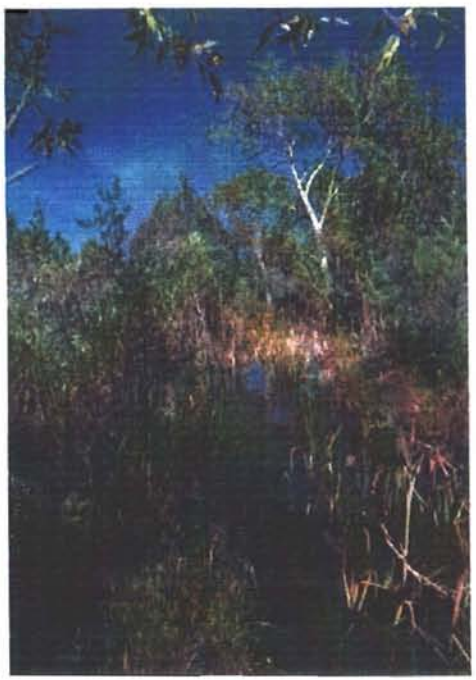
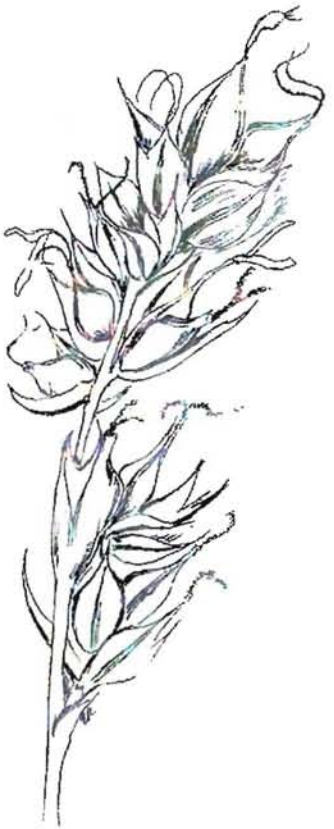
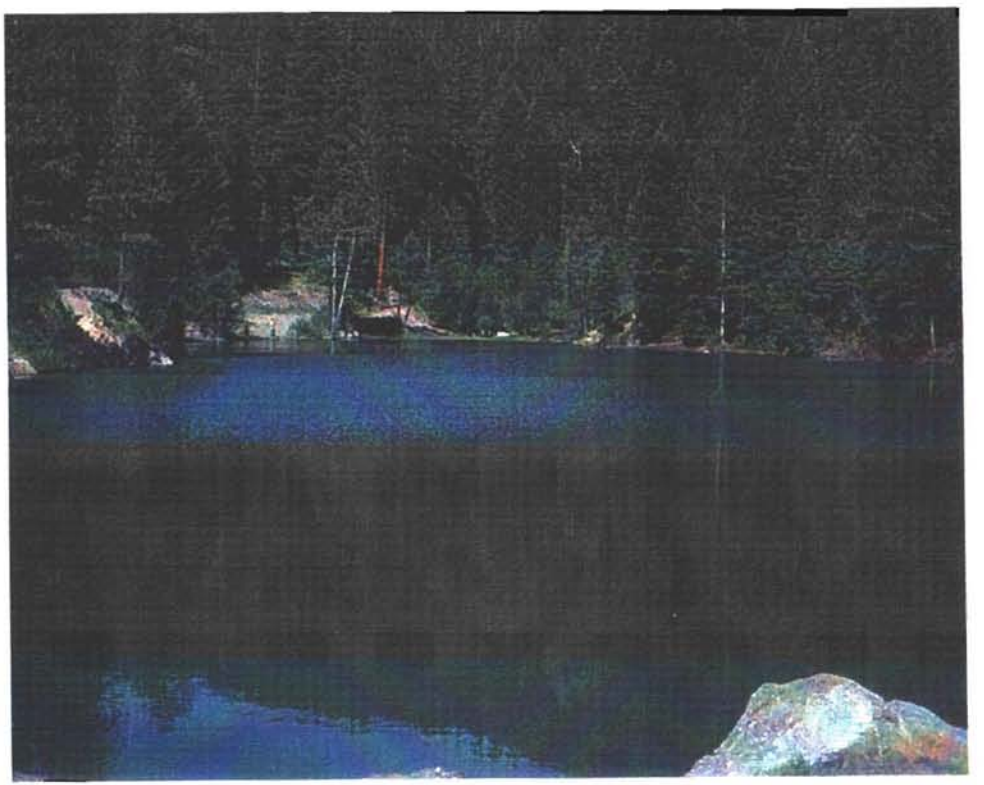
A Notebook of Sedges and Rushes of the Jemez Mountains





Elena Racinez and Teralene Foxx

Index



Los Alamos Reservoir

A Notebook of Sedges and Rushes of the Jemez Mountains

Elena Racinez and Teralene Foxx

Drawings by Elena Racinez
Photographs by Teralene Foxx

Abstract

Many rare and endangered species rely on wetlands for part or all of their life cycle. In Los Alamos County there are a number of wetland areas that either occur naturally or were human made. While describing the importance of wetlands, this study focused on the vegetation that is characteristic of wetland, riparian, and floodplain habitats. The intention of this notebook is to begin with the most difficult wetland vegetation to identify - the Cyperaceae and Juncaceae families and will allow for additions in the future.

