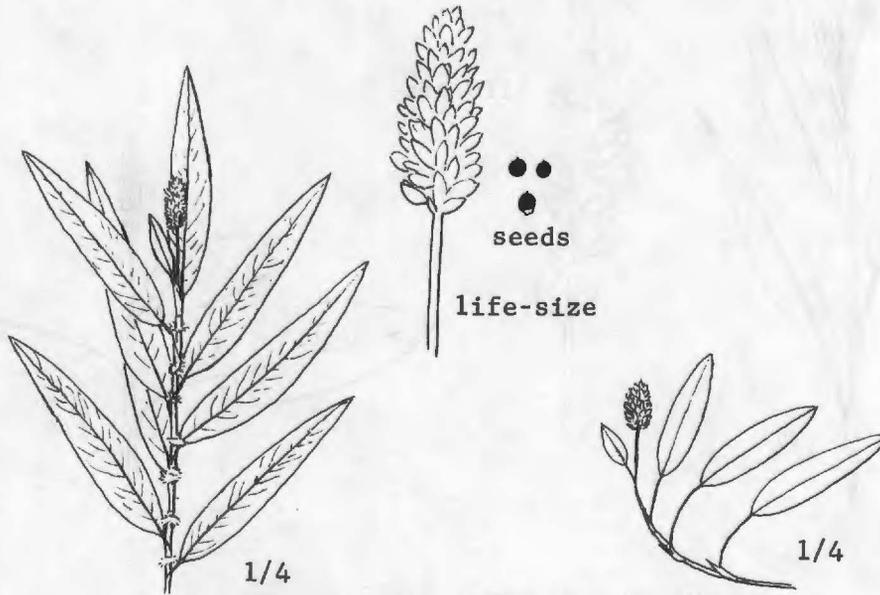
Inland fresh marshes; North Carolina to Florida and Mississippi

Stems knee-high (usually) to waist-high. Leaves to 2 feet long and about the width of the stems. Mature spikelets brown. Ripe seeds brown, flattish in end view.

Group 4. PLANTS WITH UPRIGHT, SPRAWLING, OR HORIZONTAL STEMS WITH SINGLY PLACED, NONGRASSLIKE, LANCE-SHAPED OR WIDER, UNTOOTHED LEAVES; FLOWERS CLUSTERED AT THE END OF STEMS OR SINGLE OR CLUSTERED AT THE BASE OF LEAVES; growing inland in fresh marshes and along the coasts in fresh to salt marshes. Stems are close to each other in colonies, or scattered. In some kinds they come up year after year from underground or underwater stems, in others each year from seed. They vary from sometimes floating in a few kinds to higher than a man in Tidemarch Waterhemp. Flowers are white, greenish, yellow, blue, or pink.

SMARTWEEDS, Polygonum

Smartweeds grow in fresh marshes and shallow water, inland and along the coasts. Most kinds have upright, branched stems with lance-shaped to oval leaves. At the end of stems are spikes of pink, white, or greenish flowers. The flowers are long-lasting and eventually enclose single brown or black seeds which are often eaten by ducks. Some kinds not described here often grow on flat land which may be covered with shallow water in winter, after the plants have died.

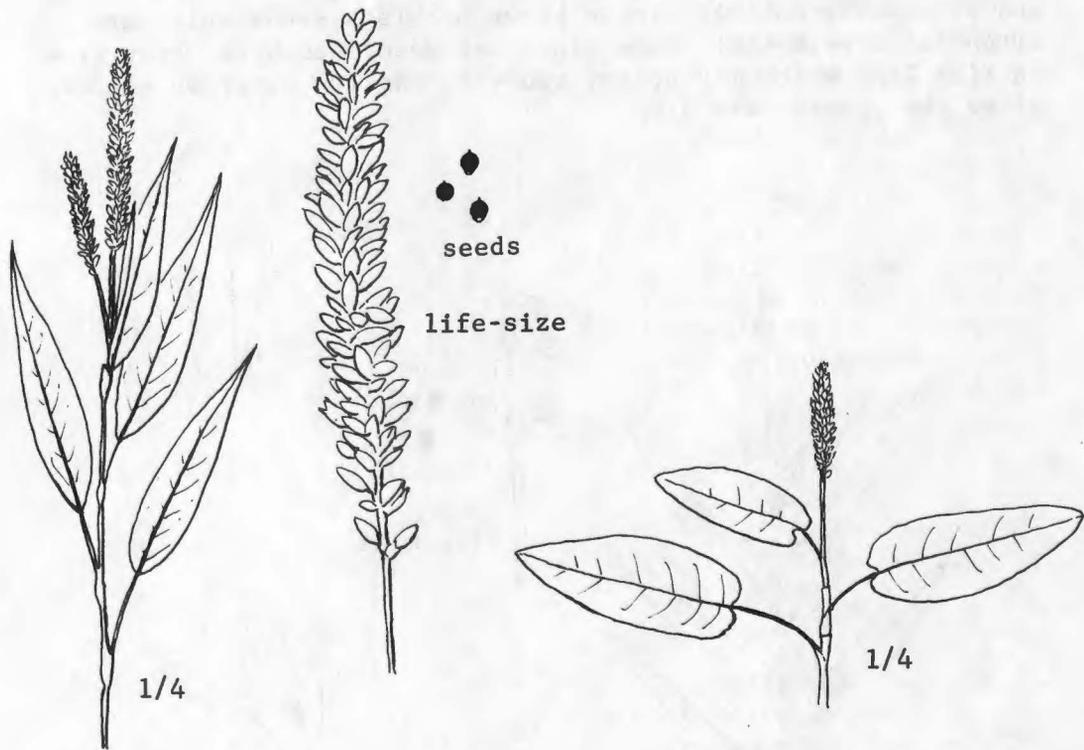


WATER SMARTWEED, *Polygonum amphibium*
(*Polygonum natans*)

Inland fresh marshes and water; Alaska to Labrador, California, New Mexico, Illinois, and Maryland.

There is a marsh form and a floating-leaved form. The marsh form has stems knee-high to waist-high; leaf blades to 6 inches long, without a narrowly tapering tip as in Marsh Smartweed; top of leaf sheaths flaring at right angles to stem; flower spikes deep-pink, oval or oblong, on a hairless stalk; ripe seeds dark-brown, thick-biconvex in end view. The floating-leaved form has shorter, blunt leaves without a flaring sheath.

The floating-leaved form resembles the floating-leaved form of Marsh Smartweed; but that species has long, narrow spikes on a fine-hairy stalk and usually has bigger leaves with a notched base.



MARSH SMARTWEED, *Polygonum coccineum*
(*Persicaria muhlenbergii*)

Inland fresh marshes and water; British Columbia to Quebec, California, Texas, and South Carolina.

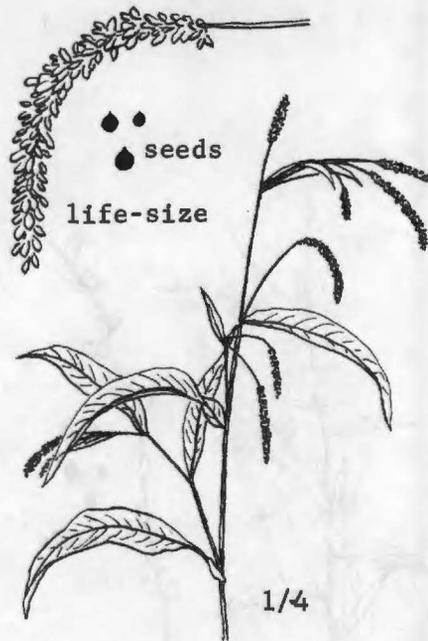
There is a marsh form and a floating-leaved form. The marsh form has stems knee-high to shoulder-high; leaf blades to 8 inches long, with a narrowly tapering tip; top of leaf sheaths not flaring; flower spikes deep-pink, long and narrow, on a fine-hairy stalk; ripe seeds similar to those of Water Smartweed, except larger. The floating-leaved form has oval leaves which are usually notched at the base.

The floating-leaved form resembles the floating-leaved form of Water Smartweed; but that species has oval or oblong spikes on a hairless stalk and usually has smaller leaves which are not notched at the base.

NODDING SMARTWEED,
Polygonum lapathifolium
 (*Polygonum scabrum*,
Persicaria lapathifolia)

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

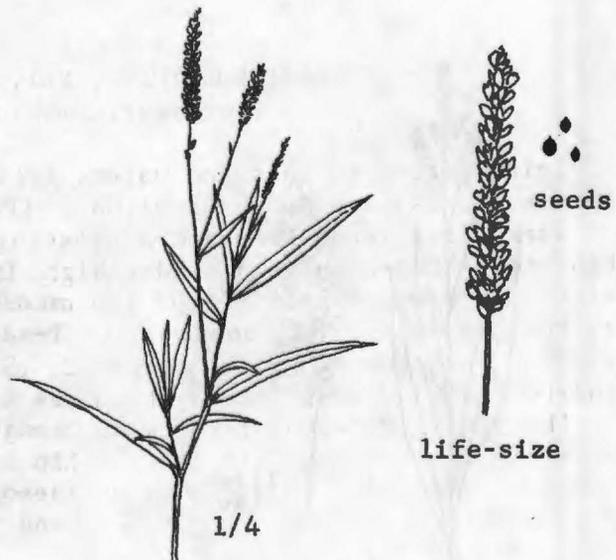
Stems knee-high to as high as a man. Leaves to 8 inches long. Flowers pink, white, or greenish in usually curved spikes. Ripe seeds brown to black, flattish in end view and usually concave on each side.

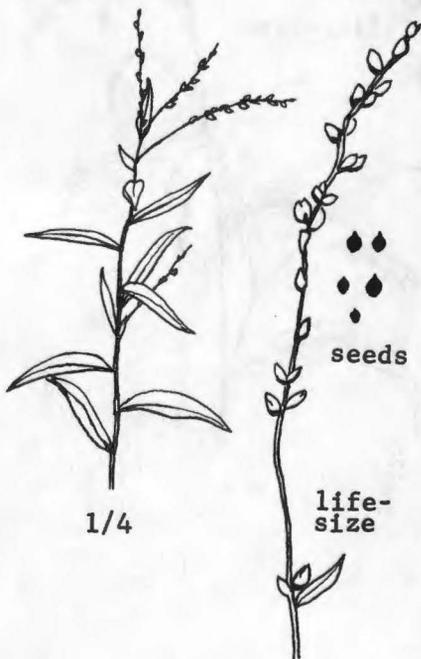


SWAMP SMARTWEED,
Polygonum hydropiperoides
 (*Polygonum opelousanum*
 and *setaceum*; *Persicaria*
hydropiperoides, *opelou-*
sana, *paludicola*, and
setacea)

Inland and coastal fresh marshes; Alaska to California; Nebraska to Nova Scotia, Texas, and Florida.

Stems less than knee-high to waist-high. Leaves to 6 inches long. Flowers white or pink in straight spikes. Ripe seeds blackish, triangular in end view, a little smaller than the triangular form of Dotted Smartweed.





DOTTED SMARTWEED,
Polygonum punctatum
 (*Polygonum robustius*, *Persicaria punctata*)

Inland and coastal fresh marshes; British Columbia to Quebec and the southernmost States.

Stems less than knee-high to as high as a man. Leaves to 8 inches long. Flowers whitish or greenish in loose, usually straight spikes. Flowers and leaves contain oil which stings tongue and lips. Ripe seeds brown to black, either triangular or biconvex in end view, the triangular form a little bigger than the seed of Swamp Smartweed.



SOUTHERN SMARTWEED,
Polygonum densiflorum
 (*Persicaria portoricensis*)

Inland and coastal fresh marshes; Kansas to New Jersey, Texas, and Florida.

Stems knee-high to as high as a man. Leaves to one foot long. Flowers white or pink in straight spikes. Ripe seeds blackish, biconvex in end view.

HAIRY SMARTWEED,
Polygonum hirsutum
 (*Persicaria hirsuta*)

Inland fresh marshes;
 North Carolina to Florida.

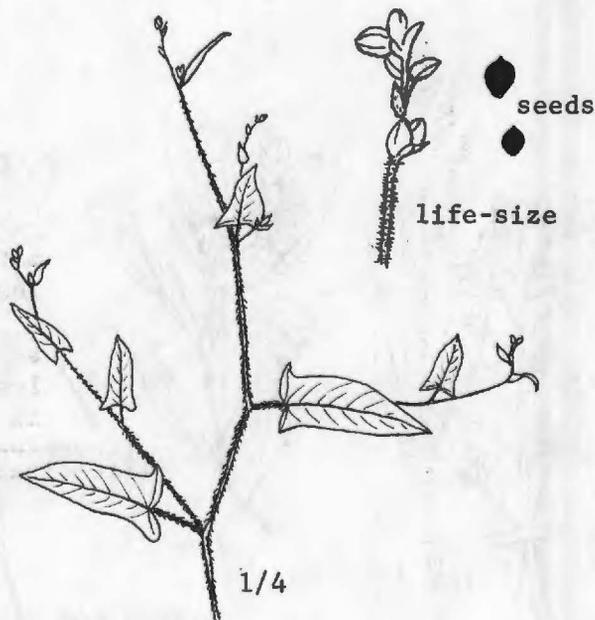
Stems knee-high to
 waist-high, usually shaggy
 with long hairs. Leaves
 wide-based, to 4 inches
 long. Flowers white or
 pinkish, in straight
 spikes. Ripe seeds black-
 ish, triangular in end
 view.



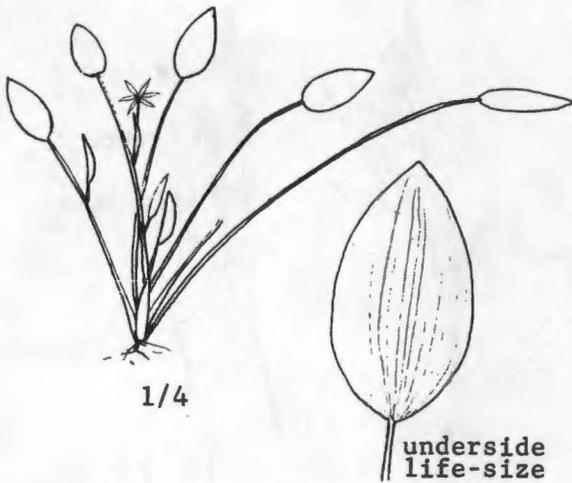
HALBERDLEAF TEAR-THUMB,
Polygonum arifolium
 (*Tracaulon arifolium*)

Inland and coastal fresh
 marshes; Minnesota to Prince
 Edward Island, Texas, and
 Florida.

