

INTERAGENCY RIPARIAN/WETLAND PLANT DEVELOPMENT PROJECT



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A Reference Guide
for the Collection and Use of
Ten Common Wetland Plants
of the
Great Basin and Intermountain
West

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Carex aquatilis Wahlenb.

Water Sedge

HABIT: This monoecious sedge forms clumps of plants with long slender rhizomes.

STEMS: They are quite slender and erect, being obtusely triangular near the base to sharply triangular above. They can develop singly or several together. The stems exceed the leaves, growing to heights of 20-100 cm. They are fairly rough near the inflorescence.

LEAVES: They are from 2-7 mm wide, glaucous, nearly flat, and well developed.

SPIKES: There are usually 3-7 spikes that are cylindrical and 1.5-5 cm long. The terminal spike is staminate and the lower stouter flowers are pistillate. The terminal spikes flower from June through August.

FRUITS: The fruit is a lenticular achene about 1.5 mm long surrounded by a perigynium that is pale green to tan with a tint of reddish brown. It is obovate (broadest near the apex) without being inflated and 2-3 mm long. For collection and propagation methods see *C. nebrascensis*.

ECOLOGY: It can be found in saturated soil near margins of water bodies. It is one of the best sedges for bank stabilization because of its large, deep root system that reaches over 1.2 m in length. It is an obligate wetland plant that is found from low to high elevations, usually higher than *C. nebrascensis*. It is circumboreal in the higher latitudes, and extends south from the eastern US to California, east of the Cascades. Its wildlife value is similar to other sedges although it is less grazed by cattle.



Carex nebrascensis Dewey

Nebraska Sedge

HABIT: A perennial sedge that may reach 90 cm in height and forms dense stands from rhizomes. It may have a bluish tint to the leaves. Plants are monoecious with the staminate (male) spikes above the pistillate (female) spikes.

STEMS: The stems are upright, stout, triangular and may be longer or shorter than the leaves. They are spongy inside. The edges are usually slightly rough and without joints.

LEAVES: They are alternate, glaucous, and usually 3-12 mm wide. They are enclosed at the base by a sheath that is yellow to brown. Usually with an overall bluish tinge.

SPIKES: The flowers are most often borne on separate male or female spikes on the same plant. There are generally 1-2 male spikes above the 2-5 female spikes. The male or staminate spikes are usually sessile, narrow, and about 1.5-4 cm long, while the female or pistillate spikes are on a short peduncle and 1-5 cm long.

FRUITS: They are lenticular achenes that are up to 2 mm long. They are surrounded by a light brown to brown perigynium which is about 3-3.5 mm long with from 5-10 veins and a short beak. You will need a sturdy pair of clippers to cut the heads off. The achenes ripen in late August to October. About 1/2-3/4 of a paper grocery sack will produce 1-2 cups. Germination results are increased by removing the perigynia, scarifying the achene, and then prechilling it in water with about 8g of sphagnum moss for 30 days.

ECOLOGY: It is an obligate wetland plant that will grow in a wide range of soils and will tolerate some alkaline conditions. It is found from the Cascades to North Dakota northeast to Colorado and throughout the Rocky Mountains. The seeds are eaten by many types of birds and waterfowl. The plant is eaten by cattle and other grazing animals.



***Carex rostrata* Stokes**

Syn: *Carex rostrata* var. *ambigens* Fern.

Beaked Sedge

HABIT: This monoecious perennial is up to 120 cm tall and forms a sod or large clump by spreading from short, dark rhizomes and stolons. It is monoecious with the staminate flowers being above the pistillate flowers.