Acknowledgments

We would like to thank Leonard Sandoval and Marjorie Wright for their assistance in the field and Randy Balice for helping to confirm some identifications. We would also like to thank Hector Hinojosa for his editing. Brenda Edeskuty accompanied Terry to the University of Wyoming and did some of the early collection of wetland plants. Kathy Bennett has provided expertise in wetland ecology and mapping.

Introduction:

1.1 Purpose of the Guide

Floodplains are recognized as areas of land between meandering rivers and wetlands that are characterized by their hydrophytic soils and vegetation. These greenbelts along streams and rivers provide important habitats for many species in the arid southwest. The Department of Energy and the Los Alamos National Laboratory must comply with the Executive Orders related to floodplains and wetlands, and threatened and endangered species (E.O.-11990 and 11988). Although the Clean Water Act (Section 404) is intended to improve water quality (Tuxill 1990), there are not regulations to protect wetland and riparian areas.

Identification of wetlands requires knowledge about hydrophytic vegetation , which include sedges and rushes (Cyperaceae and Juncaceae). These groups of plants are generally difficult to identify, and few references on the taxonomy of plants in these groups exist. This study is an attempt to provide information on sedges and rushes for persons doing field work in wetlands ecology, wetlands delineation, and riparian zone studies.

1.2 Importance of Wetlands

Wetlands are unique environments that have three components: hydrology, hydrophytic vegetation , and hydric soils. Since the late 1980's, the U.S. has come to realize the value of wetlands. Their biological productivity can exceed the best agricultural lands and provide an array of products such as fish, shellfish, blueberries, cranberries, timber, wild rice, and medicines (America's Wetlands, 1999) sustain nearly one third of the nation's threatened and endangered species (Wetlands and Waterfowl, 1999) which depend on wetlands for part or all of their life cycle. Twenty percent of all plant and animal species found on the federal list as endangered or threatened depend heavily on wetlands for food and /or habitat. For example, wetlands are home to 150 species of birds and 200 species of fish that are endangered. They also provide breeding and wintering grounds for and various amphibian species.

Wetlands play a key role in regional hydrologic cycles which include lessening flood damage, reducing erosion, recharging groundwater supplies, and abating pollution. Wetland vegetation removes phosphates and plant nutrients from the soil which results in reduced aquatic weeds and algae that steal oxygen. Wetlands also filter pollution such as sewage, fertilizer run off), and heavy metals (Wetlands and Waterfowl, 1999). They are also linked with upstream and downstream ecosystems.

The term "wetland" covers a large spectrum of habitat types that can range from a dark swamp to a wet meadow (F1). Wetlands have been classified by Cowardin, et al. (1979). Within LANL wetlands were identified using the National Wetlands Inventory and walking human made wetlands using a Global Positioning System.

1.3 Importance of Riparian Areas

In the arid southwest, the greenbelts along rivers and streams provide habitat for a large number of animals ranging from reptiles and amphibians to large mammals and many birds. In recent years researchers have had increased concern about the riparian lands because of overgrazing and activities that change stream hydrology. The two types of riparian areas are those that are perennially wet (hydro-riparian) to more xeric (xero-riparian). These sites will have different vegetative field indicators.

1.4 Wetland Vegetation

The presence of hydrophytic plants is one of the key elements in the identification and delineation of wetlands. The U.S. Army Corps of Engineers has produced a manual for the identification and delineation of wetlands. In the 1980's the Army Corps of Engineers, the Environmental Protection Agency, and the Soil Conservation Service participated in the development of a "National List of Plant Species That Occur in Wetlands"(Reed 1988). This National list was further separated into regions. The Southwest region included Arizona and New Mexico. This listing provides a classification of plants gives an indicator category based on plant distribution. This indicator list reflects the range of estimated probabilities (frequency of occurrence) of a species occurring in wetlands versus non-wetlands.

F2 shows examples of the following indicator categories (Reed 1988):

Obligate wetland: (OBLW) Occur almost always (estimated probability <99%) under natural conditions in wetlands.
Facultative wetland: (FACW) Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
Facultative: (FAC) Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
Facultative Upland: (FACU) Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).
Obligate Upland: (UPL) Occur in wetlands in another region , but almost always (estimated probability >99%) under natural conditions in non-wetlands in the region specified.

1.5 Sedges, Rushes, and Wetlands

Wetlands are characterized and dominated by hydrophytes (water lovers). They can be classified into three broad groups: emergents, floaters, and submergents. Many wetlands can have a combination of all three. The emergents are amphibious and grow part in and part out of the water. Examples would be cattails, reed canary grass, or rushes. Floaters can float on the water surface and include the pond lily or the water hyacinth. Submergents, such as duckweed, are those that live underwater.

Many plants in the Cyperaceae and Juncaceae families (sedges and rushes), are classified as submergents and are indicators of wetlands that are either obligatory or facultative wet. Some sedges, like *Carex geophila* and *Carex occidentalis*, however, are upland species that live in moist and shaded areas of pine forests. Throughout the species descriptions we have given the indicator classification of the various species.