Stems to several feet
 long, usually leaning on
 other plants and clinging by
 down-pointing prickles along
 stems and along the midvein
 on the underside of leaves.
 Leaves to 8 inches long.
 flowers pink, greenish, or
 white, in little clusters.
 Ripe seeds brown to black,
 thick-biconvex in end view.



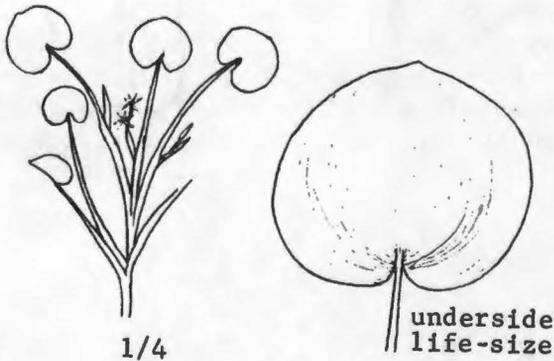
LONGLEAF MUDPLANTAIN,
Heteranthera limosa



Inland fresh marshes and water; California; Colorado to Minnesota, Arizona, Louisiana, and Kentucky.

Stems sprawling and out of water, or floating. Leaves with about a dozen lengthwise-running main veins, and with finer veins between. Flowers blue or white, singly placed.

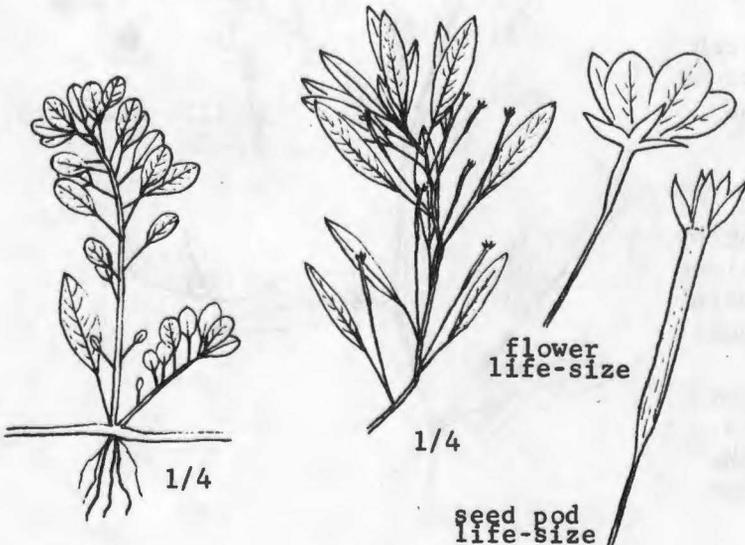
ROUNDLEAF MUDPLANTAIN,
Heteranthera reniformis



Inland and coastal fresh marshes and water; Kansas to Connecticut, Texas, and Florida.

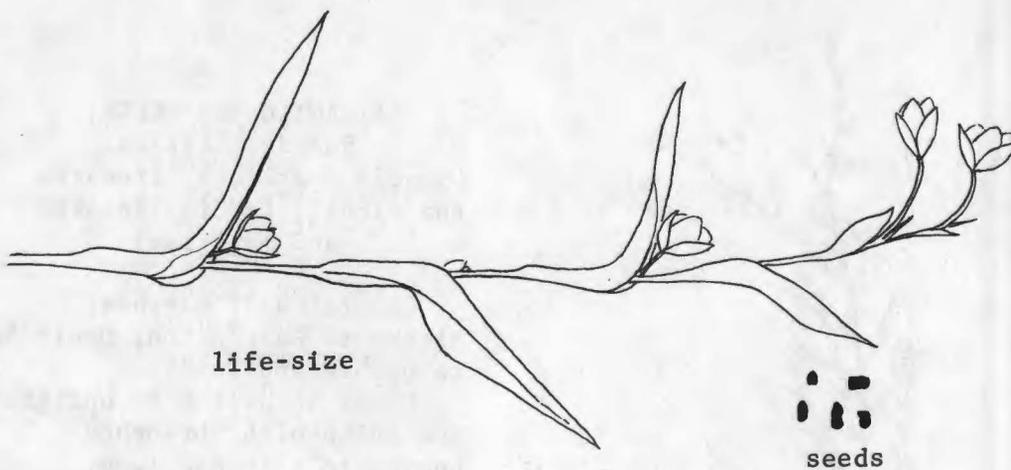
Stems sprawling and out of water, or floating. Leaves with 30 or 40 lengthwise-running main veins, and with finer veins between. Flowers white or blue, 2 to 16 in a cluster.

FLOATING WATERPRIMROSE,
Jussiaea repens
(*Jussiaea californica*
and *diffusa*)



Inland fresh marshes; California to Arizona; Kansas to New Jersey, Texas and Alabama.

Stems sprawling to partly floating, usually upright toward tip, to 10 feet long. Leaves oval or lance-shaped, to 3 inches long. Flowers yellow, usually less than 1 inch across.



MARSH DAYFLOWER, *Aneilema keisak*

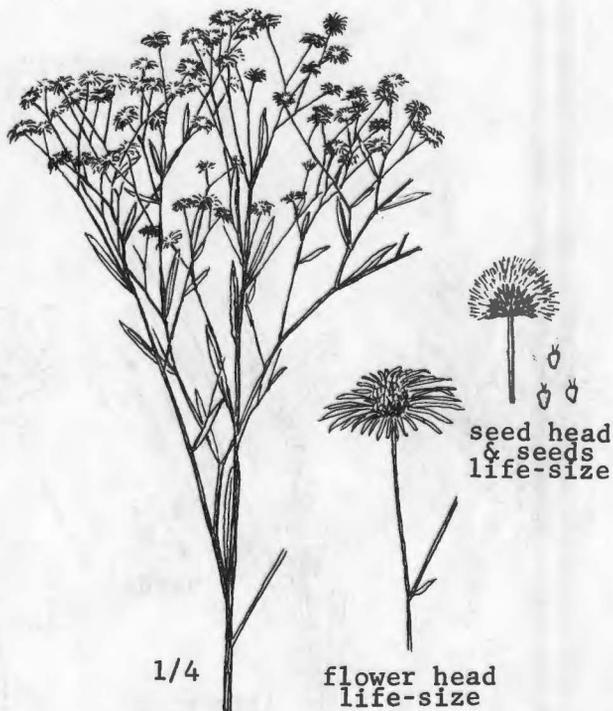
Coastal and inland fresh marshes; Virginia to Georgia.

Stems horizontal or leaning on other plants, 1 to 5 feet long. Leaves to 2 1/2 inches long. Flowers pink, placed singly at the base of leaves. Seed pods oval when ripe, with a few dark-gray, flattish, variable-sized seeds. In side view, some seeds appear cut off at one end.

**MARSH BOLTONIA,
Boltonia asteroides
(*Boltonia latisquama*)**

Inland and coastal fresh marshes; Oregon to Idaho; Saskatchewan to Maine, Texas, and Florida.

Stems less than knee-high to as high as a man branched toward the top. Leaves to 6 inches long. Flower heads white or pinkish. Ripe seeds light-brown, flat, with two tiny bristles at the top.



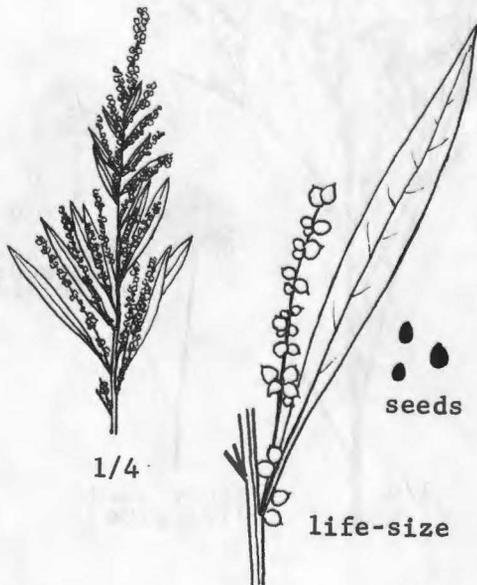


ATLANTIC SEA-BLITE,
Suaeda maritima
 (*Suaeda americana*, *linearis*,
 and *richii*; *Dondia linearis*
 and *maritima*)

Coastal salt marshes;
 Alaska to Washington; Manitoba
 to Quebec and Texas.

Stems sprawling to upright
 and thigh-high, branched.
 Leaves to 2 inches long,
 fleshy, half-round to roundish
 in cross section. Flowers
 tiny, greenish, in small clus-
 ters at the base of many upper
 leaves. Ripe seeds blackish,
 biconvex in end view.

life-size



TIDEMARSH WATERHEMP,
Amaranthus cannabinus
 (*Acnida cannabina*)

Coastal fresh and slightly
 brackish marshes; Maine to
 Florida.

Stems knee-high to higher
 than a man, branched. Leaves
 to 8 inches long. Flowers
 small, greenish, the male and
 female on separate plants.
 Ripe seeds dark brown to
 black, flattish in end view
 and slightly concave on the
 sides.

life-size

ANNUAL SALTMARSH ASTER,
Aster subulatus

Coastal salt to fresh marshes; New Brunswick to Louisiana. Rarely inland salt marshes in Michigan and New York.

Stems ankle-high to waist-high, branched, coming from annual roots. Leaves to 6 inches long. Flower heads to 1/2 inch across, their bluish rays so short that they barely show.



PERENNIAL SALTMARSH ASTER,
Aster tenuifolius

Coastal salt and brackish marshes; New Hampshire to Mississippi.

Stems ankle-high to knee-high, branched or unbranched, coming from a perennial rootstock. Leaves to 6 inches long. Flower heads to 3/4 inch across, with bluish or whitish rays.

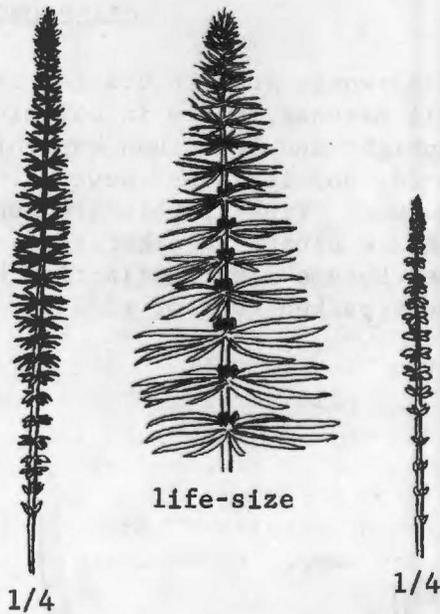


Group 5. PLANTS WITH UPRIGHT, SPRAWLING, OR HORIZONTAL STEMS WITH PAIRED, WHORLED, OR OTHERWISE CLUSTERED, LANCE-SHAPED OR WIDER, UN-TOOTHED LEAVES; OR PLANTS WITH LEAFLESS STEMS AND PAIRED OR WHORLED BRANCHES; FLOWERS SINGLE OR CLUSTERED AT THE END OF STEMS, IN STALKED HEADS ALONG STEMS, OR SINGLE OR CLUSTERED AT THE BASE OF LEAVES; growing inland in fresh and alkali marshes and along the coasts in fresh to salt marshes. Stems are close to each other in colonies, or scattered. In some kinds they come up year after year from underground, underwater, or creeping stems, in others each year from seed. They vary from sometimes under water in Marestail to as high as a man in Purple Loosestrife. Leaves of Sea-oxeye sometimes have little teeth near the base. Flowers are white, greenish, yellow, blue, pink, or reddish.

MARESTAIL,
Hippuris vulgaris
 (*Hippuris tetraphylla*)

Inland fresh and coastal brackish marshes and water; Alaska to Greenland, California, New Mexico, Iowa, and New York.

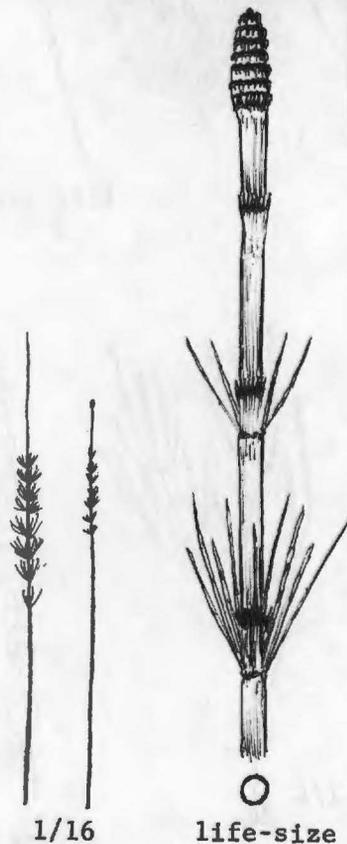
Stems usually upright and ankle-high to less than waist-high; sometimes under water and limp. Leaves 1/4 to 1 1/2 inches long. Each tiny flower at the base of a leaf produces one seed. Ripe seeds are round in end view.



WATER HORSETAIL,
Equisetum fluviatile

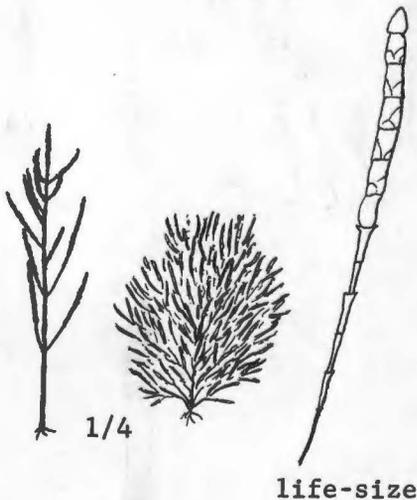
Inland and occasionally coastal fresh marshes; Alaska to Newfoundland, Oregon, Nebraska, and West Virginia.

Stems knee-high to shoulder-high, conspicuously jointed, not evergreen, thin-walled around a big hollow center, usually with whorled branches, often with a spore-producing cone at the tip.



GLASSWORTS, *Salicornia*

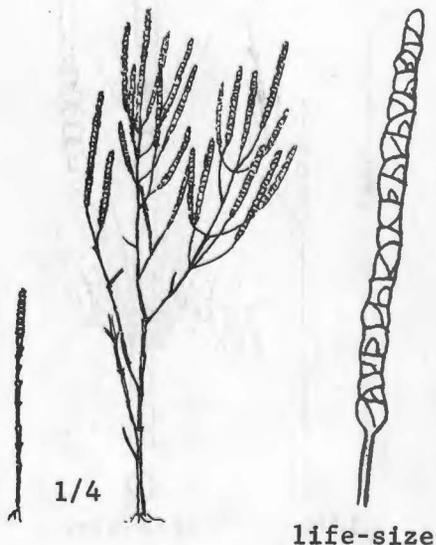
Glassworts grow in coastal salt marshes and in inland salt and alkali marshes, often in colonies. Their stems are ground-carpeting to upright and less than knee-high. They are fleshy, conspicuously jointed, and leafless; have paired branches; and often are bright red in autumn. Tiny flowers are sunk in the upper part of stems, at joints which are closer together than the joints farther down. These flower spikes become more distinctive when their seeds have fallen, leaving closely packed rows of tiny cups.