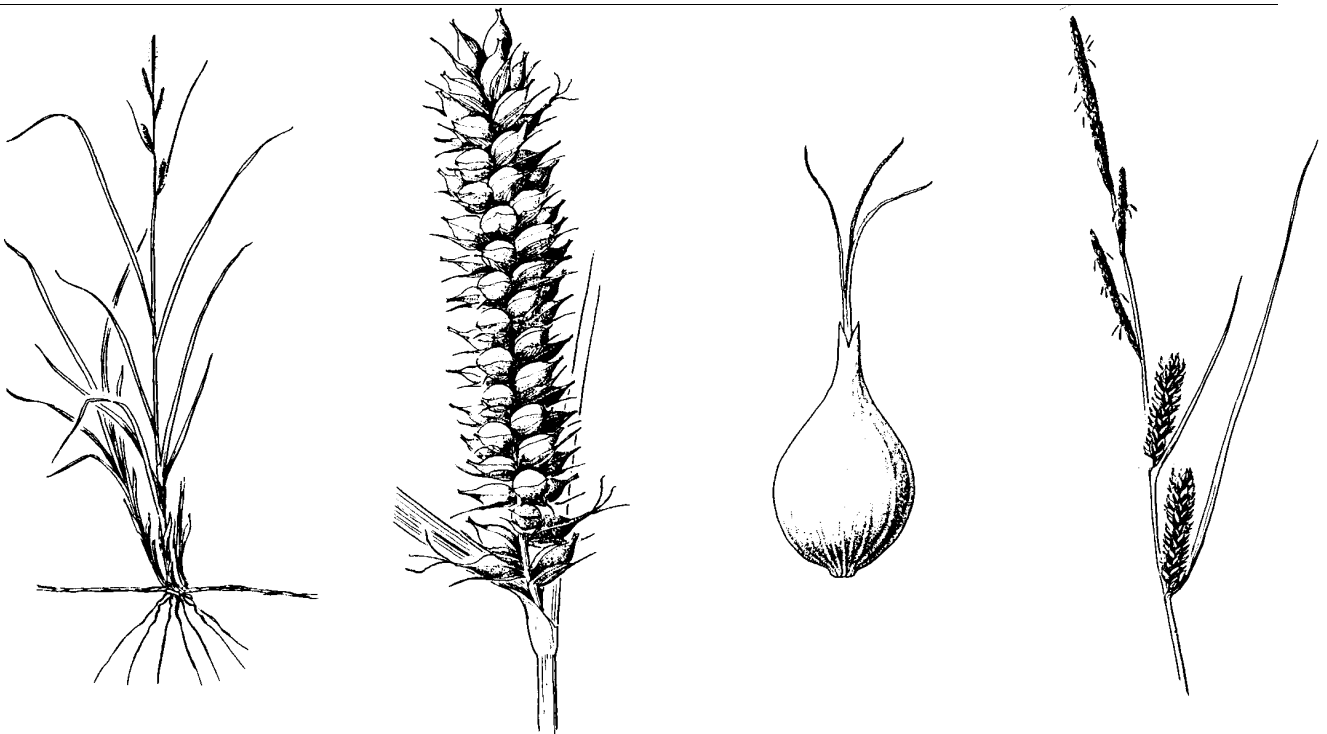
STEMS: They arise singularly or several together. They are triangular and smooth toward the spongy base.

LEAVES: The leaves are up to 12 mm wide, elongated, and flat, but thick. Upper leaves tend to be long, yellow-green and exceed the stems. They are not hairy, but have a conspicuous crosswall and are somewhat whitish.

SPIKES: They are on long cylindrical spikes with no or a very short peduncle. Staminate flowers occur above the pistillate flowers. The lowest bract is longer than the spike.

FRUITS: The achenes are triangular and approximately 2.5 mm long with a persistent twisted style. They are surrounded by a perigynium that is somewhat inflated, egg-shaped, 3-8 mm long, and yellowish to green. The perigynium has several ribs and tapers to a beak with two short tips that spread as it matures. For achene collection and germination see *C. nebrascensis*.

ECOLOGY: A very common sedge that prefers perennially wet areas at lower to fairly high elevations. It has very good soil holding capabilities, and is not grazed by cattle. This makes it a good choice for bank stabilization in overgrazed areas. It is found from Alaska to Newfoundland and from California to West Virginia. The achenes provide food for many types of waterfowl and birds.



Eleocharis palustris (L.) Roemer & J.A. Schultes

Creeping Spikerush

HABIT: This herbaceous perennial is found in large clumps that are spread by rhizomes which can make a monostand. They can appear from light to dark green and 10 cm to 1.2 m in height. They have a single inflorescence (spikelet) on the terminal end.