A listing of the sedges and rushes for the Jemez Mountains was compiled in 1997 in An Annotated Checklist and Database of Vascular Plants of the Jemez Mountains by Foxx et al. (1988). The listing was generated from theses, dissertations, and various other studies conducted in the Jemez Mountains. This information along with field studies in Pajarito Canyon provide the species list for this document. With further field studies other species may be found.

1.6 Methods

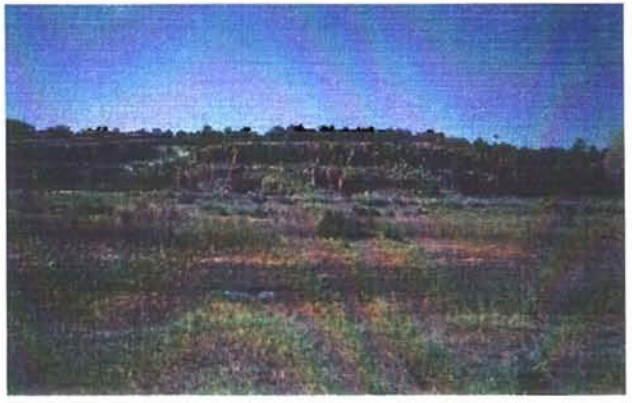
During the summer of 1998, wetland plants were collected in three locations along the Pajarito Canyon watershed. Collections were made above 8000 feet in elevation along the Pajarito stream. At this elevation, the stream is perennial, and a number of water loving species are found within three meters of the stream channel. Where appropriate, we also collected upland species. The second location was an area between Technical Area-18 and State Road 4. The area has a number of small marshes that are dominated by rushes, various grasses, willows, and an occasional cottonwood. The third location was within White Rock Canyon near the confluence of Pajarito Canyon with the Rio Grande. This area is dominated by grasses and various forbs, sedges, and rushes.

Plants were collected using standard botanical collecting techniques. Sources used to identify plants included Martin and Hutchins 1980, Foxx and Hoard 1995, the U.S. Forest Service'Field Guide to Intermountain Rushes (1994), and Harrington's (1977).

In the early 1990s, a trip was made to the University of Wyoming herbarium. The University of Wyoming herbarium has one of the more complete collections of rushes and sedges in the United States. Photographs were taken of various species with a 35-mm camera with a 50- mm macro lens.

1.7 Organization and Use of the Study Guide

The 28 plants in the guide are divided into two groups and are arranged alphabetically. Of the 27 plants, 13 include illustrations (accounting for those that were collected during the study as voucher specimens). The guide begins with drawings showing typical morphology of sedges and rushes. The first page for each plant gives the scientific name and the common name as well as a drawing or photograph. The drawings show the inflorescence, achene or capsule, and perianth or bract. Key characteristics for the 13 illustrated were derived from the study and with Martin and Hutchins (1980). Key characteristics for the remaining 14 that were not illustrated and were photographed at the University of Wyoming, were taken from Martin and Hutchins (1980). The key characteristics include habit, leaves, inflorescence, and flowers. The second page has one or more photographs and states the plant's habitat and the indicator classification (FAC, FACW, FACU, or UPL).



a.)

b.)

Figure 1: Examples of Wetlands

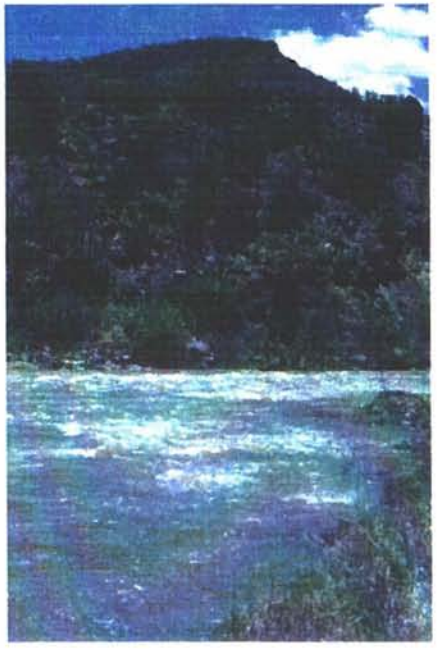
a.) Pajarito Pond: dry

b.) Pajarito Pond

c.) Rio Grande River

d.) Marsh: Pajarito Wetland

e.) Stream: Pajarito Stream



c.)

d.)

e.)

Figure 2: Indicator Category Examples

a.) OBLW: *Typha latifolia*, Cattail

b.) FACW: *Acer negundo*, Boxelder

c.) FACU: *Rudbeckia laciniata*, Conflower

d.) FAC: *Cyperus fendlarianus*, Fendler's flatsedge

e.) UPL: *Bouteloua curtipendula*, Sideoats grama

a.)

c.)