SLENDER GLASSWORT, *Salicornia europaea* (*Salicornia depressa* and *rubra*)

Coastal salt marshes and inland salt and alkali marshes; Alaska to Newfoundland, California, Texas, and Georgia (but rare inland in the eastern half of the continent).

Pulls up easily because of annual roots. Stems upright or sprawly. Spikes usually less than $\frac{3}{16}$ inch in diameter, the sections between their joints as long as thick, or longer.



BIGELOW GLASSWORT, *Salicornia bigelovii*

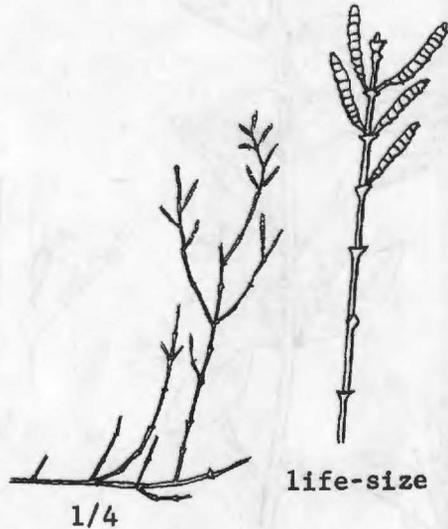
Coastal and very rarely inland salt marshes; California; New Mexico; Maine to Texas.

Resembles Slender Glasswort; but Bigelow Glasswort spikes are $\frac{3}{16}$ to $\frac{1}{4}$ inch in diameter, and the sections between their joints are shorter than thick.

WOODY GLASSWORT,
Salicornia virginica
(*Salicornia pacifica*
and *perennis*)

Coastal salt marshes and rarely inland salt and alkali marshes; Alaska to California and New Mexico; New Hampshire to Texas.

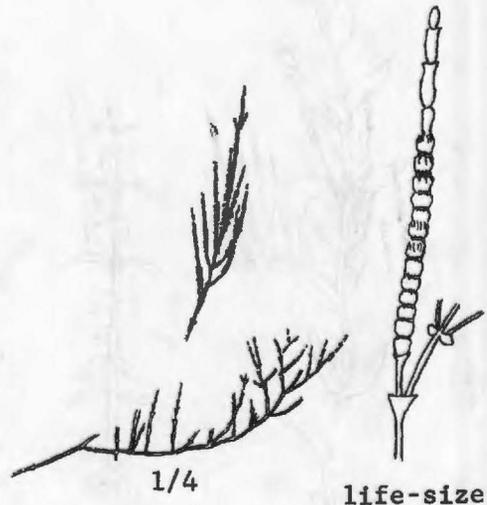
Has rootstocks and often has horizontal main stems. Spikes have nontapering tips with flowers all the way to the end.



CALIFORNIA GLASSWORT,
Salicornia subterminalis
(*Arthrocnemum subterminale*)

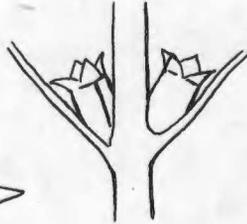
Coastal salt marshes and inland alkali marshes; California.

Resembles Woody Glasswort; but California Glasswort spikes have tapering tips which are flowerless.





life-size



x 2

MARSH-PURSLANE,
Ludwigia palustris
(*Ludwigia natans*; *Isnar-*
dia intermedia, palustris,
and *repens*)

Inland and coastal fresh marshes and water; British Columbia to Nova Scotia and the southernmost States.

Stems usually sprawling on wet ground or partly in water; sometimes under water in springs and clear streams. Leaves 1/2 inch to 2 inches long, green to reddish. Flowers greenish to reddish.



life-size



life-size

GOLDENPERT, *Gratiola aurea*

Inland fresh marshes and water; Wisconsin to Newfoundland, Alabama, and Florida (but only near the coast in the South).

Out-of-water or partly-out-of-water plants have stems ankle-high to less than knee-high, blunt-tipped leaves, and yellow flowers. Underwater plants have stems an inch or two high, sharp-tipped leaves, and no flowers.

PURPLE LOOSESTRIFE,
Lythrum salicaria

Inland and coastal fresh marshes; British Columbia to Newfoundland, California, Missouri, and North Carolina (commonest in New England and New York).

Stems waist-high to as high as a man, fine-hairy. Leaves in pairs or sometimes in threes, to 4 inches long. Flowers purplish-pink.



SWAMP LOOSESTRIFE,
Decodon verticillatus

Inland fresh marshes; Minnesota to Nova Scotia, Louisiana, and Florida.

Stems curved and often several feet long, their tips reaching the ground or water. Under water, the bark is very thick and spongy. Leaves in twos, threes, or fours, to 6 inches long. Flowers purplish-pink.





WATERWILLOW,
Justicia americana
 (*Dianthera americana*)

Inland fresh marshes;
 Kansas to Quebec, Texas,
 and Georgia.

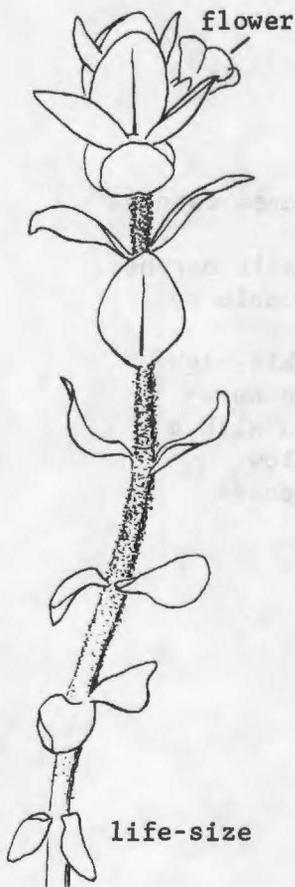
Stems knee-high to
 waist-high, in dense beds
 in shallow water, more
 often in streams than in
 lakes. Leaves to 8
 inches long. Flowers
 whitish with purple spots,
 in long-stalked heads.
 Seed pods biconvex in end
 view.



CREEPING RUSH,
Juncus repens

Inland fresh
 marshes and water,
 Oklahoma to Dela-
 ware, Texas, and
 Florida.

Sprawling on wet
 ground, floating,
 or under water.
 Stems and leaves
 flattish. Flowers
 green.



LEMON BACOPA,
Bacopa caroliniana
 (*Hydrotrida caroliniana*)

Inland fresh marshes;
 Virginia to Texas and
 Florida.

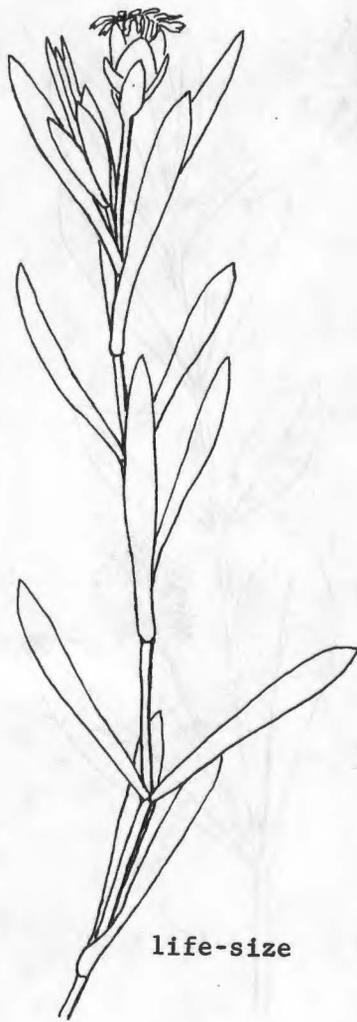
Stems ankle-high to
 knee-high, hairy toward
 the top. Crushed leaves
 and stems lemon-scented.
 Flowers blue.



ALLIGATORWEED,
Alternanthera philoxeroides
 (*Achyranthes philoxeroides*)

Inland and coastal fresh
 marshes; Tennessee to Vir-
 ginia, Texas, and Florida.

Stems sprawling to partly
 floating, upright toward tip,
 to several feet long. Leaves
 to 4 inches long. Flowers
 whitish.

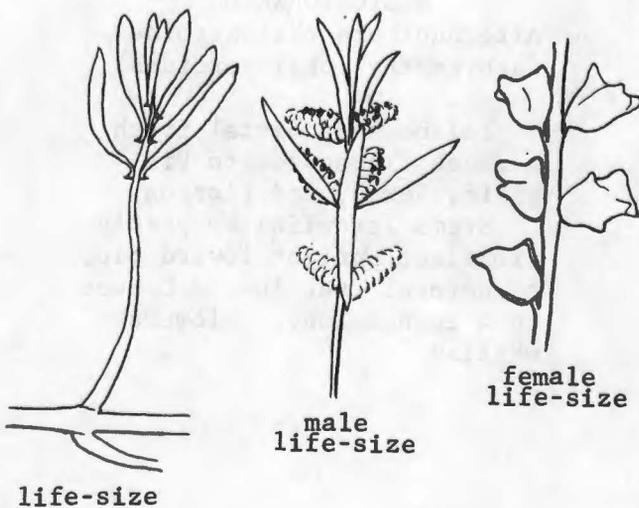


life-size

JAUMEA, *Jaumea carnosa*

Coastal salt marshes;
British Columbia to
California.

Stems ankle-high
to less than knee-
high, topped with a
head of yellow
flowers. Leaves
fleshy.



life-size

male
life-size

female
life-size

SALTWORT, *Batis maritima*

Coastal salt marshes;
California; North Caro-
lina to Texas.

Stems sprawling,
branched, ankle-high to
waist-high. Leaves
light-green, fleshy,
half-round in cross sec-
tion, with a tiny spur
at the base. Tiny male
and female flowers in
spikes on separate
plants.

SALTFLAT-GLASS,
Monanthochloe littoralis

Coastal salt marshes;
California; Texas to
Florida.

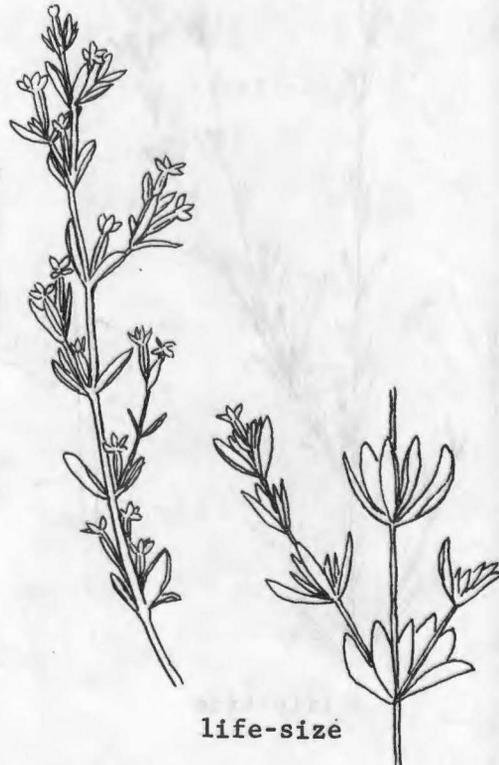
Main stems horizontal,
branches ankle-high to
less than knee-high.
Flowers almost hidden
among leaves.



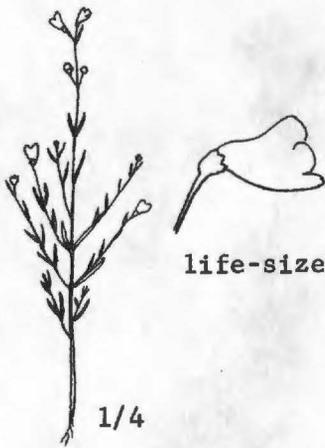
FRANKENIA,
Frankenia grandifolia

Coastal salt marshes
and inland alkali
marshes; California.

Stems ankle-high to
less than knee-high,
much-branched, smooth
or fine-hairy. Leaves
paired or clustered,
their edges often
rolled under, making the
smaller, upper ones look
quite narrow. Flowers
pinkish.



SEASIDE GERARDIA,
Gerardia maritima
(*Agalinis maritima*)



Coastal salt marshes; Nova Scotia to Texas.

Stems ankle-high to knee-high, branched or unbranched. Leaves to an inch long. Flowers purplish-pink, fine-hairy inside and outside.



SALTMARSH LOOSESTRIFE,
Lythrum lineare

Coastal salt and brackish marshes; New Jersey to Texas.

Stems less than knee-high to waist-high, much-branched toward the top, hairless. Leaves to an inch long. Flowers whitish or pinkish.

LITTLE SEA-PINK
Sabatia stellaris
 (part of *Sabatia campanulata* in Small's Manual)

Coastal salt and brackish marshes; Massachusetts to Louisiana. Inland marshes in Florida.

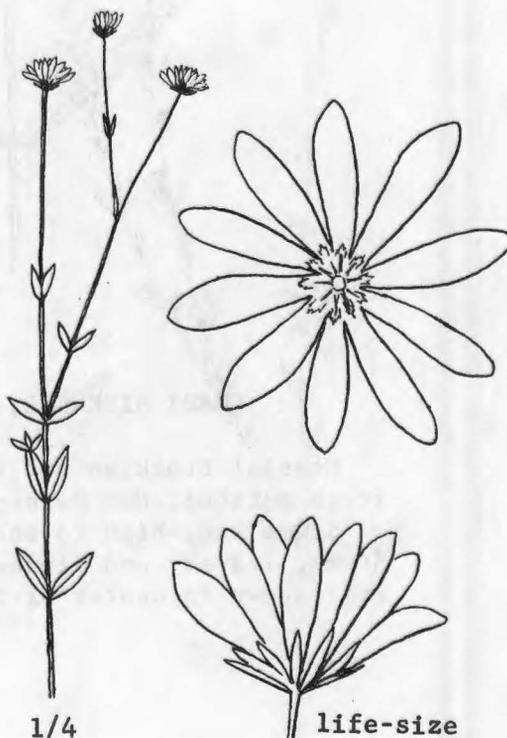
Stems ankle-high to knee-high, branched or unbranched. Leaves to 1 1/2 inches long. Flowers pink with yellow center, usually with 5 petals.