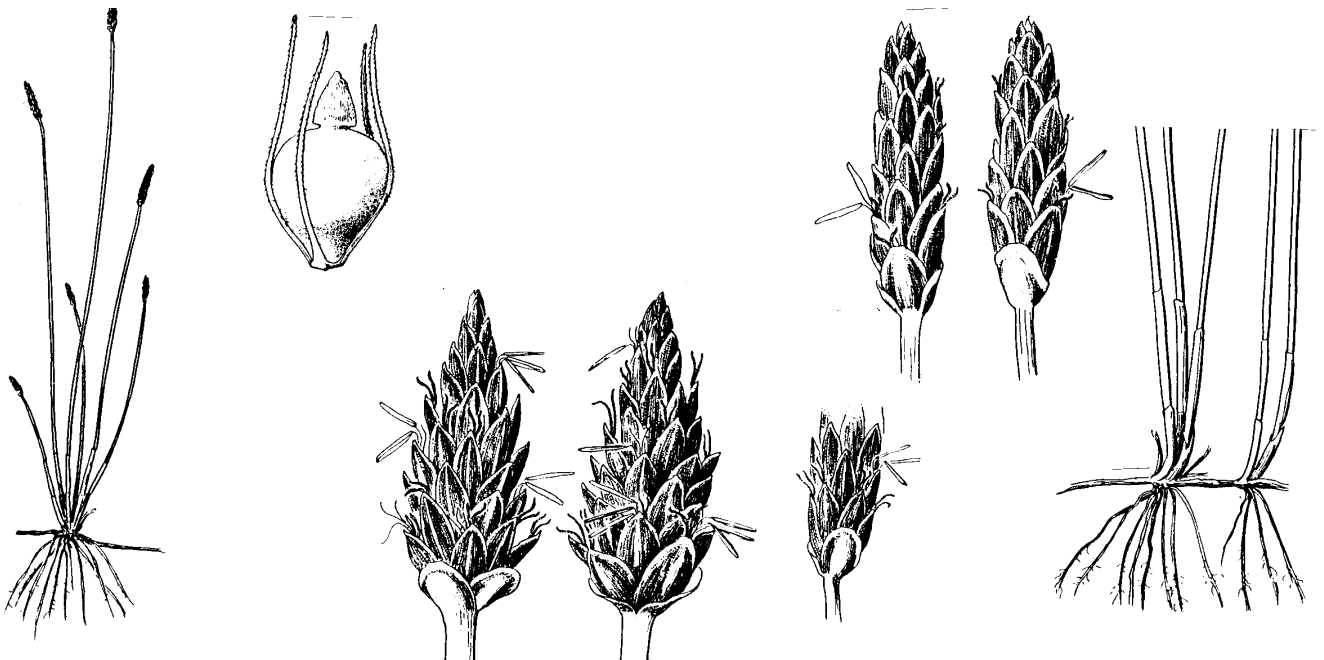
STEMS: They are mostly oval, aerenchymous, and erect with the mature stems dark green.

LEAVES: The leaves consist merely of a reddish sheath that is found at the base of each stem.

SPIKES: The flowers contain both male and female parts (perfect) in a solitary terminal spikelet. The spikelets are from 5-25 mm, brown lance, or egg-shaped. The scales are arranged in spiral with the bottom several scales being empty of seed. The flowering period is from June through September.

FRUITS: The fruits are achenes that are about 1.5-2.5 mm long including the tubercle. It is surrounded by four (up to eight) bristles which extend past the achene. It is one of the easiest to collect by simply cutting the terminal ends with a grass clippers and placing the seed heads into a paper bag. A standard grocery bag will produce about 2/3 to 1 cup of seed.

ECOLOGY: This is an obligate wetland species that will grow in fresh water and tolerate alkaline soils that are seasonally, regular, or permanently saturated throughout the growing season. It occurs at low to moderate elevations across the northern US and southern Canada and similar areas globally and can be found commonly around wetlands, ponds, lakes, reservoir drawdown areas, and wet pastures. This is a very common plant which the seeds, culms, and rhizomes are eaten by many species of waterfowl. Muskrats, rabbits, and cattle will eat the seeds and plant material. The tops are very palatable to cattle especially after seed ripen.



Juncus balticus Willd.

Baltic Rush

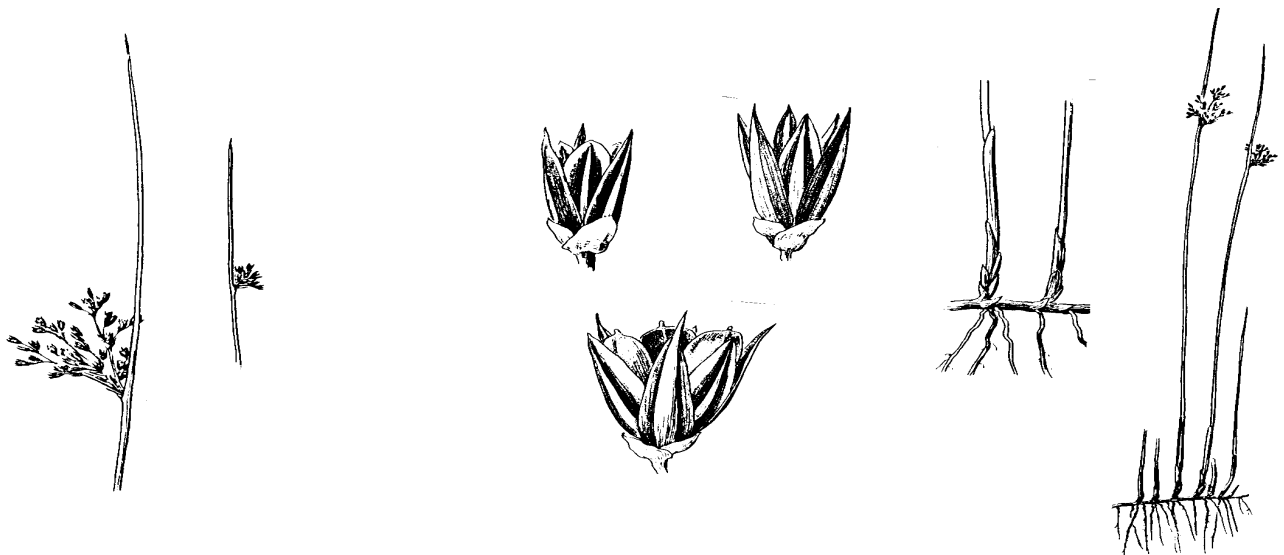
HABIT: This herbaceous perennial grows to about 30-90 cm tall with straight or wiry roundish, dark green stems in singles or in dense clumps. It forms dense monotypic stands from dark to black rhizomes. Most of the roots will be found in the upper 20 cm of the soil profile, but some will go as deep as 40 cm.