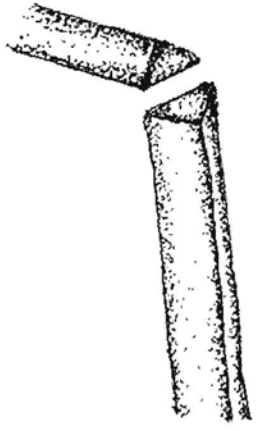
b.)

d.)

e.)

Key Characteristics of Sedges

- Triangular stems
- Perigynia surrounds achene
- Papery sac around perigynia



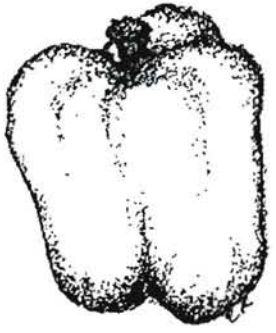
TRIANGULAR
CROSS SECTION

PAPERY
SAC

CROSS SECTION
OF PERIGYNIA

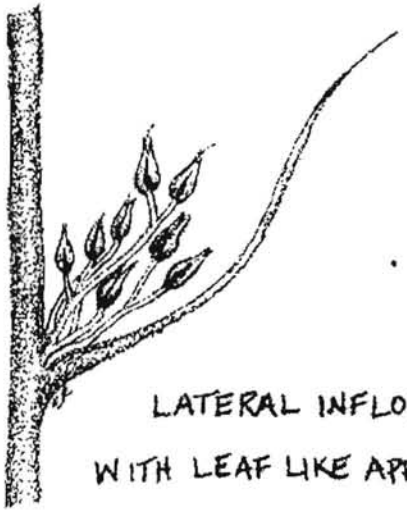
Key Characteristics of Rushes

- Round stems; solid pith
- Fruit is a capsule with many seeds
- Lateral inflorescence



CAPSULE

CAPSULE
CROSS SECTION



LATERAL INFLORESCENCE
WITH LEAF LIKE APPENDAGE

ROUND STEMS
SOLID PITH

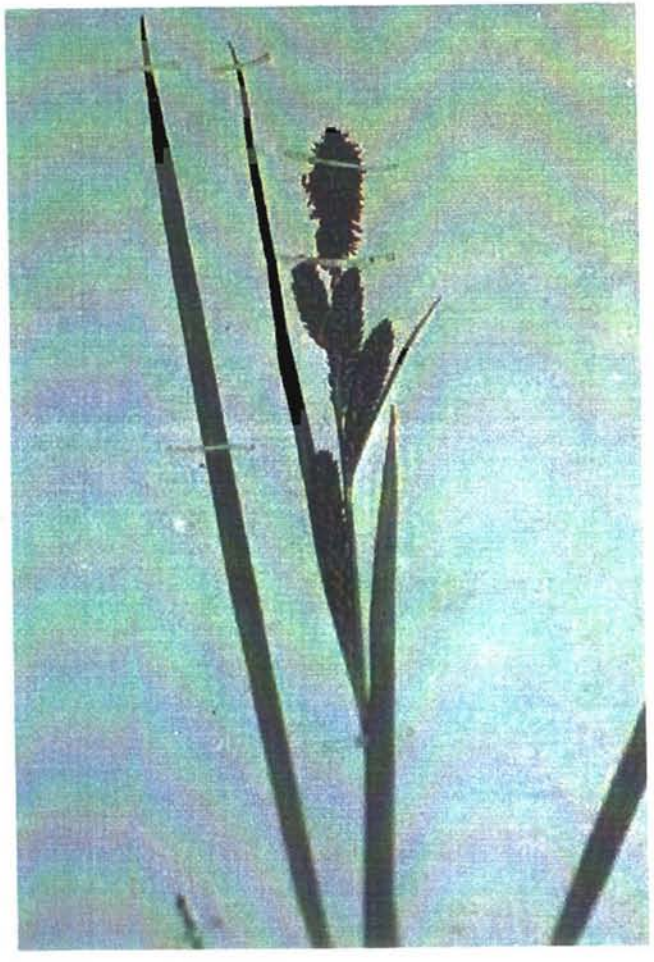
The following is a listing of species included in the guide:

Family	Genus	Species	Synonym	Common Name
Cyperaceae	*Carex*	*aquatilis*		Water sedge
Cyperaceae	*Carex*	*brevior*		Fescue sedge
Cyperaceae	*Carex*	*disperma*		Dewey Softleaf sedge
Cyperaceae	*Carex*	*douglasii*		Douglas' sedge
Cyperaceae	*Carex*	*duriuscula*	*Carex eleocharis*	Needleleaf sedge
Cyperaceae	*Carex*	*geophila*		White Mountain sedge
Cyperaceae	*Carex*	*hystericina*		Bottlebrush sedge
Cyperaceae	*Carex*	*interior*		Inland sedge
Cyperaceae	*Carex*	*microptera*	*Carex festivella*	Meadow sedge
Cyperaceae	*Carex*	*nebraskensis*		Nebraska sedge
Cyperaceae	*Carex*	*occidentalis*		Western sedge
Cyperaceae	*Carex*	*scoparia*		Broom sedge
Cyperaceae	*Carex*	*stipata*		Owlfruit sedge
Cyperaceae	*Cyperus*	*aristatus*		Bearded flatsedge
Cyperaceae	*Cyperus*	*fendlerianus*		Fendler's flatsedge
Cyperaceae	*Eleocharis*	*macrostachya*		Common spikerush
Cyperaceae	*Scirpus*	*acutus*		
Cyperaceae	*Scirpus*	*americanus*		American bulrush
Cyperaceae	*Scirpus*	*microcarpus*		Small fruit bulrush
Juncaceae	*Juncus*	*balticus*		Mountain rush
Juncaceae	*Juncus*	*bufonius*		Toad rush
Juncaceae	*Juncus*	*confusus*		Colorado rush
Juncaceae	*Juncus*	*drummondii*		Drummond's rush
Juncaceae	*Juncus*	*Longistylis*		Longstyle rush
Juncaceae	*Juncus*	*Marginatus*		Grassleaf rush
Juncaceae	*Juncus*	*tenuis*		Poverty rush
Juncaceae	*Juncus*	*xiphioides*		Irisleaf rush