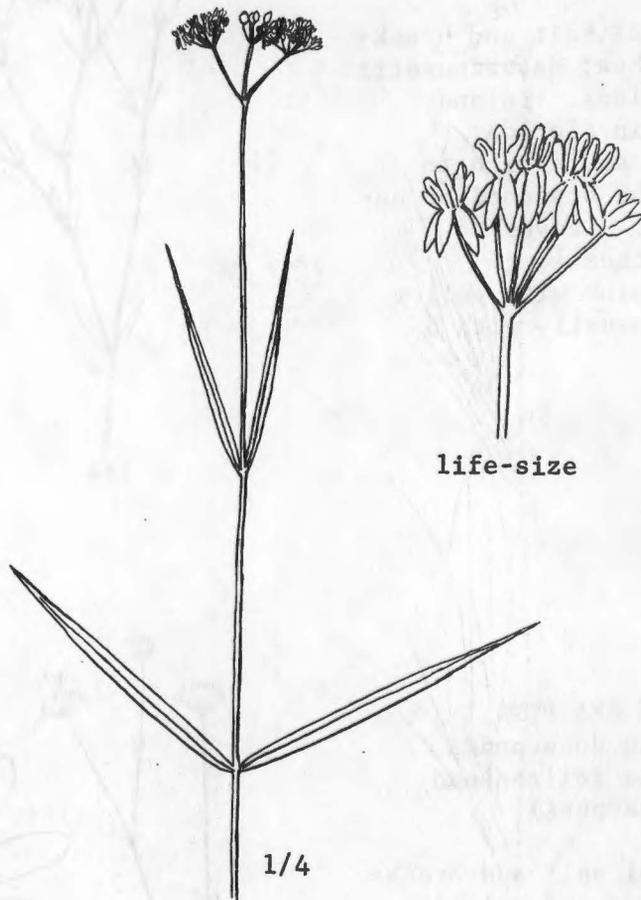


BIG SEA-PINK,
Sabatia dodecandra
 (*Sabatia foliosa* and *harperi*)

Coastal salt and brackish marshes and inland fresh marshes; Connecticut to Louisiana.

Stems ankle-high to less than waist-high, branched. Leaves to 2 inches long. Flowers pink with yellow center, with 8 to 12 petals.

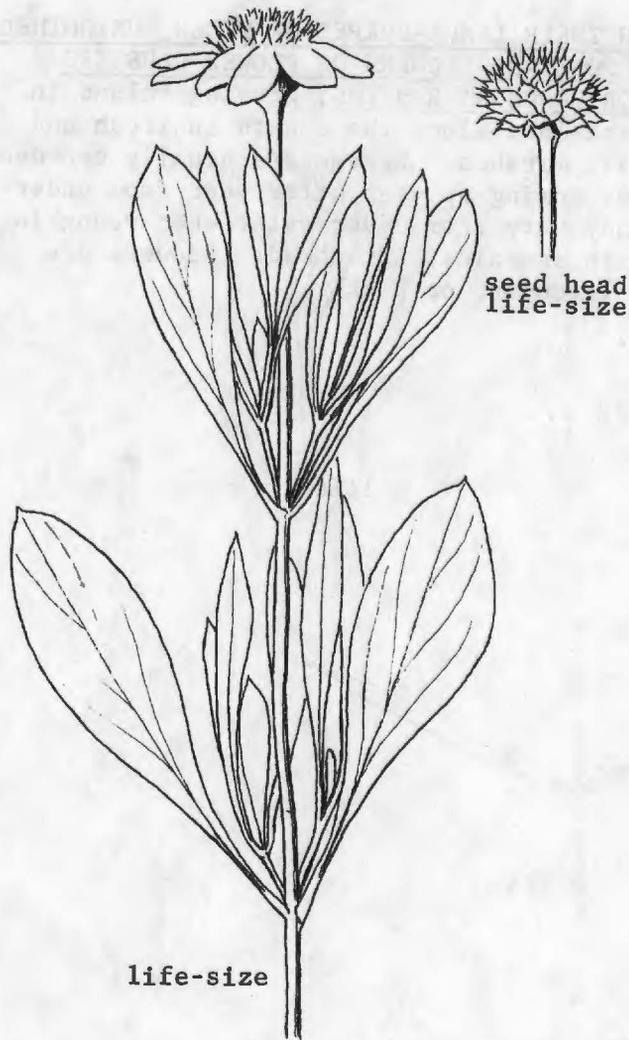




COAST MILKWEED, *Asclepias lanceolata*

Coastal brackish and fresh marshes and rarely inland fresh marshes; New Jersey to Texas.

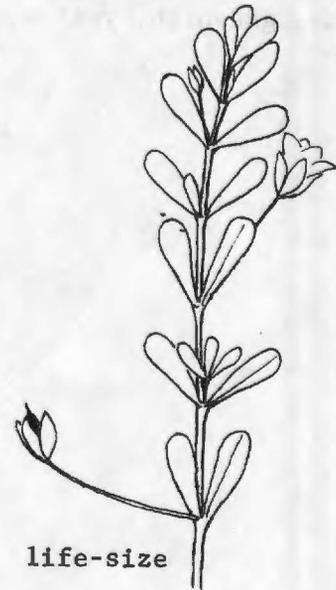
Stems knee-high to shoulder-high, not branched. Stems, leaves, and flower clusters all slender. Petals red, crown in center of flower orange.



SEA-OXEYE, *Borrichia frutescens*

Coastal salt marshes; Virginia to Texas.

Stems ankle-high to waist-high, woody, branched, topped with a head of yellow flowers. Leaves grayish, 1 to 4 inches long, their edges untoothed or with little teeth near the base. Seed head burlike because of sharp, hard bracts.



**COAST BACOPA,
Bacopa monnieri
(*Bramia monnieri*)**

Coastal brackish and fresh marshes; Virginia to Texas. Inland marshes in Texas.

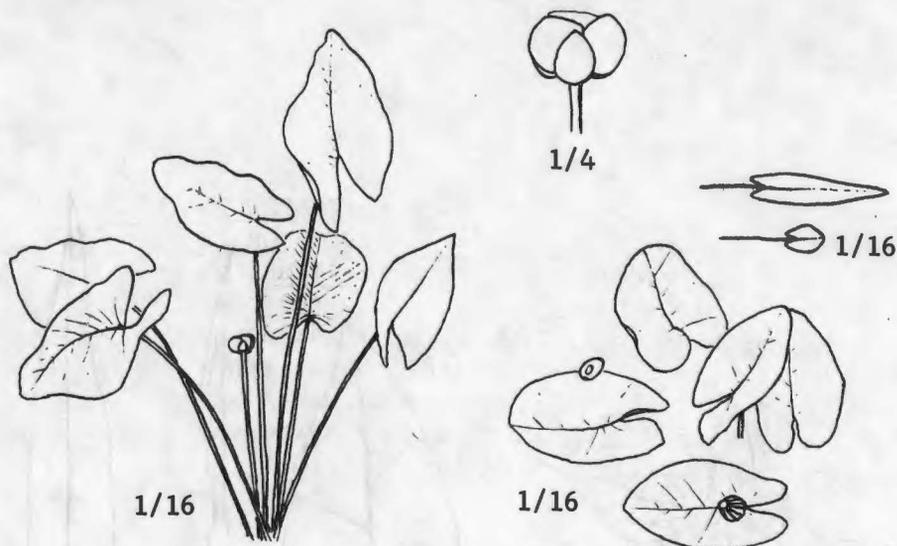
Stems carpeting the ground to ankle-high, hairless. Leaves fleshy. Flowers whitish.

Group 6. PLANTS WITH BOTH THEIR LANCE-SHAPED OR WIDER, UNTOOTHED LEAVES AND THE STALKS OF THEIR SOLITARY FLOWERS OR FLOWER CLUSTERS COMING FROM UNDERGROUND STEMS OR UNDERWATER STEMS; growing inland in fresh and rarely in alkali marshes and along the coasts in fresh and occasionally in brackish and salt marshes. Leaves are usually crowded in clusters, those of most kinds coming up year after year from underground or underwater stems. They vary from under water when young in some kinds to as high as a man in Broadleaf Arrowhead. Flowers are white, greenish, yellow, blue, lavender, or pink.



ARROWHEAD
 (Sagittaria arifolia)
 Leaves lance-shaped and
 fresh leaves very
 in the marshes
 stems arising from
 the ground
 flowers white

SEA-ORCHID
 (Sagittaria arifolia)
 Leaves lance-shaped and
 stems arising from
 the ground
 flowers white



SPATTERDOCK, *Nuphar luteum*

(All *Nuphar* in Fernald's Manual, *Nuphar polysepalum* in Mason's Flora, and all *Nymphaea* in Small's Manual)

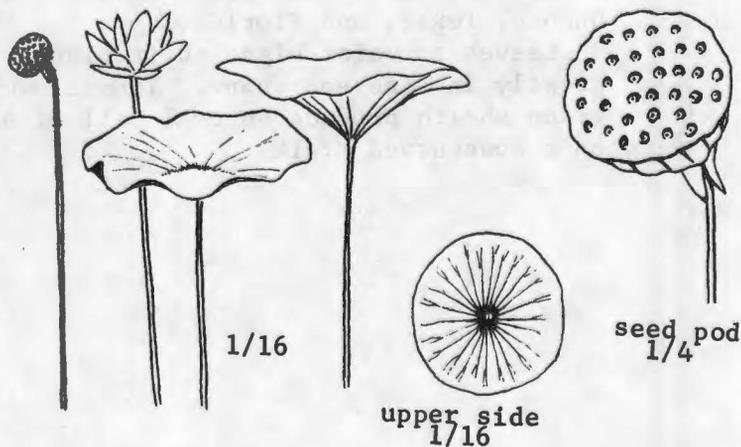
Inland and coastal fresh marshes and water; Alaska to Newfoundland and the southernmost States.

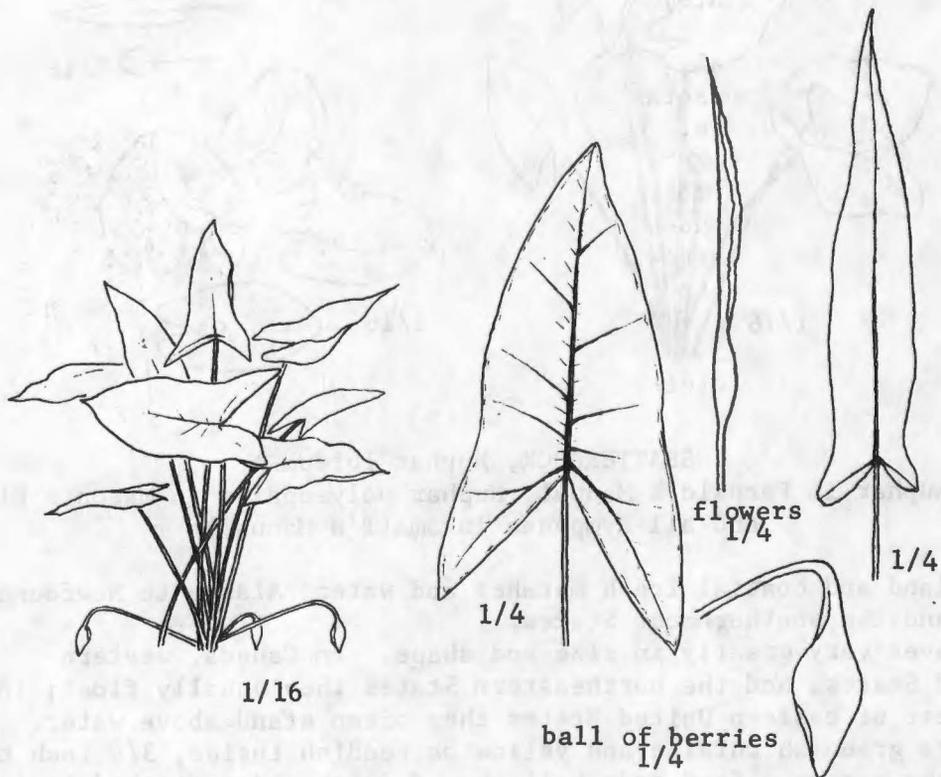
Leaves vary greatly in size and shape. In Canada, western United States, and the northeastern States they usually float; in the rest of eastern United States they often stand above water. Flowers greenish outside and yellow or reddish inside, $\frac{3}{4}$ inch to 3 inches across. Seed pods ball-shaped, with sides pinched in just below the flattish top, $\frac{1}{2}$ inch to 2 inches through. Ripe seeds brown, oval, $\frac{1}{8}$ to $\frac{1}{4}$ inch long.

AMERICAN LOTUS, *Nelumbo lutea*

Inland and rarely coastal fresh marshes and water; Minnesota to Massachusetts, Texas, and Florida.

Leaves grayish-green, to 2 feet across, standing above water or floating. Flowers pale-yellow, to 10 inches across, fragrant. Ripe seeds acornlike, partly exposed in a flat-topped pod.





ARROW-ARUM, *Peltandra virginica*

Inland and coastal fresh marshes; Michigan to Quebec, Texas, and Florida.

Leaves to waist-high, their blades varying greatly in size and shape. Tiny flowers in a green sheath produce an oval ball of berries on a downcurved stalk.

PICKERELWEED,
Pontederia cordata
(*Pontederia lanceolata*)

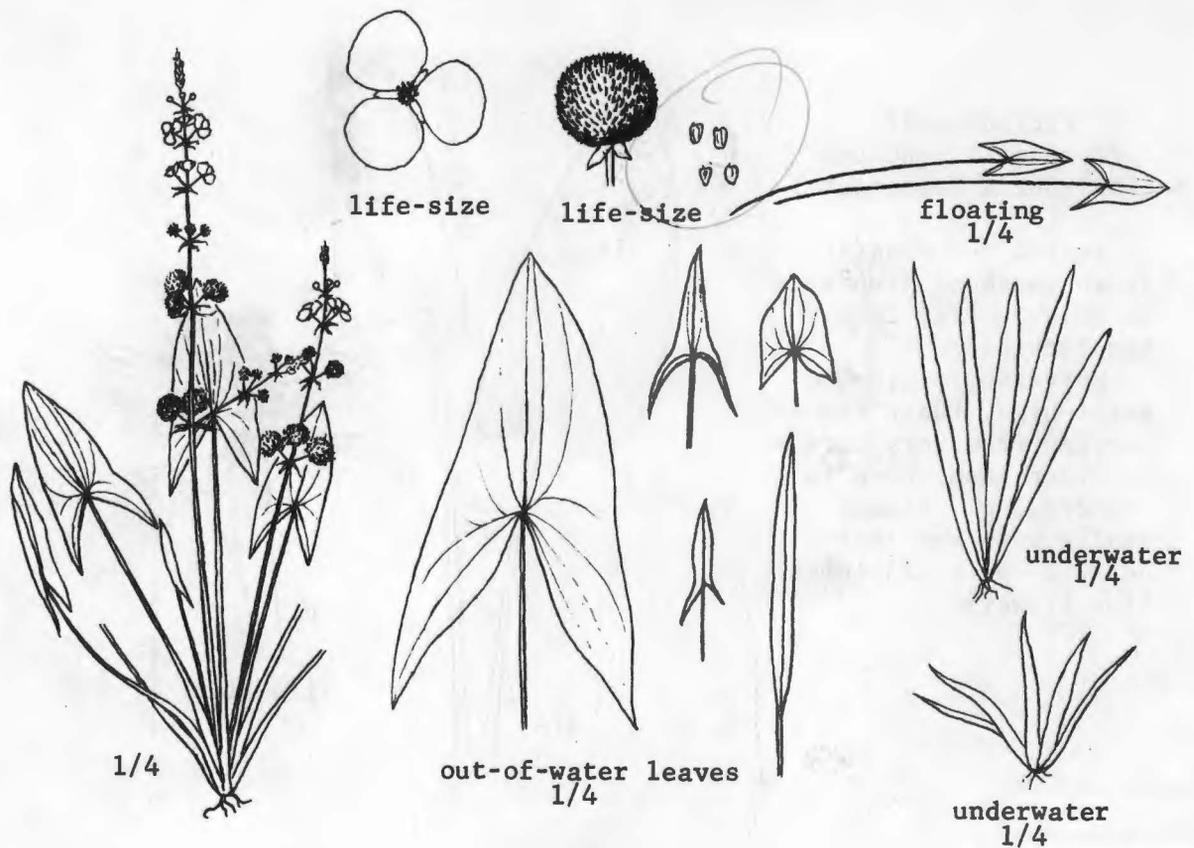
Inland and coastal fresh marshes; Minnesota to Nova Scotia, Texas, and Florida.