LEAVES: The leaves consist merely of one or more green to dark bladeless sheaths at the base of the stem.

PANICLE: The perfect flowers are found laterally off the stem in a panicle. They can be pedicellate or sessile. The flowering period is from late May to August, occasionally to September.

SEEDS: The seeds are very small and may be broadly ovoid to ellipsoid. They are found in a capsule. They are finely striated and range from gray to reddish or brown, and usually not more than 0.6 mm. There are about 187,500 seeds/oz. To collect, simply cut the terminal ends just below the panicle and place in a paper sack. The static charge associated with plastic collection bags will cause the seed will cling to the sides of the bag and be difficult to get off. Collectors need to be aware that the seed can be lost if they tip the "capsule" to the side before putting it in the collection bag. Many collectors think that pieces of the capsule are the seed, but the real seed looks like ground pepper in the palm of the hand.

ECOLOGY: *Juncus balticus* is found in moist meadows, swales, slough, ponds, lakes, riparian areas, and saturated areas around springs. It can tolerate shade and seasonally, regularly, or permanently inundated water regimes, but mostly found on sites with little standing water or only saturated soil and tends to move towards drier sites. It is a facultative wetland plant that tolerates alkaline to calcareous soils. It is found from desert-shrub to occasionally subalpine and alpine zones and is nearly circumboreal. It is used by a wide range of mammal and avian species for food and habitat. It helps improve habitat for amphibians and spawning areas for fish. Cattle will hold off grazing it until late in the season after more palatable plants are eaten.



Polygonum amphibium* var. *stipulaceum Coleman

Water Smartweed

HABIT: It is a perennial that is usually an aquatic floating leaf plant. It may be found on saturated soils where it produces rhizomes and stolons. The flowers usually rise above a dense mat of leaves.

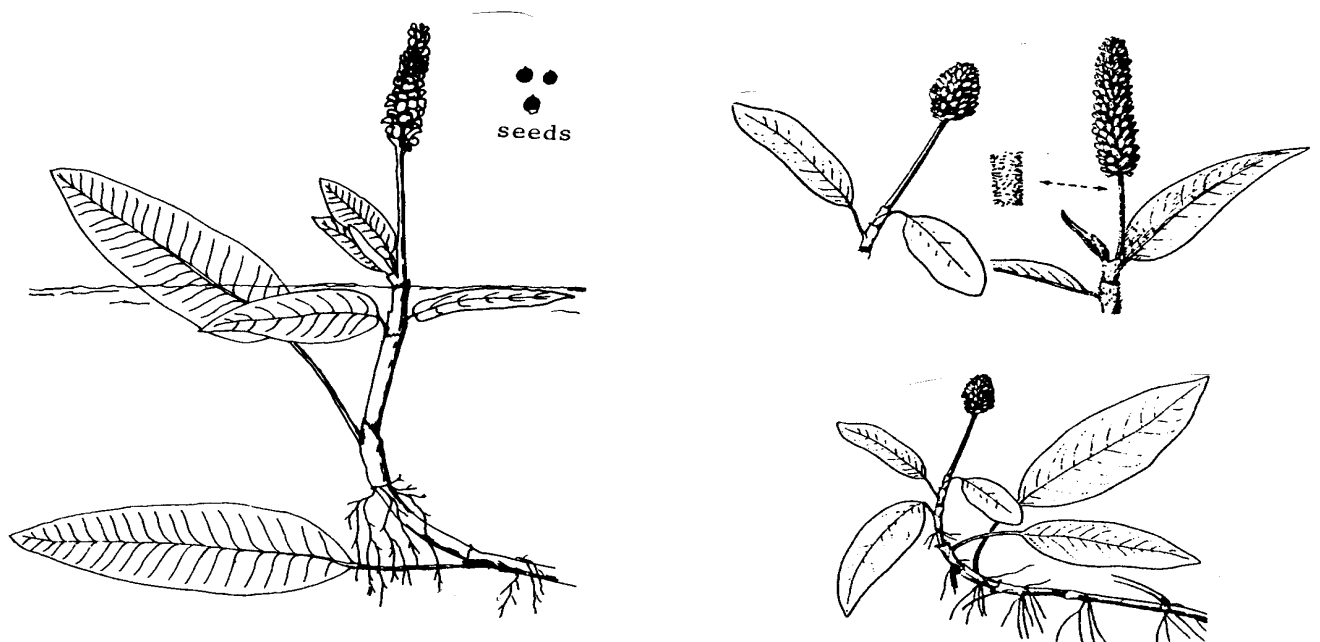
STEMS: They have a jointed appearance at each node. The nodes are surrounded by a somewhat hairy sheath. The stems may reach up to 2 meters or more in length.