Species

Carex aquatilis

Water Sedge



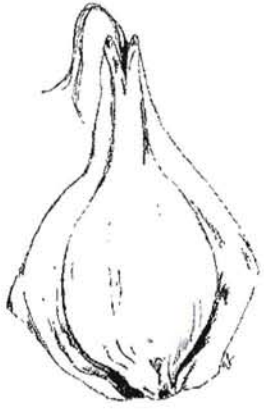
- Habit
  - Scaly rhizomes
  - Slender stems
- Leaves
  - Leaves attenuate; up to 8 mm wide
- Inflorescence
  - Pistillate and staminate spikes; staminate spikes on upper part of stem and linear shaped; pistillate spike linear to oblong
- Flowers
  - Scales shorter than perigynia
  - Perigynia has an abrupt beak
  - Lenticular achenes

Carex brevior

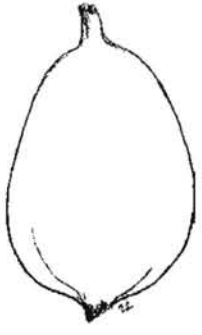
Fescue Sedge

INFLORESCENCE

SPIKE
OVATE



BROADLY WINGED PERIGYNIA



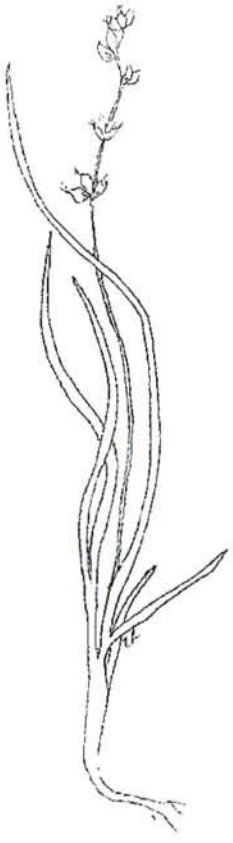
ACHENE

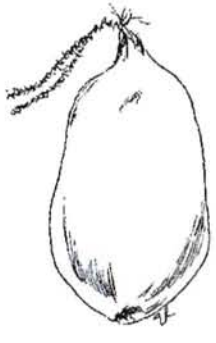
- Habit
  - Up to 1 m tall; stiff stem
- Leaves
  - Flat leaves
- Inflorescence
  - Spikes ovate
- Flowers
  - scales spirally arranged; tan colored
  - awn tipped acute scales
  - scales cover bidentate perigynia
  - perigynum broadly winged
  - flowers perfect

Habitat: Wet meadows
Classification: OBLW

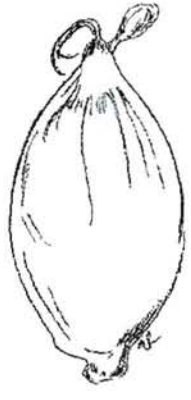
Carex disperma

Dewey Softleaf Sedge





ACHENE



PERIGYNA

- Habit
  - Rhizomatus
- Leaves
  - Thin grasslike leaf blades
- Inflorescence
  - 3 Flowers grouped together and each cluster is spaced along the the raceme
  - Flowers are sessile
- Flowers
  - Perigynia lanceolate (side view)
  - Pergynia is wingless
  - 2 stigmas
  - Pergynia and scales ascending
  - Scales short, exposing perigynium
- Habitat: Mixed conifer and ponderosa pine forest
- Classification: UPL

Carex douglasii

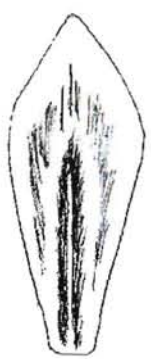
Douglas' sedge

- Habit
  - Rhizomatus
- Leaves
  - Involute leaves
- Inflorescence
  - Spikes oblong and terminal
  - Separate pistillate and terminal spikes
- Flowers
  - Lenticular achenes
  - 2 stigmas
  - Perigynia tapers gradually to a beak
  - Scales acuminate to cuspidate