Leaves knee-high to waist-high, their blades varying from very narrow to wider than shown in the drawing. Flower stalks with one leaf below a spike of violet-blue flowers.



ARROWHEADS, *Sagittaria*

Arrowheads grow in fresh marshes and water, inland and along both coasts, and in brackish marshes on the Atlantic Coast. Their clumps of long-stalked leaves and long-stalked clusters of flowers are ankle-high to higher than a man. The leaves vary greatly in size and shape. Mature leaves of Northern, Broadleaf, Engelmann, Hooded, and Long-barb Arrowheads are usually arrowhead-shaped. Those of Bur Arrowhead, Slender Arrowhead, Delta Duckpotato, and Bulltongue are linear to oval, and usually have no basal lobes. Young plants of some kinds grow under water as clumps of stalkless leaves which vary from short and stiff to long and ribbonlike. One kind, not described here, often grows to maturity at the surface of the water or just under it. Arrowheads have 3-petaled white flowers which are usually whorled in threes. Flowers of the lower whorls produce balls of tightly packed, flattish seeds. Without ripe seeds it is hard to identify most kinds. All but Hooded Arrowhead produce overwintering corms at the end of rootstocks. These are eaten by waterfowl and muskrats, and occasionally by people.

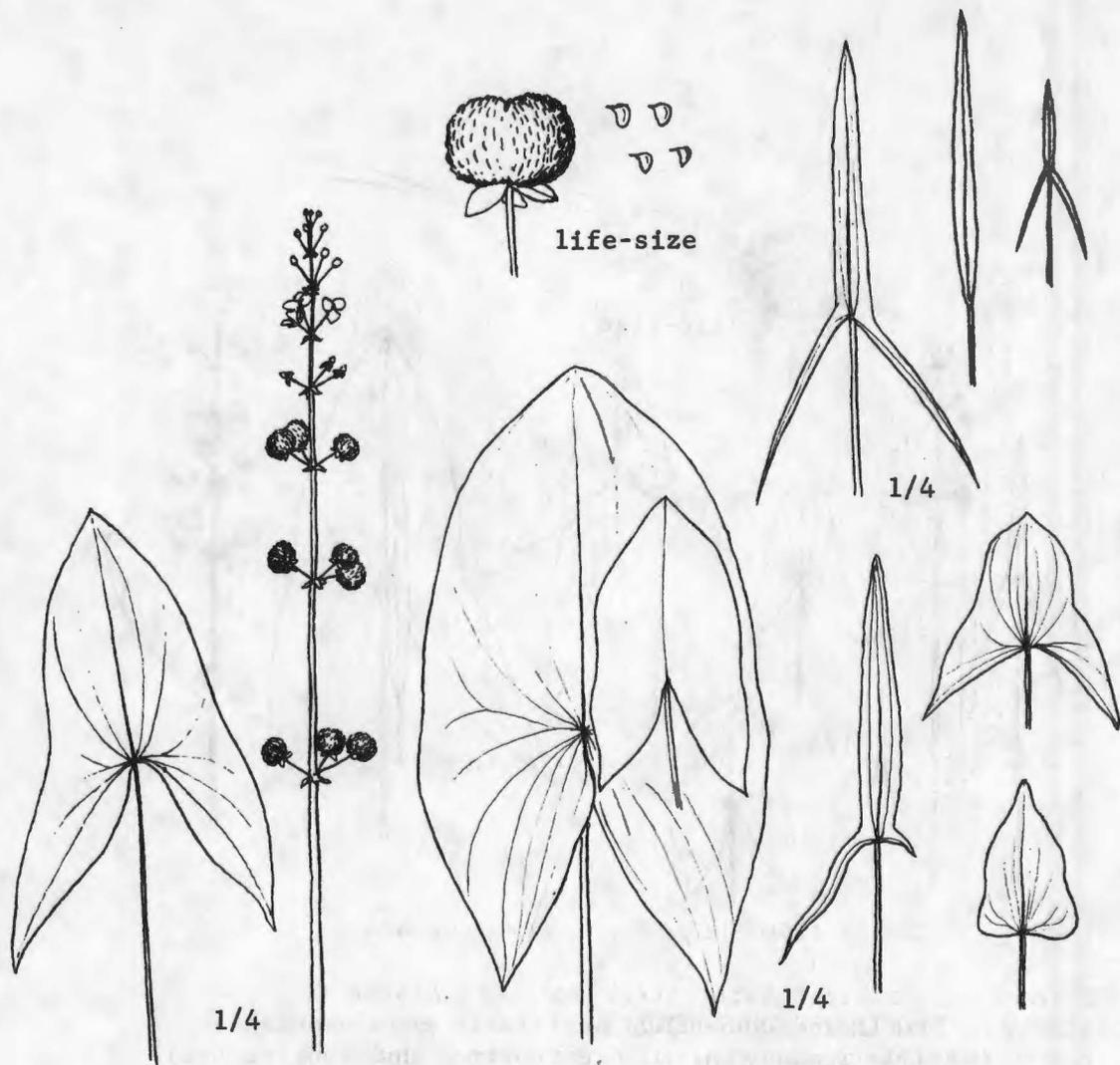


NORTHERN ARROWHEAD, *Sagittaria cuneata*

Inland and rarely coastal fresh marshes; Alaska to Quebec, California, Texas, and Pennsylvania.

Leaves varying greatly in size and shape, those of mature plants usually arrowhead-shaped. Leaves and flower clusters ankle-high to knee-high. Ripe seed balls look fine-prickly, because the seeds have a tiny upright point on one side of the top.

Resembles Broadleaf Arrowhead, but the ripe seed balls of that species look streaked and its seeds have a horizontal point at the top. Resembles Engelmann Arrowhead, but the ripe seed balls of that species look fine-bristly and its seeds have a prominent upright or upcurved point on one side of the top.

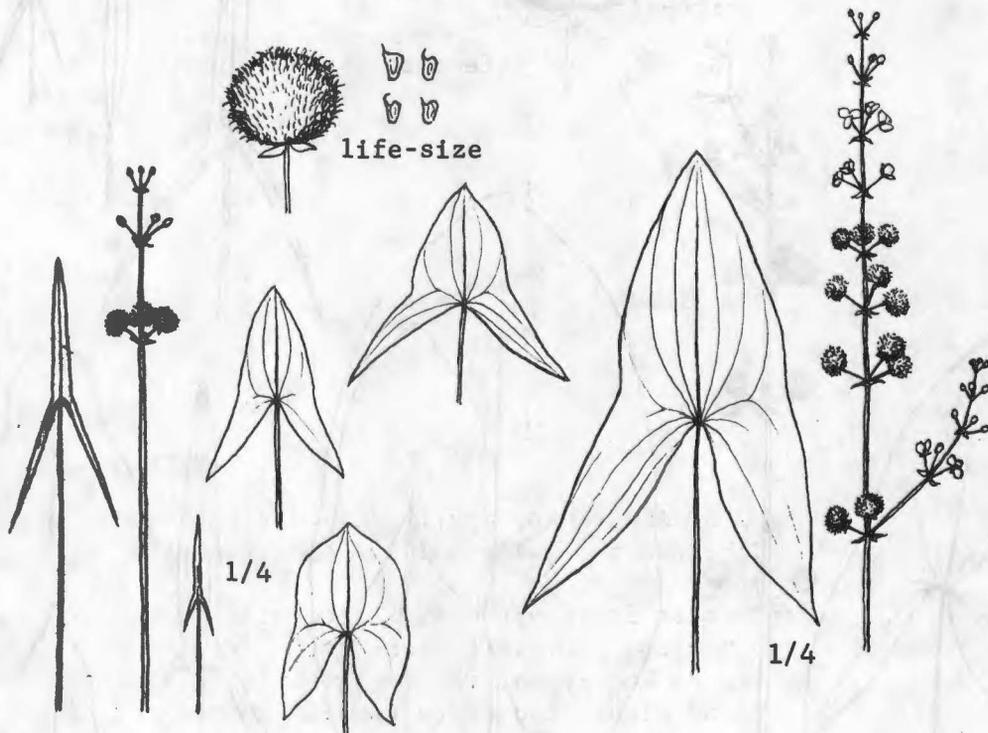


BROADLEAF ARROWHEAD, *Sagittaria latifolia*
 (*Sagittaria ornithorhyncha*, *planipes*, and *pubescens*)

Inland and rarely coastal fresh marshes; British Columbia to Quebec and the southernmost States (but very rare in the Rocky Mountain region).

Flower clusters and variable leaves resemble those of Northern Arrowhead, except that the leaves are sometimes as high as a man, with blades to 20 inches long. Ripe seed balls look streaked, because the seeds have a horizontal point at the top.

Resembles Northern Arrowhead, but the ripe seed balls of that species look fine-prickly and its seeds have a tiny upright point on one side of the top. Resembles Engelmann Arrowhead, but the ripe seed balls of that species look fine-bristly and its seeds have an upright or upcurved point on one side of the top.

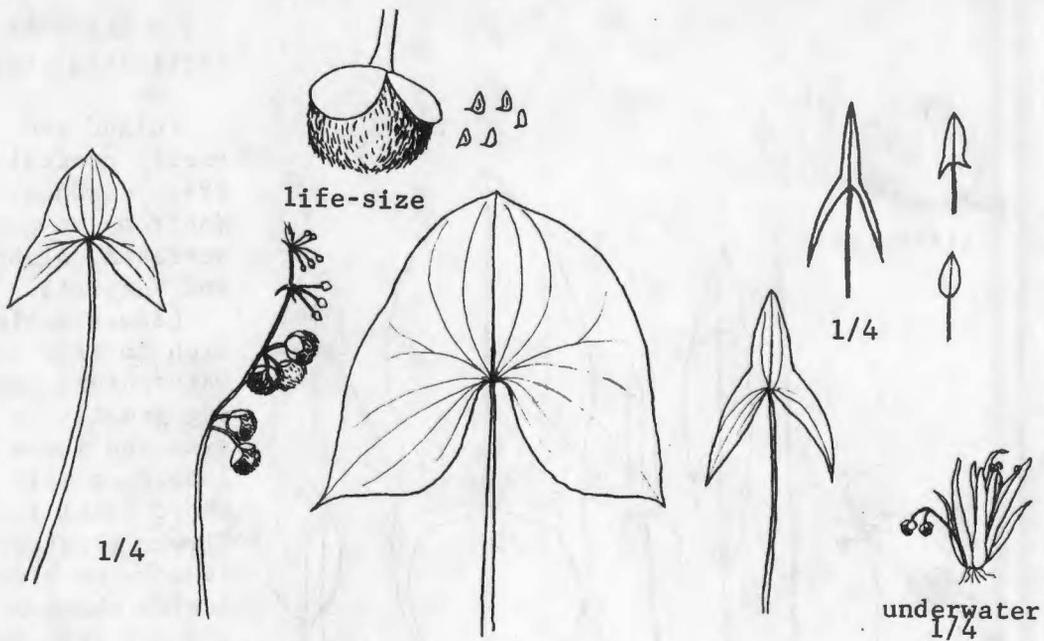


ENGELMANN ARROWHEAD, *Sagittaria engelmanniana*)
 (*Sagittaria australis*, *brevirostra*, and *longirostra*)

Inland fresh marshes; South Dakota to Massachusetts, Texas, and Florida.

Flower clusters and variable leaves resemble those of Northern Arrowhead, except that the leaves are often waist-high, with blades to 15 inches long. Ripe seed balls look fine-bristly, because the seeds have an upright or upcurved point on one side of the top.

Resembles Northern Arrowhead, but the ripe seed balls of that species look fine-prickly and its seeds have a tiny upright point on one side of the top. Resembles Broadleaf Arrowhead, but the ripe seed balls of that species look streaked and its seeds have a horizontal point at the top.



HOODED ARROWHEAD, *Sagittaria calycina*
(*Lophotocarpus calycinus* and *spongiosus*)

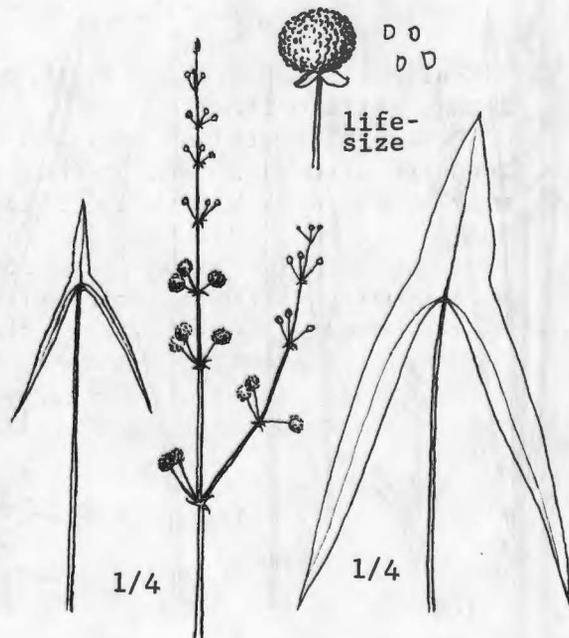
Inland and east-coast fresh marshes; California; South Dakota to New Brunswick, New Mexico, Louisiana, and North Carolina.