LEAVES: The leaves are alternate and elliptical to lance-shaped with entire margins. The leaves are generally pointed at the tip and heart-shaped at the base and up to 15 cm long.

SPIKES: The inflorescence is usually a solitary spike, egg-shaped or oblong, with a stalk that may be as long as 15 cm. The spikes are bright pink and around 5 cm long. Each flower has five petal-like segments that are about 6 mm in length. The flowering period is generally from June through September.

FRUITS: Lenticular achenes that are smooth, hard, with a dark brown seed coat. Harvesting the fruits is accomplished by cutting off the heads with a grass clipper and placing them into a bag. It takes approximately 40 well-developed heads to yield 1 cup of seed.

ECOLOGY: It is an obligate wetland plant that is found on many ponds, lakes, and shores of slower moving waters. Most common in lower to mid elevations from Newfoundland to Washington and California to Connecticut. It is a favorite of many species of ducks, geese, shorebirds, songbirds, and small mammals. This genus is sometimes considered a weed. It can take over as the dominant species. Another common species that is found in many of the same areas is *Polygonum amphibium* var. *emersum* Michx. (*P. coccinium*).



***Scirpus acutus* Muhl. ex Bigelow.**

Hardstem Bulrush

New Name: *Schoenoplectus acutus* var. *acutus* (Muhl. ex Bigelow) A. D. Love

HABIT: A herbaceous perennial that forms large colonies by spreading rhizomes. They can reach 2-3 meters in height.

STEMS: The stems are round, spongy, and dark green. They may be up to 3-5 cm thick at the base.

LEAVES: The leaves consist of basal sheaths with short blades or merely bristle tipped.

PANICLE: They are in a terminal panicle with up to 50 or more spikelets on short pedicel or sessile. Each spikelet may be up to 15 mm long and gray-brown in color. The panicle is exceeded by 3-10 cm long lateral bract. It flowers from June through mid-August.

FRUITS: They are achenes that are light green to dark brown and up to 2.5 mm long. They are small, lenticular with a minute apiculus. They are concealed by scales. The seed usually ripens around the end of August through September. There are about 35,000 seeds/oz. It is very easy to collect by cutting off the seed heads with a clippers and placing them in a paper grocery bag. One full bag of bulk material will yield about 1-2 cups of seed.

ECOLOGY: It is an obligate wetland plant that does best in shallow water, but can tolerate up to 1.5 meters for part of the growing season. They are found from low to mid elevations. They will tolerate saline soils. They are fairly common in wetlands across the US. They are well adapted for bank stabilization and erosion control. The achenes and rhizomes are a very important food source for many types of waterfowl, mammals, upland gamebirds, and some songbirds. Several fish will use the plants in shallow water for breeding cover. Muskrats will use the stems for food and den construction. It is one of the most important plants for nesting western grebes. This plant is able to uptake large amounts of nutrients and harmful bacteria and remove them from soil and water. This species is sometimes considered *S. lacustris* ssp. *validus*. *S. validus*, soft-stemmed bulrush, is also known as *S. lacustris* ssp. *glaucus*.



Scirpus maritimus L.

New Name: *Bolboschoenus maritimus*

Alkali Bulrush

HABIT: It is a stout rhizomatous perennial that often develops tubers which can form large colonies. These plants can range from 20-150 cm tall.