Carex douglasii
Habitat: Open meadows
Classification: FAC

Carex eleocharis

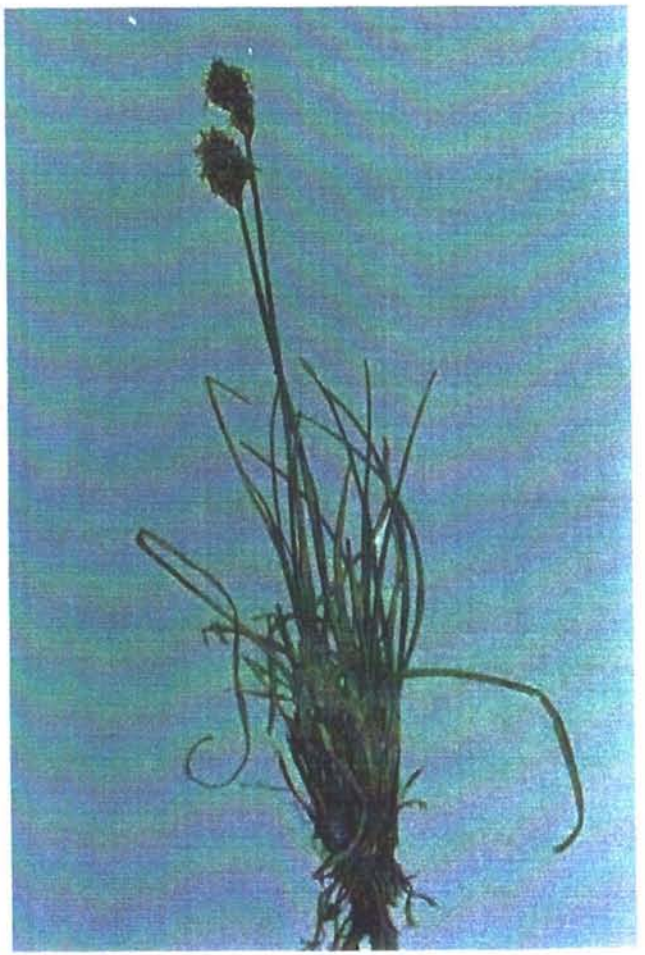
Needleleaf Sedge



LANCEOLATE
SCALE

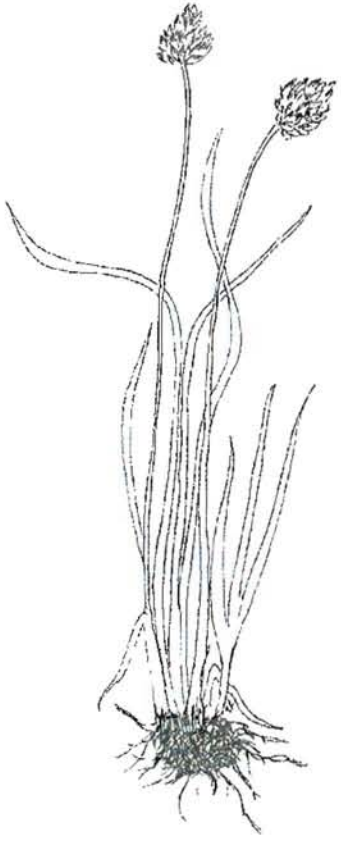
- Habit
  - Rhizomatus
  - Thin blade like stem
- Leaves
  - Blade like
- Inflorescence
  - Spike up to 3 cm long; oblong
  - Spike has many yellow anthers throughout
- Flower
  - Achenes lenticular
  - Perigyna beaked
  - Scales light brown

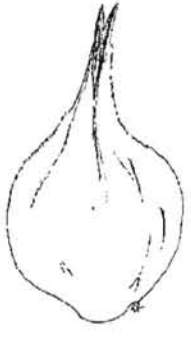
Carex eleocharis
Habitat: Mixed conifer, ponderosa pine forest
Classification: UPL