Leaves ankle-high to knee-high, varying greatly in size and shape; those of mature inland plants usually arrowhead-shaped and often wider than long. Flower clusters often shorter than leaves. Ripe seed balls partly covered by enlarged sepals, and on a downcurved stalk. Seeds with a horizontal or upslanted point on one side of the top.

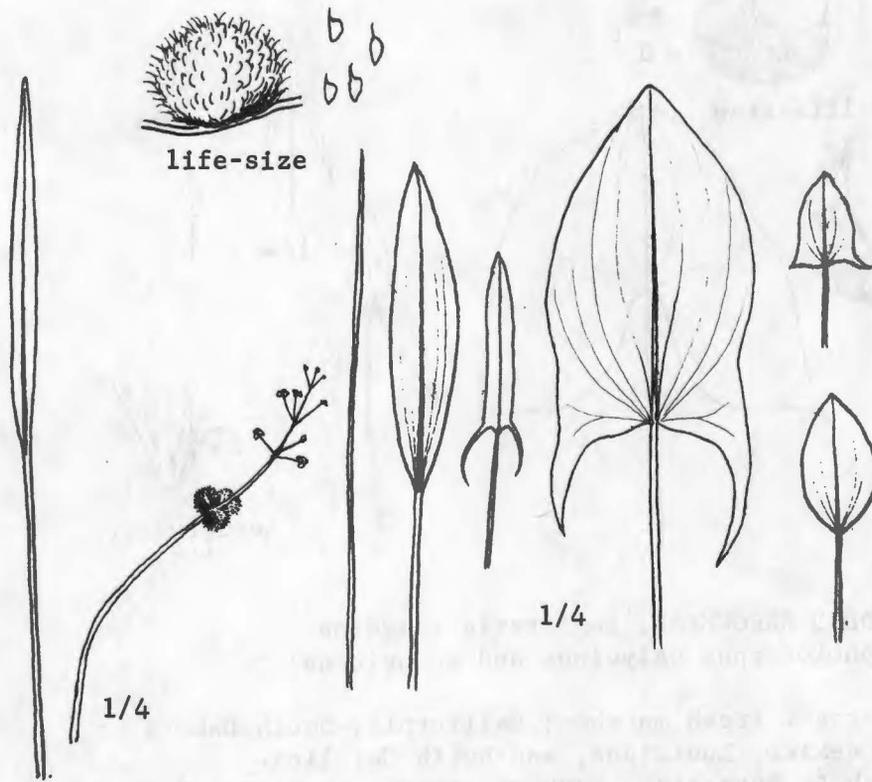
LONG-BARB ARROWHEAD,
Sagittaria longiloba
(*Sagittaria greggii*)

Inland fresh marshes;
California to Nebraska
and Texas.

Flower clusters less than knee-high to shoulder-high, often higher than leaves. Basal lobes of leaves about twice as long as upper lobe. Ripe seed balls look warty. Ripe seeds with a tiny horizontal or upslanted point on one side of the top.



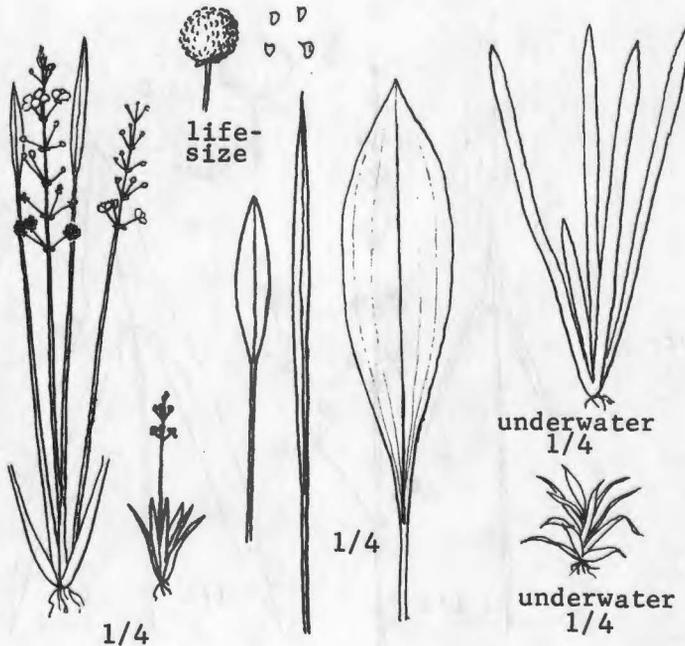
BUR ARROWHEAD,
Sagittaria rigida



Inland and rarely coastal fresh marshes; Manitoba to Quebec, Nebraska, Alabama, and Virginia.

Leaves ankle-high to less than waist-high, varying greatly in size and shape, sometimes with short basal lobes. Flower clusters usually on bent stalks which are shorter than the leaves. Ripe seed balls short-stalked or stalkless. They look bristly, because the seeds have a prominent upright or upcurved point on one side of the top.

SLENDER ARROWHEAD,
Sagittaria graminea
(*Sagittaria chapmanii*,
cristata, *cycloptera*,
eatonii, *isoetiformis*,
macrocarpa, *teres*, and
weatherbiana)



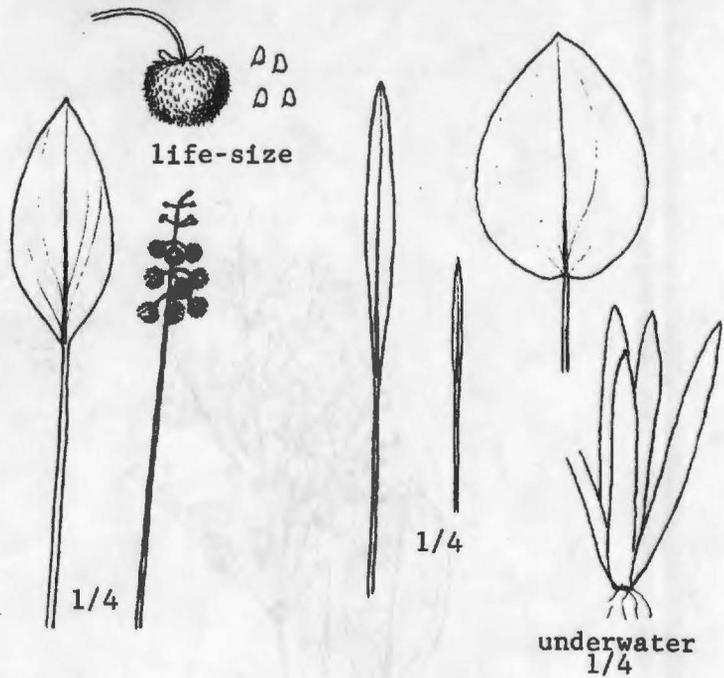
Inland and occasionally coastal fresh marshes; South Dakota to Labrador, Texas, and Florida.

Flower clusters and linear to oval leaves ankle-high to less than waist-high. Ripe seed balls look warty. Ripe seeds with a tiny horizontal or upslanted point on one side of the top.

DELTA DUCKPOTATO,
Sagittaria platyphylla
 (*Sagittaria mohrii*)

Inland and coastal fresh marshes; Kansas to North Carolina, Texas, and Alabama.

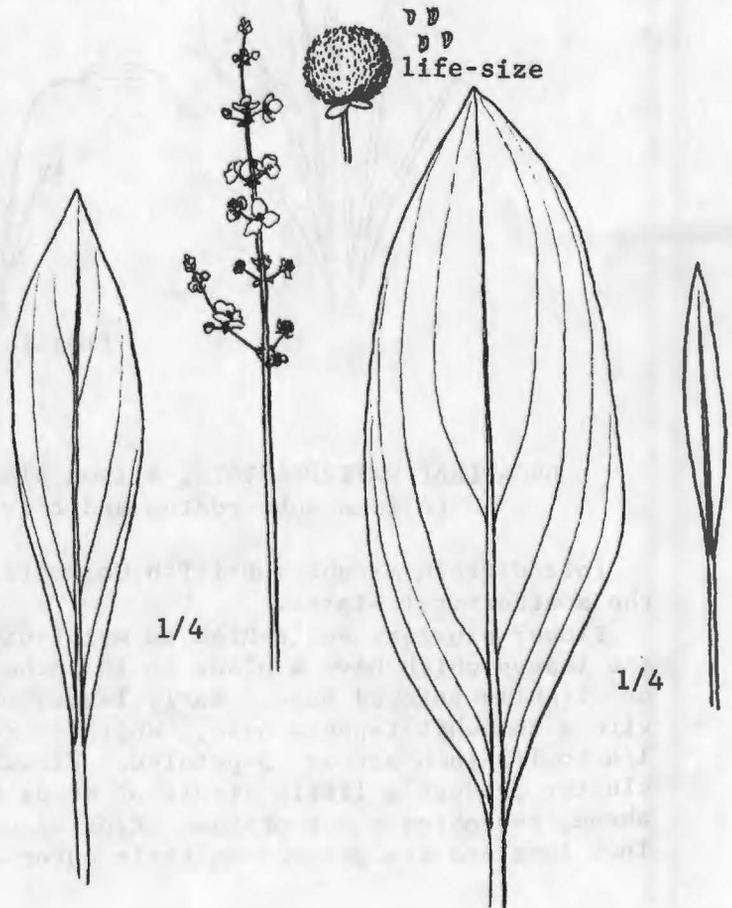
Leaves less than knee-high to waist-high. Flower clusters usually shorter than leaves. Ripe seed balls on a downcurved stalk. They look fine-prickly, because seeds have a tiny upslanted point on one side of the top.



BULLTONGUE,
Sagittaria lancifolia
 (*Sagittaria angustifolia* and *falcata*)

Coastal fresh and slightly brackish marshes; Delaware to Florida and Texas. Inland fresh marshes in Florida.

Flower clusters knee-high to higher than a man, often higher than leaves. Leaf blades in inland Florida to 2 feet long. Ripe seed balls look fine-prickly, because the seeds have a tiny upslanted point on one side of the top.

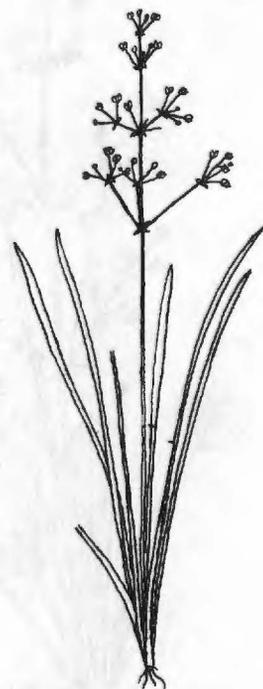




**BROADLEAF WATERPLANTAIN, *Alisma plantago-aquatica*
(*Alisma subcordatum* and *triviale*)**

Inland fresh marshes; British Columbia to Nova Scotia and the southernmost States.

Flower clusters ankle-high to waist-high, usually higher than the leaves which have a blade to 10 inches long with a roundish or slightly notched base. Early leaves often floating and with a somewhat tapered base. White or rarely pink flowers 1/4 to 1/2 inch across, 3-petaled. Flowers throughout a cluster produce a little circle of seeds which, as seen from above, resembles a cut orange. Ripe seeds are less than 1/8 inch long and are grooved on their outer edges.

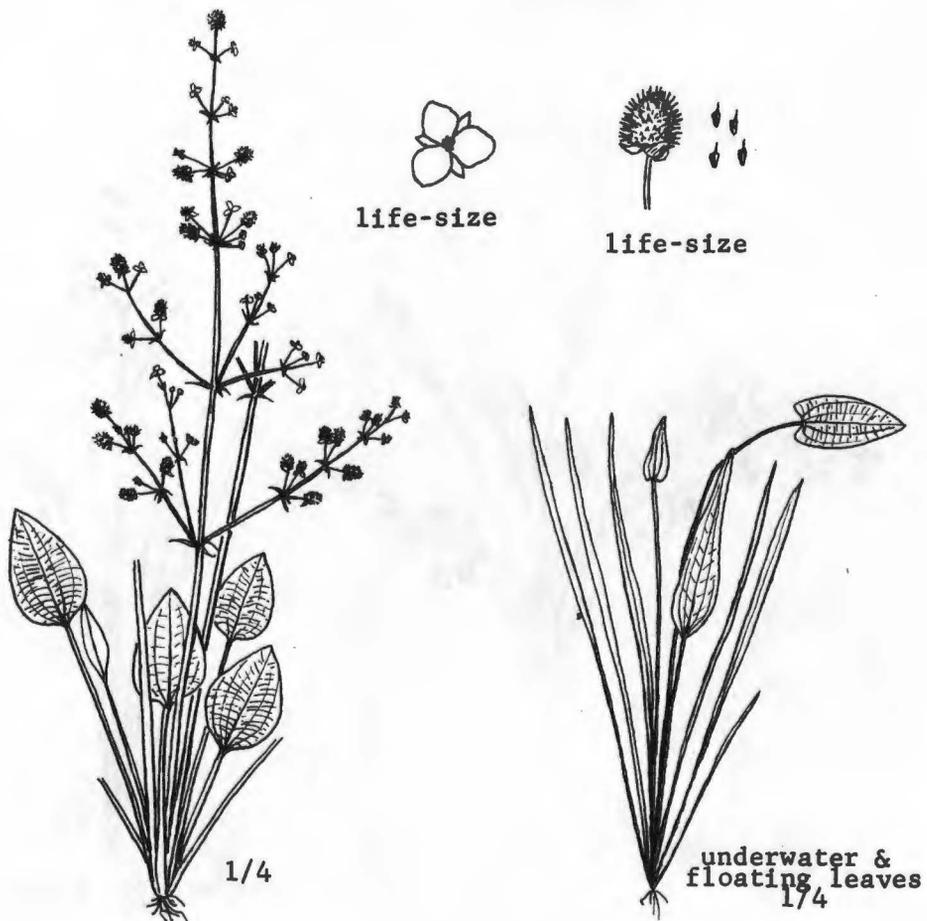


underwater leaves
1/4

**NARROWLEAF WATERPLANTAIN, *Alisma gramineum*
(*Alisma geyeri*)**

Inland fresh and alkali marshes and water; Alberta to Quebec, California, Iowa, and Vermont.

Flower clusters sprawling to knee-high, shorter or longer than leaves. Out-of-water leaves have a blade to 4 inches long, with a somewhat tapered base. Underwater leaves are usually ribbonlike and as much as 3 feet long. Ripe seeds and the white or pink flowers are similar to those of Broadleaf Waterplantain.