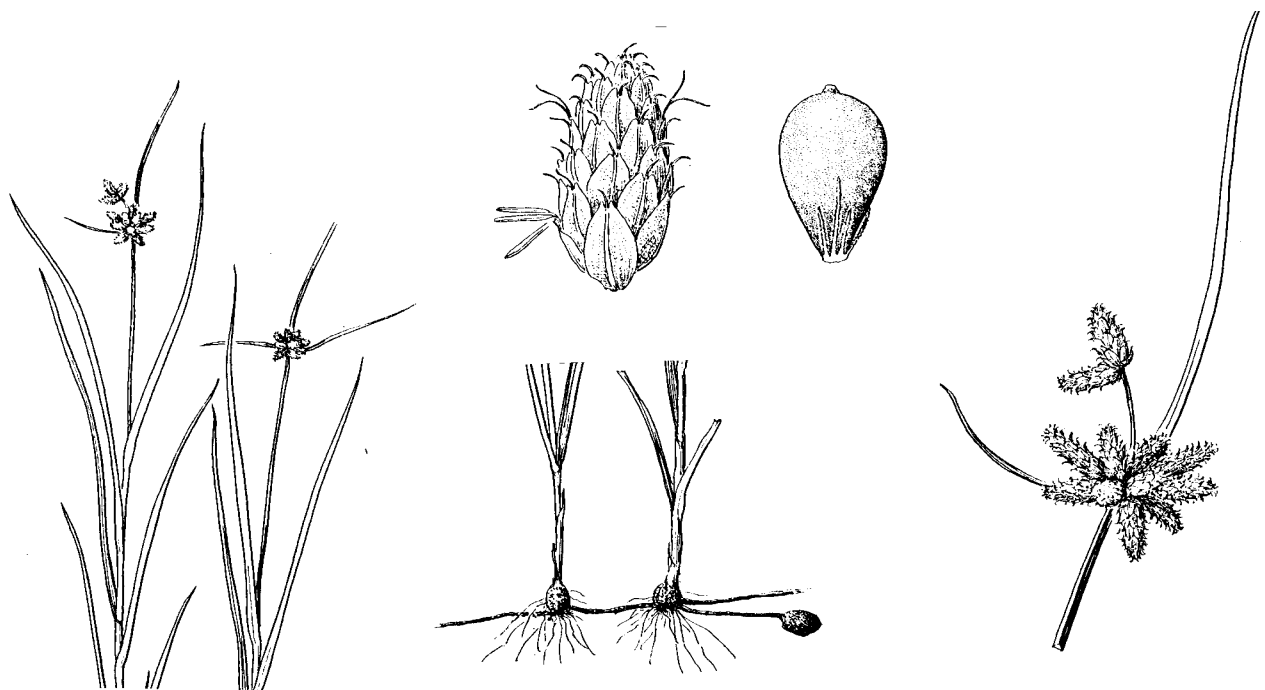
STEMS: They are sharply triangular with concave sides. They usually arise singularly. The stems are usually glabrous.

LEAVES: There are usually several well developed leaves that are from 3-10 mm wide and nearly flat. They are most often borne below the midpoint of the stem.

SPIKELETS: There are 3-20 terminal spikelets that are quite compact and may be surpassed by 2-4 involucre bracts. The spikelets are slightly rounded, blunt, and approximately 1-2 cm long by 6-10 mm wide. The scales are somewhat hairy with a short awn that protrudes from the tip. The flowering period is from July to October.

FRUITS: Lenticular achenes that are about 2-4 mm long and tan to greenish-brown. They have an inconspicuous beak and several reduced bristles that arise from the base, but mostly do not extend past the midpoint of the achene. The achenes usually ripen and are ready for collection by the end of September. The large seed heads allow the collection to be made quickly, but care should be taken because of the sharp edges on the leaves and stems which can cut fingers. To harvest, cut the heads with a pair of clippers. A full paper grocery sack will produce about 2 cups of seed.

ECOLOGY: This is an obligate wetland plant that is found in wet marshy type areas or lake shorelines with alkaline soils. Thick stands will help slow erosion by braking wave action. It can be found throughout North America from low to mid elevations. It provides cover for gamebirds, nesting waterfowl, and spawning fish.



***Scirpus pungens* Vahl.**

New Name: *Schoenoplectus pungens* var. *pungens* (Vahl) Palla

Threesquare or American Bulrush

HABIT: It is a perennial plant with spreading rhizomes that form large colonies. It will grow from 15 to 100 cm high.