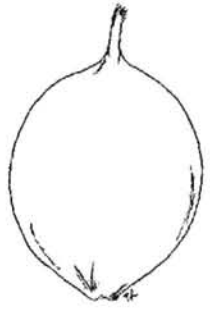


Carex festivella

Meadow sedge





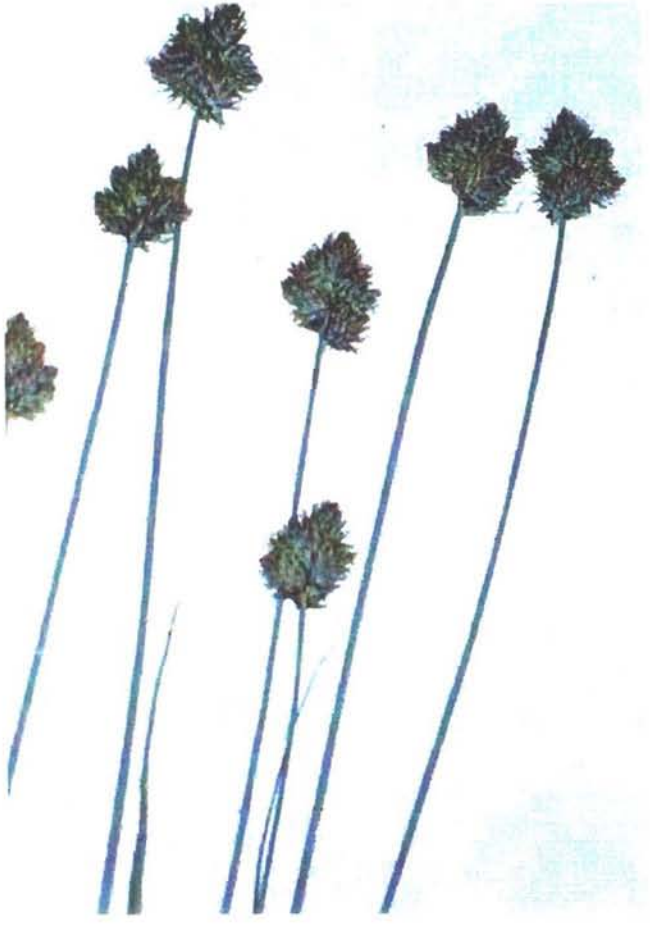


- Habit
  - Rhizomatus; up to 1 meter tall
- Leaves
  - Basal leaves
- Inflorescence
  - Terminal crowded spikes
  - Spikes ovoid
  - Spikes gynacandrous
- Flowers
  - Perigynia encloses achene completely; 4 to 5 mm long, 2 mm wide
  - Acute scales shorter than perigynia
  - Scales dark brown with a green stripe in the middle
  - Achene orbicular

Carex festivella

Habitat: Mixed conifer and ponderosa pine forests along streams

Classification: UPL



Carex geophila

White Mountain sedge

- Habit
  - Grows to 1 meter tall
  - Scabrous
  - Fibrillous base
- Leaves
  - Channeled and scabrous
- Inflorescence
  - Spikes unisex
  - Terminal staminate spikes
  - Pistillate spikes closely arranged
- Flowers
  - Pistillate scales reddish brown, green center, hyaline margins, and equal in length to pergynia
  - Pergynia minutely beaked
  - Achenes trigonous
  - 3 stamens

Carex geophila
Habitat: Open slopes
Classification: UPL

Carex hystericina

Bottlebrush or Porcupine Sedge

- Habit
  - Rhizomatus
  - Grows to 1 m tall
- Leaves
  - Thin and flat; usually 10 mm wide
  - Septate-nodulose
- Inflorescence
  - Unisex spikes
  - Staminate spike terminal and linear; pistil pedunculate, oblong
  - Leaf-like bracts
- Flowers
  - Scales scabrous and awned
  - Perigyna pale green and many nerved tapering to a beak
  - achenes trigonous
  - 3 stigmas

Carex hystericina
Habitat: Damp meadows
Classification: OBLW

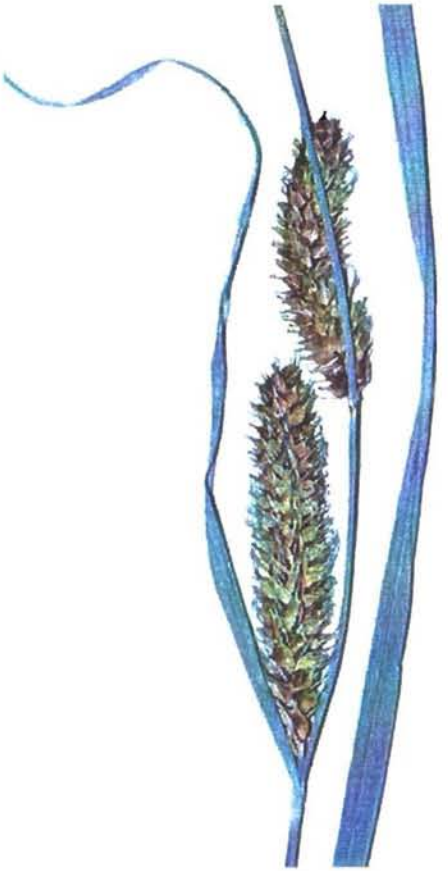
Carex interior

Inland Sedge

- Habit
  - Short rhizomes
  - wiry, stiff stems
- Leaves
  - 3 leaves per stem
  - 1-3 mm wide
- Inflorescence
  - Spikes gynacandrous but can be either staminate or pistillate
  - Linear to oblong shape
- Flowers
  - Scales yellowish brown and half the length of perigyna
  - Perigyna triangular-ovoid
  - Achenes lenticular; two stigmas
- Habitat: Marshy ground
- Classification: OBLW

Carex nebraskensis

Nebraska sedge



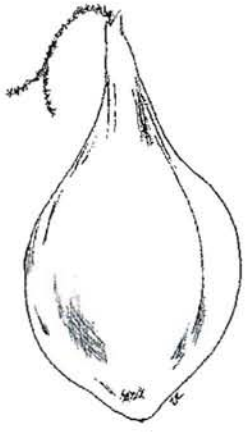
- Habit
  - Stout rhizomes
  - Grows to 1 meter tall
- Leaves
  - Leaves septate and flat
  - Previous year's leaf sheaths at base
- Inflorescence
  - Cylindric, staminate terminal spike
  - Pistillate spike is ovoid-oblong and lateral
  - Leaf like bract exceeds the spike
- Flowers
  - Achenes lenticular with 2 stigmas
  - Scales light brown
  - Perigynia has an abrupt beak, reddish dotted