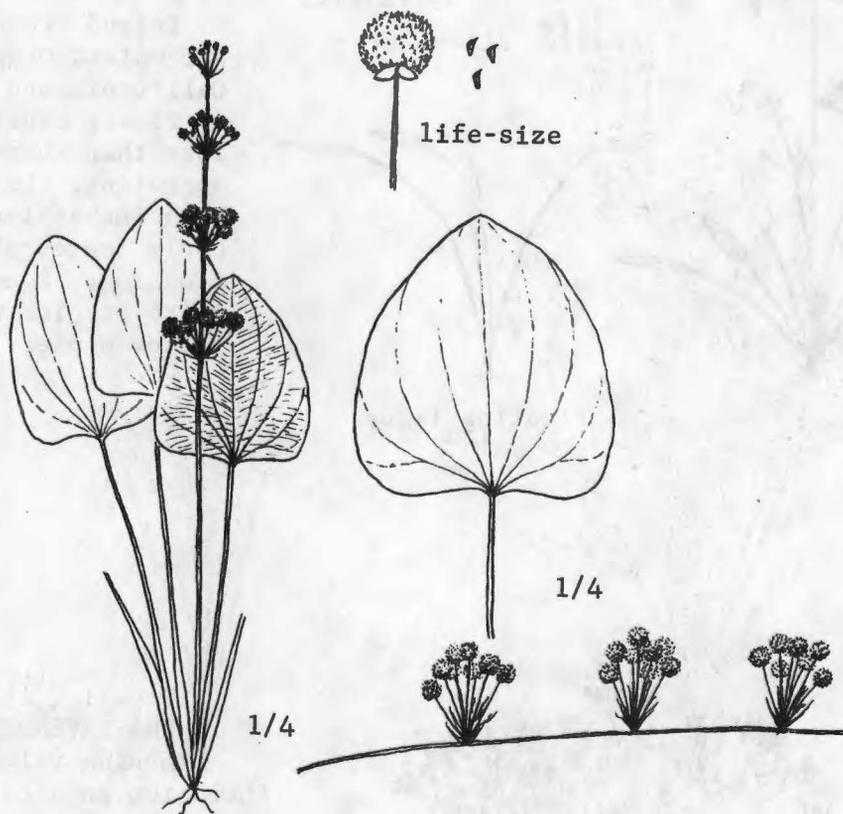


UPRIGHT BURHEAD, *Echinodorus berteroi*
 (*Echinodorus cordifolius* in Mason's Flora and Small's Manual,
Echinodorus rostratus in Fernald's Manual)

Inland fresh marshes; California to Arizona; South Dakota to Ohio, Texas, and Florida.

Flower clusters ankle-high to knee-high, usually higher than the leaves which have blades to 8 inches long. Early leaves often floating or under water. White flowers about 1/2 inch across, 3-petaled. Flowers throughout a cluster produce a ball of tightly packed seeds which, when ripe, look fine-bristly, because the seeds have a prominent upright point at the top.

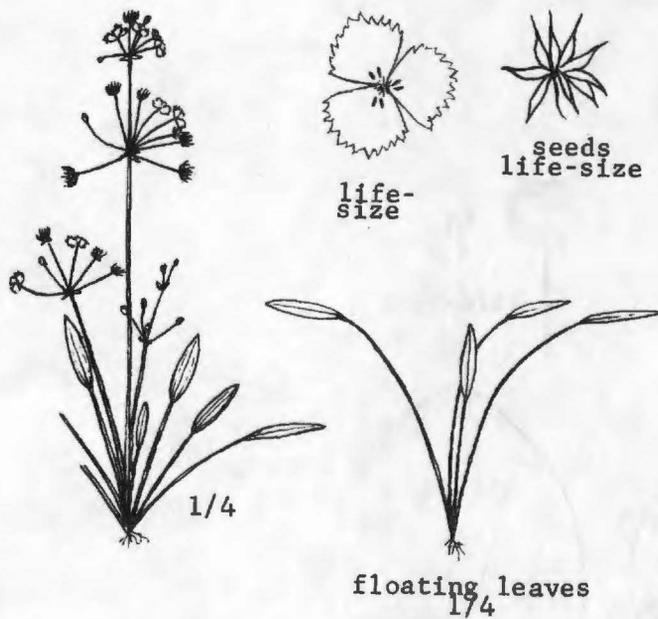
Resembles Creeping Burhead; but full-grown flower clusters of that species are usually horizontal, its ripe seed balls look fine-prickly, and its seeds have a tiny upslanted point on one side of the top.



CREEPING BURHEAD, *Echinodorus cordifolius*
 (*Echinodorus radicans*; not *Echinodorus cordifolius* of
 Mason's Flora and Small's Manual)

Inland fresh marshes; Kansas to D. C., Texas, and Florida.
 Flower clusters usually horizontal or sprawling, to 4 feet
 long. Leaf blades to 8 inches long. Flowers similar to
 Upright Burhead except a little larger. Ripe seed balls look
 fine-prickly, because the seeds have a tiny upslanted point on
 one side of the top.

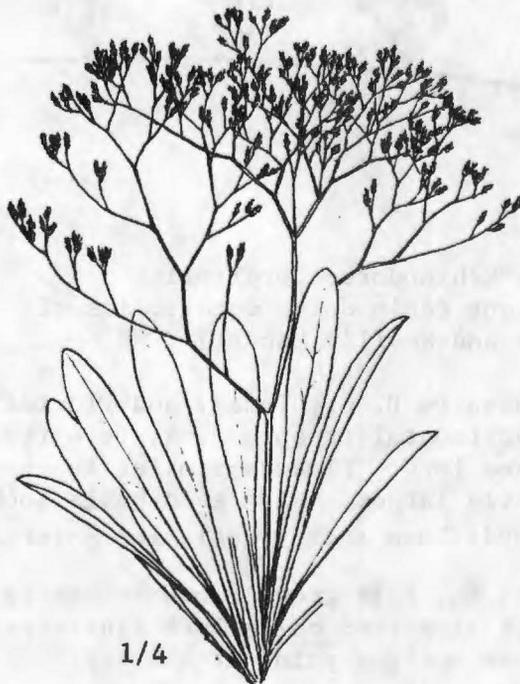
Resembles Upright Burhead; but full-grown flower clusters of
 that species are upright, its ripe seed balls look fine-bristly,
 and its seeds have a prominent upright point at the top.



DAMASONIUM,
Damasonium californicum

Inland fresh marshes and water; Oregon to California and Nevada.

Flower clusters to less than knee-high, or sprawling. Leaf blades to 3 inches long. Early leaves often floating. Flowers white or pink with yellow center.



SEA-LAVENDER

Limonium vulgare
(*Limonium angustatum*, *carolinianum*, *commune*, *nashii*, and *obtusilobum*)

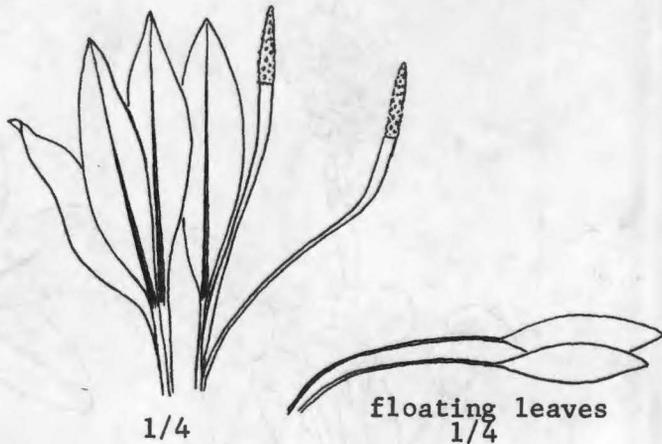
Coastal salt marshes and rarely inland alkali marshes; California; New Mexico; Newfoundland to Texas.

Flower clusters ankle-high to knee-high, two or three times as high as the leathery leaves. Flowers lavender, 5-petaled, close to each other along the branches.

GOLDENCLUB,
Orontium aquaticum

Inland and coastal fresh marshes and water; Kentucky to Massachusetts, Louisiana, and Florida.

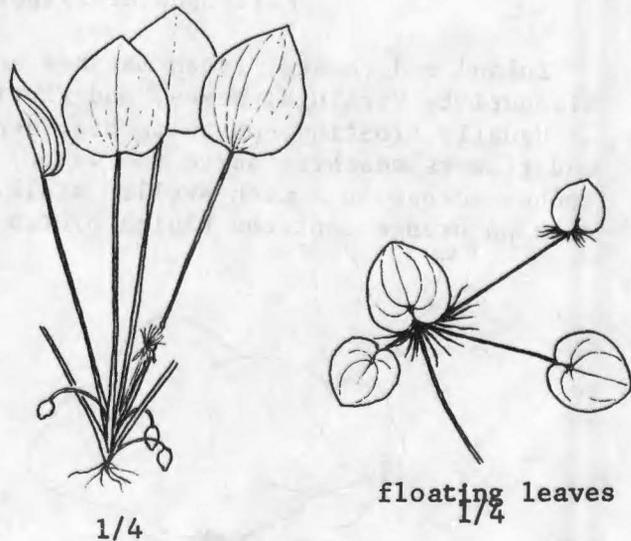
Leaves to knee-high, or floating, their upper side with a satiny sheen. Tiny flowers are in a yellow spike on an upwardly thickened white stalk.

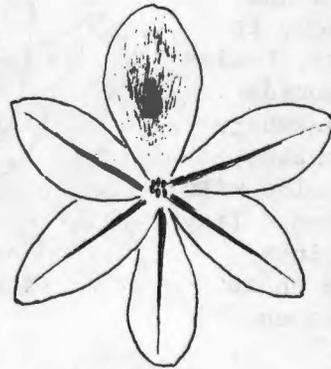
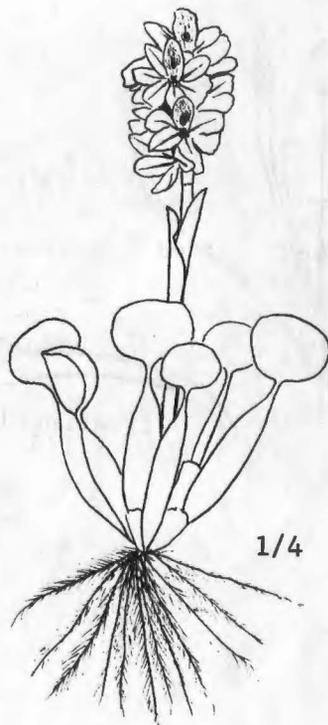


AMERICAN FROGBIT,
Limnobium spongia

Inland fresh marshes and water; Missouri to Delaware, Texas, and Florida.

There are two forms. One has rather leathery out-of-water leaves; the other has floating leaves which are thick and spongy in the center and are deeply notched at the base. Whitish, narrow-petaled female flowers grow on individual stalks at the base of a plant. They produce a roundish seed pod on a usually downcurved stalk.





**WATER-HYACINTH, *Eichornia crassipes*
(*Piaropus crassipes*)**

Inland and coastal fresh marshes and water; California; Missouri to Virginia, Texas, and Florida.

Usually floating, often in big, dense colonies, with leaves and flowers reaching above the water. Leaf blades 2 to 4 inches across on a much-swollen stalk. Flowers lavender, with an orange-centered bluish blotch on the uppermost petal.

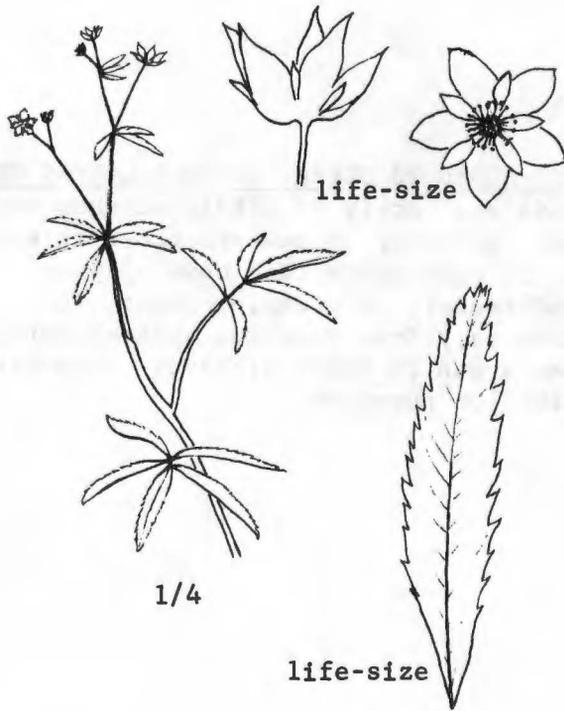


**WATERLETTUCE,
*Pistia stratiotes***

Inland fresh marshes and water; California to Florida.

Usually floating, often in dense colonies, with grayish-green, conspicuously veined leaves reaching above the water. Leaves to 9 inches long. Inconspicuous flowers are at bases of leaves.

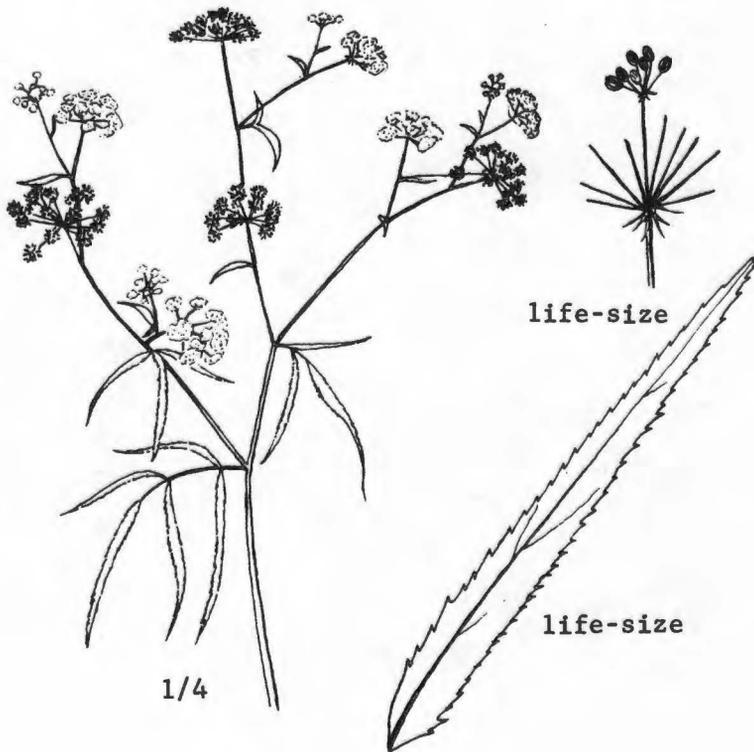
Group 7. PLANTS WITH TOOTH-EDGED TO DEEPLY DIVIDED LEAVES OR LEAFLETS; growing inland in fresh and rarely in alkali marshes and along the coasts in fresh to salt marshes. Stems are close to each other in groups, or scattered. In some kinds they come up year after year from underground, underwater, or creeping stems, in others each year from seed. They vary from sometime under water in Marsh Mermaidweed to higher than a man in Marsh Hibiscus. Flowers are white, greenish, yellow, pink, or purplish.