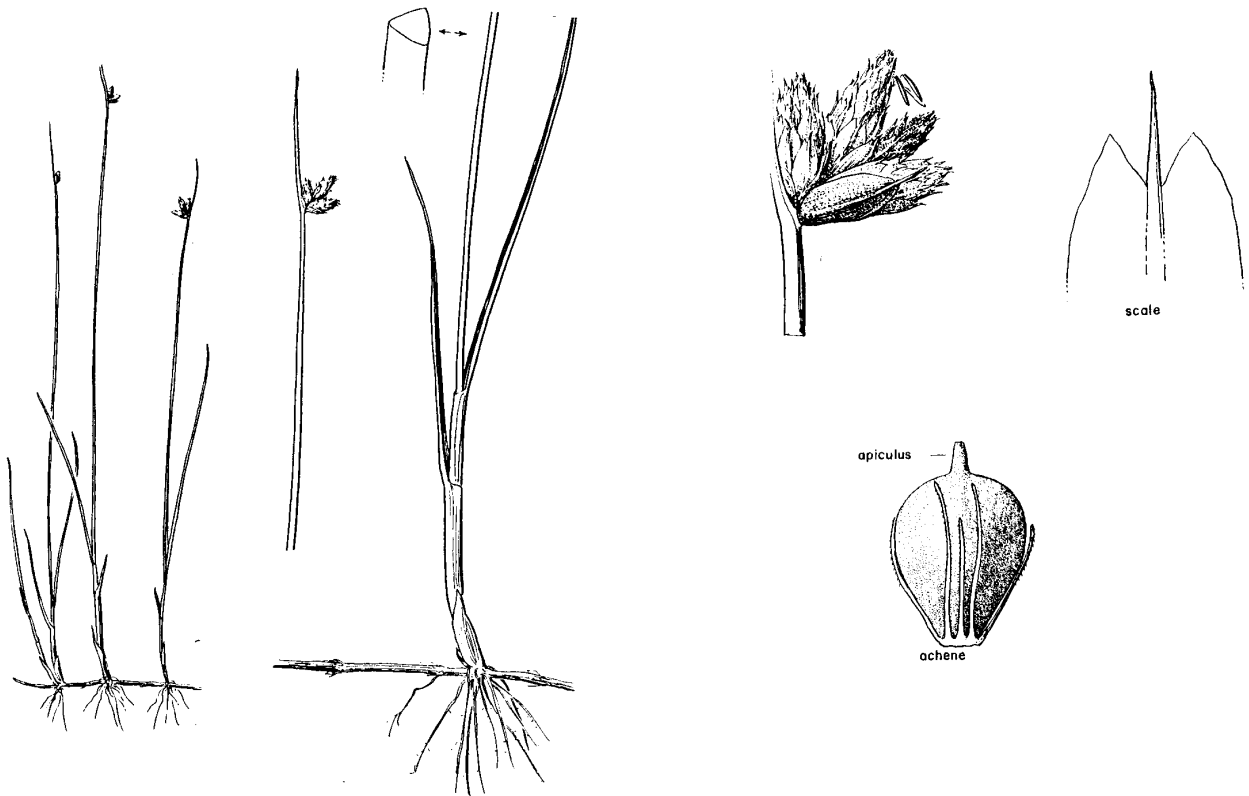
STEMS: May arise singularly or in small clusters. They are convex, triangular and glabrous.

LEAVES: There are 1-3 leaves per stem. The basal leaf sheaths may have blades around 2-4 mm wide and channeled.

SPIKELETS: They are a lateral cluster of 1-7 subtending sessile spikelets with an involucre bract which appears to be an extension of the stem that extends above the cluster. The flowering periods is from June to September.

FRUITS: They are lenticular achenes, dark green to brown, about 2-3 mm long, beaked and, may have up to 6 bristles arising from the tip. There are approximately 14,000 seeds/oz. The seed begins to ripen in September. Use a hand clippers to cut off the seed heads. A paper grocery bag of bulk material will yield about 1/2 to 2/3 cup of seeds.

ECOLOGY: It is a facultative wetland plant that is very common and found on several continents from low to mid elevations. It does best in water up to 15 cm and is found on stream shores or other wet areas. It will also tolerate periods of drought. It has been commonly misinterpreted as *S. americanus*. They are an important food source for many species of waterfowl, while the roots are a major source of food for migrating snow geese. See *S. acutus* for other wildlife benefits.



Typha latifolia L.

Common cattail

HABIT: Tall, stout, perennial monoecious plants that spread by rhizomes and form dense colonies. They may reach from 1-4 m in height with upright leaves and large, dense spikes that are terminally formed.