MARSH CINQUEFOIL,
Potentilla palustris

Inland fresh marshes;
Alaska to Greenland,
California, Wyoming, and
New Jersey.

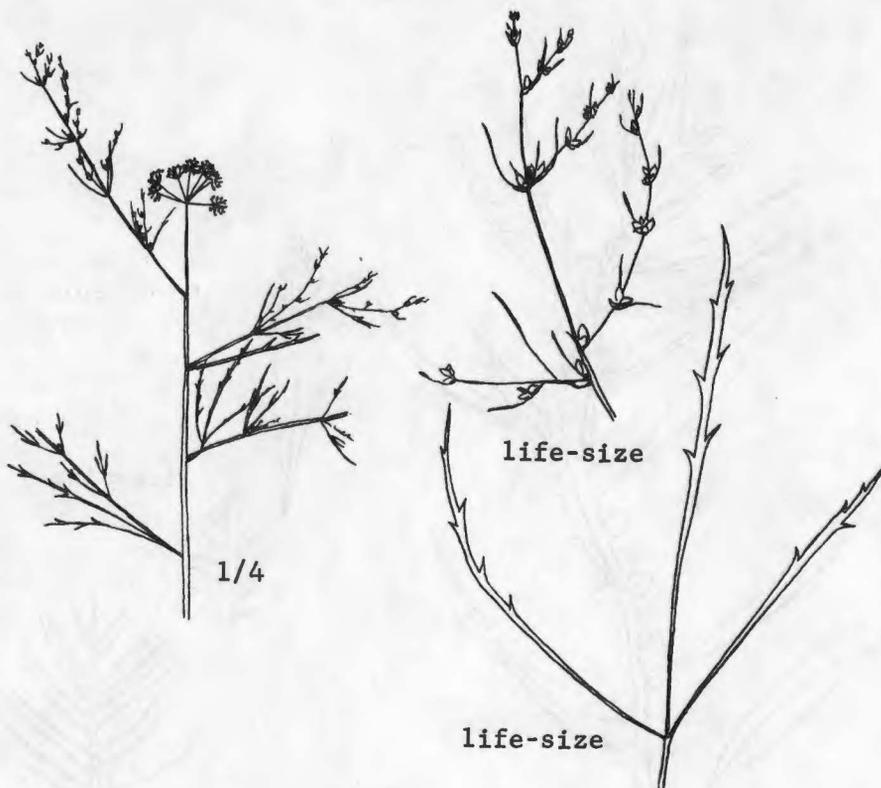
Stems horizontal at
base, ankle-high to knee-
high at top. Leaflets
green or gray above,
gray beneath. Flowers
purplish-red, sepals
twice as long as petals.



WATERPARSNIP,
Sium suave
(*Sium cicutaeifolium*
and *floridanum*)

Inland and coast-
al fresh marshes;
Alaska to Newfound-
land and the south-
ernmost States.

Stems knee-high
to as high as a man.
Leaves compound,
their leaflets to
6 inches long.
Flowers white and
tiny, in compound
umbels.



BULBLET WATERHEMLOCK, *Cicuta bulbifera*

Inland fresh marshes; Northwest Territories to Newfoundland, Oregon, Nebraska, and Virginia.

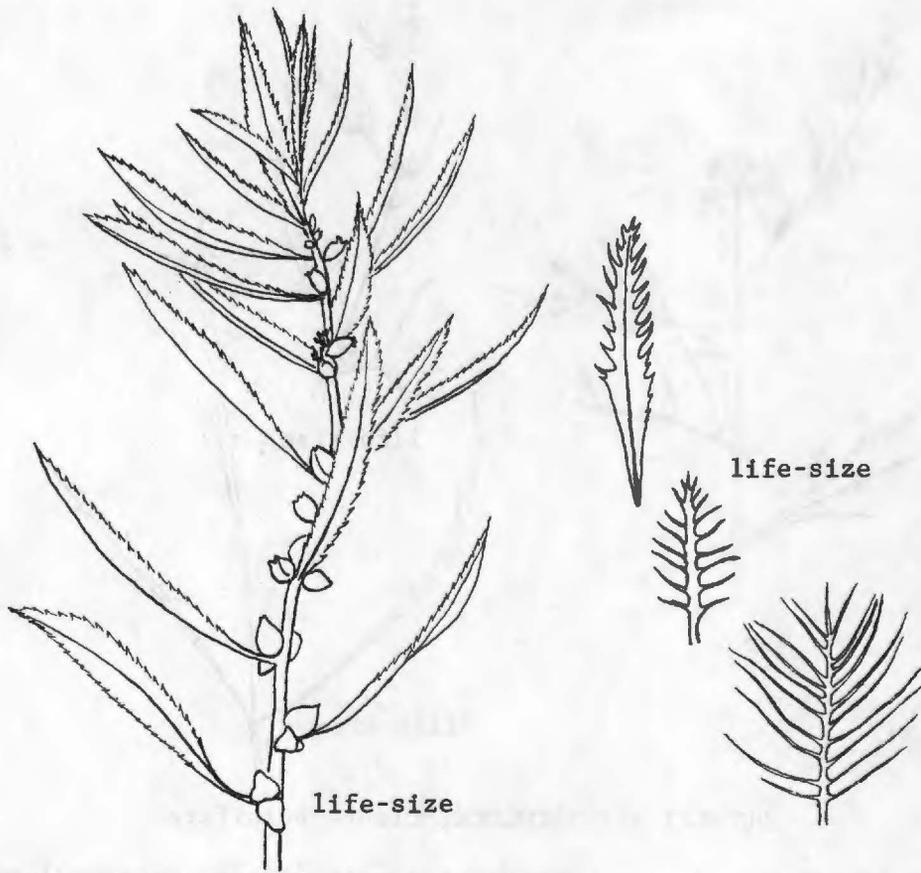
Stems knee-high to shoulder-high. Leaves compound, their leaflets to 2 1/2 inches long. Flowers white and tiny, in compound umbels; or sometimes no flowers. Bulblets common along upper branches. Roots very poisonous when eaten by domestic animals or people.

NODDING BEGGARTICKS, *Bidens cernua*
(*Bidens laevis* and *nashii*)

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

Stems ankle-high to as high as a man. Leaves to 8 inches long. Flower heads yellow. Sometimes they are only a closely packed circle of tiny flowers; more often these tiny flowers are surrounded by as many as 10 rays which are as much as 1 1/2 inches long. Ripe seeds have barbed points which make the seeds stick to clothing.





MARSH MERMAIDWEED, *Proserpinaca palustris*
(*Proserpinaca amblyogona* and *platycarpa*)

Inland and coastal fresh marshes; Wisconsin to Nova Scotia, Texas, and Florida.

Stems horizontal at base, ankle-high to knee-high at top. In winter, stems are under water and have featherlike leaves. In the growing season, the leaves vary from featherlike under water to tooth-edged and to 4 inches long on the out-of-water parts of stems. Each tiny greenish flower at the base of a leaf produces one seed. Ripe seeds are triangular in end view.



life-size

CUTLEAF MERMAIDWEED, *Proserpinaca pectinata*

Inland fresh marshes; Tennessee to Nova Scotia, Texas, and Florida.

Stems horizontal at base, ankle-high to less than knee-high at top. Leaves all featherlike, whether under water or out of water. Seeds similar to Marsh Mermaidweed.

PARROTFEATHER,
Myriophyllum brasiliense
 (*Myriophyllum proserpinacoides*)

A common aquarium plant, originally from South America, which has become established in inland fresh marshes and water; Idaho to California and Arizona; Kansas to New York, Texas, and Florida.

Leaves firm and grayish-green on the short part of stems above water; limp and with longer, narrower leaflets on the part of stems under water.

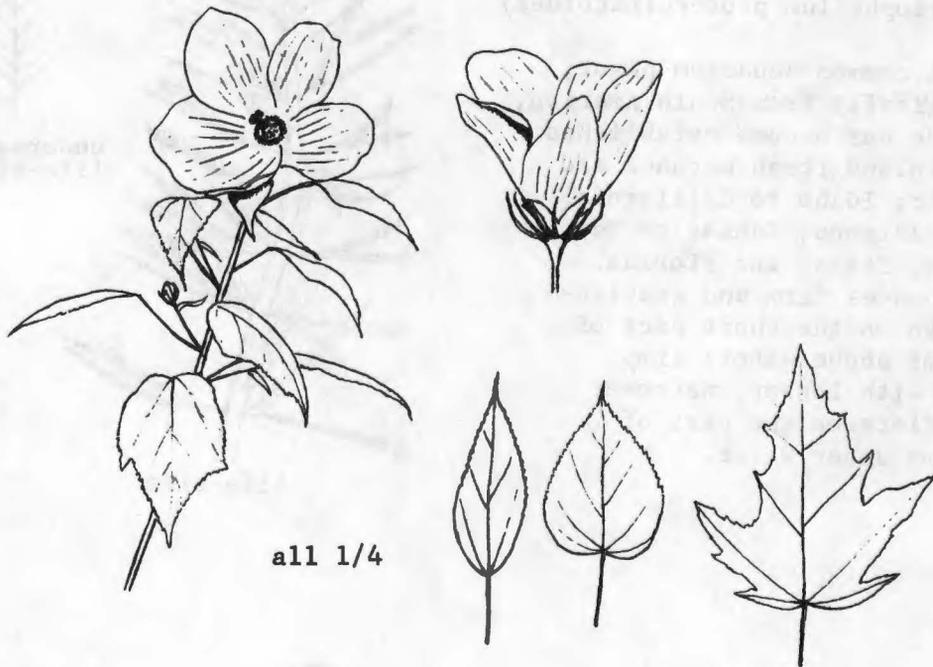


WATER-PARSLEY,
Oenanthe sarmentosa

Inland fresh marshes; Alaska to California.

Stems sprawling, 2 to 5 feet long. Leaves compound, their leaflets to 2 1/2 inches long. Flowers white and tiny, in compound umbels.





MARSH HIBISCUS, *Hibiscus moscheutos*
 (*Hibiscus californicus, grandiflorus, incanus, lasiocarpus,*
oculiroseus, and palustris)

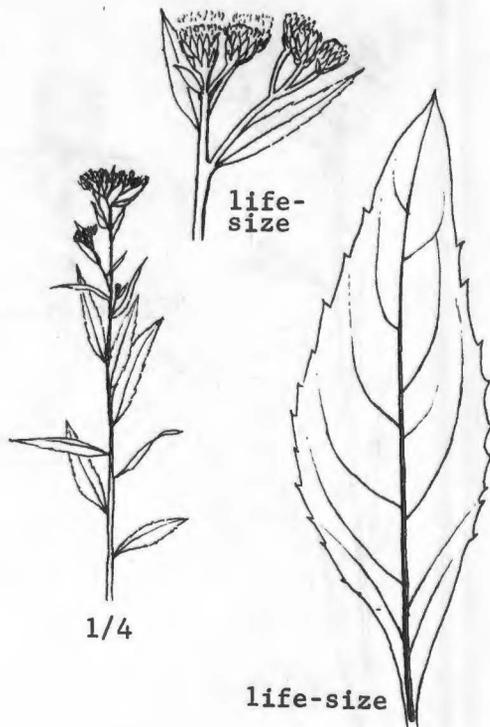
Inland fresh marshes and coastal fresh and brackish marshes;
 California; Kansas to Massachusetts, Texas, and Florida.

Stems waist-high to higher than a man, usually in clumps.
 Leaves to 8 inches long, their upper side hairless or hairy,
 their under side hairy. Flowers white or pink, with or without
 a red center, 4 to 8 inches across. Seed pods hairless or hairy.

SALTMARSH PLUCHEA,
Pluchea purpurascens
 (Pluchea camphorata in Mason's
 Flora and Small's Manual)

Coastal brackish and inland
 alkali marshes; California to
 Kansas and Texas; Massachusetts
 to Texas.

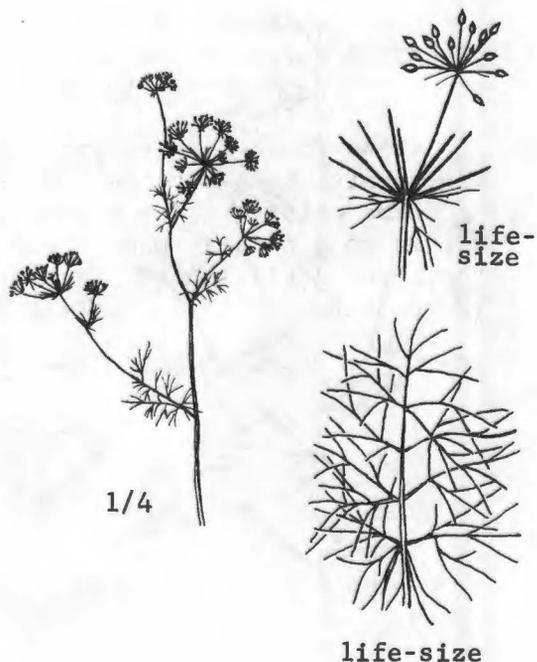
Stems less than knee-high to
 waist-high. Leaves to 5 inches
 long. Flowers pink or
 purplish.



MOCK-BISHOPWEED,
Ptilimnium capillaceum

Coastal brackish and fresh
 marshes and inland fresh
 marshes; Missouri to Massachu-
 setts, Texas, and Florida.

Stems ankle-high to less than
 waist-high. Leaves compound,
 their thread-thin leaflets to
 one inch long. Flowers white
 and tiny, in compound umbels.



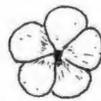


life-size

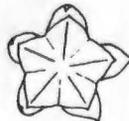
MARSH ERYNGO,
Eryngium aquaticum
 (*Eryngium floridanum*, *ravenelii*, and *virginianum*)

Coastal fresh and brackish marshes and occasionally inland fresh marshes; New Jersey to Texas and Florida.

Stems knee-high to shoulder-high. Lower leaves long-stalked and with blades to a foot long, their edges often only slightly toothed. Flowers whitish and tiny, packed in bristly balls.



1/4



seed pod
 life-size

SALTMARSH MALLOW,
Kosteletzkya virginica
 (*Kosteletzkya althaeifolia*)

Coastal salt and brackish marshes; New York to Florida and Texas.

Stems knee-high to shoulder-high. Leaves to 6 inches long. Flowers pink, 1 1/2 to 3 inches across.

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As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of this department of natural resources.

The Department works to assure the wisest choice in managing all our resources so that each shall make its full contribution to a better United States now and in the future.