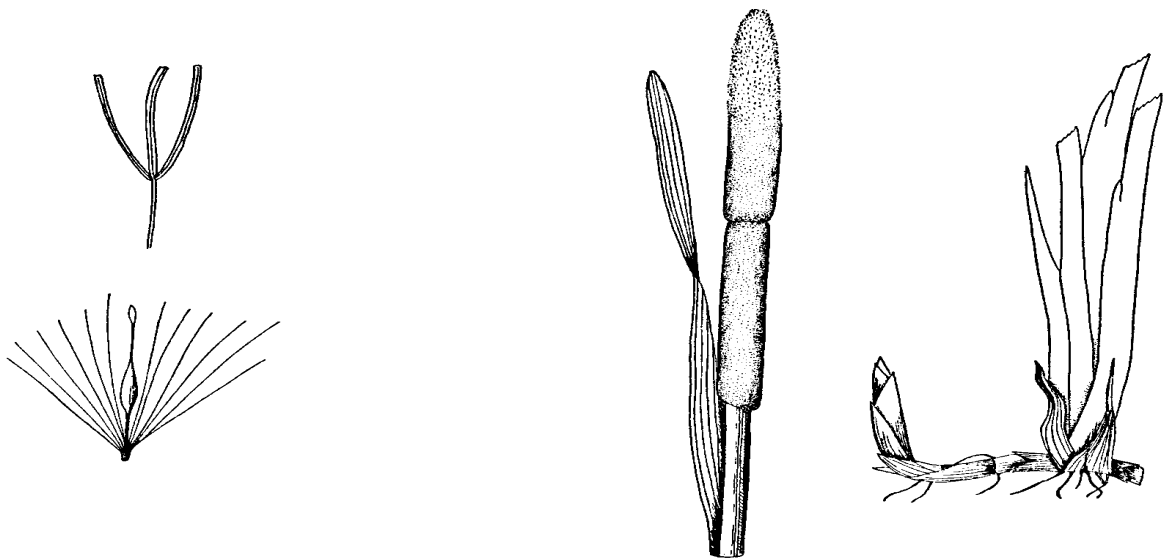
STEMS: The stems are simple, pithy, erect and are covered for much of the length by overlapping leaf sheaths.

LEAVES: Leaves are erectly ascending and alternate, flat and somewhat spongy. They can be from 5-20 mm wide, the auricles of the sheath are round to truncate, but do not surpass the blade base.

SPIKES: The flowers are very small, numerous, dense, and aggregated into a terminal cylindrical spike. The lower portion is dark brown, pistillate and 1-4 cm thick by 15-20 cm long. The upper staminate portion is from 5-15 cm long, up to 2 cm thick, and becomes darker brown with age. Flowering begins in June.

SEEDS: They are ellipsoidal nutlet about 1 mm long with many long slender hairs that arise from the base. The seeds are designed to float on the water after they have been dispersed by wind. Its main method of reproduction is vegetatively by rhizomes. Fruiting starts in late July and lasts to September. The seed can be collected at this time and put into dry storage. There are approximately 875,000 seeds/oz, including the pappus.

ECOLOGY: Cattails are an obligate wetland species that grow in still or slow moving water up to three feet deep. Many times they become a dominant species even as much as becoming a monotypic stand. It will create an extensive system of rhizomes which makes it a great bank stabilizer that will also tolerate periods of drought. *T. latifolia* will tolerate salinity quite well. It requires full sun. The common cattail is found throughout North America and it will hybridize with other *Typha* species when ranges overlap. Cattails are a very important plant when it comes to usefulness to man and wildlife. Nearly every part of the plant can be utilized in some way from food source to shelter.



GLOSSARY

Achenes-	A small, dry, 1-celled, 1-seeded indehiscent fruit, the seed attached to the pericarp at 1 place.
Aerenchymous-	A tissue in certain aquatic plants, consisting of thin-walled cells having large, intercellular spaces adapted for the circulation of air within the plant.
Apiculus-	A small generally sharp point or tip.
Auricles-	An small, projecting, ear-shaped lobe or appendage.usually at the base of an organ.
Awn-	A slender, genrally terminal bristle.
Circumboreal-	Occuring around the globe in boreal forest zone of the Northern Hemisphere.
Glabrous-	Smooth, without hairs or glands.
Inflorescence-	Aflowering cluster of a plant or the arrangement of the flowers on the axis.
Involucral bract-	A whorl of distinct or united leaves or bracts subtending a flower or an inflorescence.
Monoecious-	Plants unisexual, but the staminate and pistillate flowers are found on the same plant.
Pappus-	Tufts of hairs attached to achenes of the aster family.
Pedicel-	The stalk to a single flower in an inflorescence; also used as a stalk to a grass spikelet.
Pedunculate-	Borne on a pedicel.
Perigynium-	A leathery, sac-like structure enclosing the achene of <i>Carex</i> species.
Pistillate-	Provided with one or more pistils, used when stamens are lacking.
Prostrate-	Lying flat on the ground.
Sessile-	Attached directly by the base, without a stalk.
Staminate-	Provided with one or more stamens, but no pistal.
Truncate-	Cut straight across.

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