Carex nebraskensis
Habitat: Wet ground
Classification: OBLW

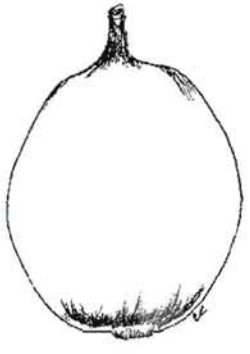
Carex occidentalis

Western sedge

TERMINAL HEAD



BEAKED PERIGYNIUM



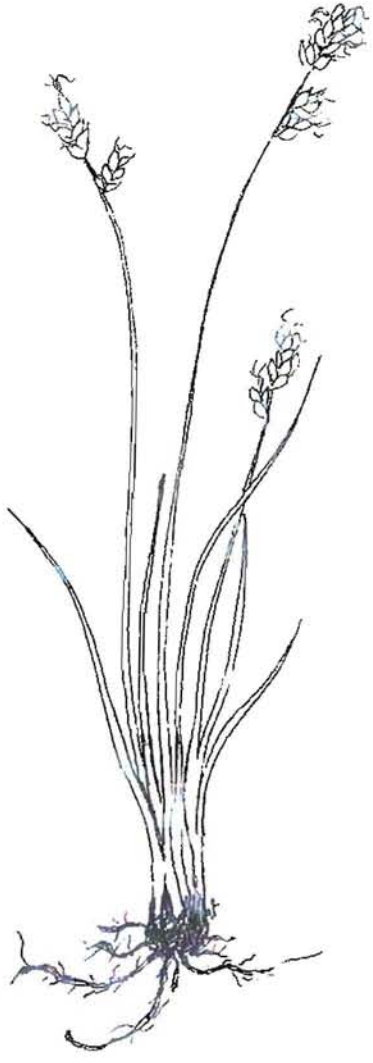
ORBICULAR ACHENE

- Habit
  - Slender stems
  - Dark rhizomes
- Leaves
  - Slightly revolute leaves
- Inflorescence
  - Gynecandrous spikes
  - Terminal ovoid head
- Flowers
  - Pergynia bidentate; dorsal side has distinct nerves on outline
  - margins of perigynia faintly hairy
  - Achene broad; square shaped with a rounded corners

Carex occidentalis

Habitat: Mixed conifer and ponderosa pine forest near streams

Classification: UPL



Carex scoparia

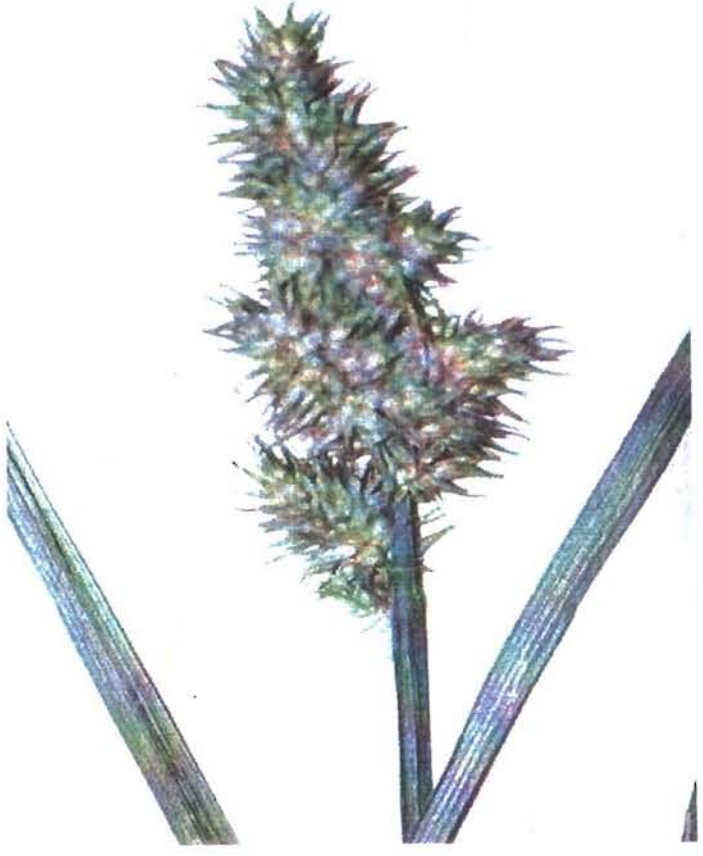
Broom Sedge

- Habit
  - Grows to 1 m tall
- Leaves
  - Leaves can be firm, flat or channeled
- Inflorescence
  - Spikes ovoid to egg shaped and clustered together, but still distinct
  - head oblong
- Flowers
  - Scales light brown and shorter than the perigyna
  - Perigyna beaked
  - Achenes lenticular
  - 2 stigmas

Carex scoparia
Habitat: Damp ground
Classification: FACW

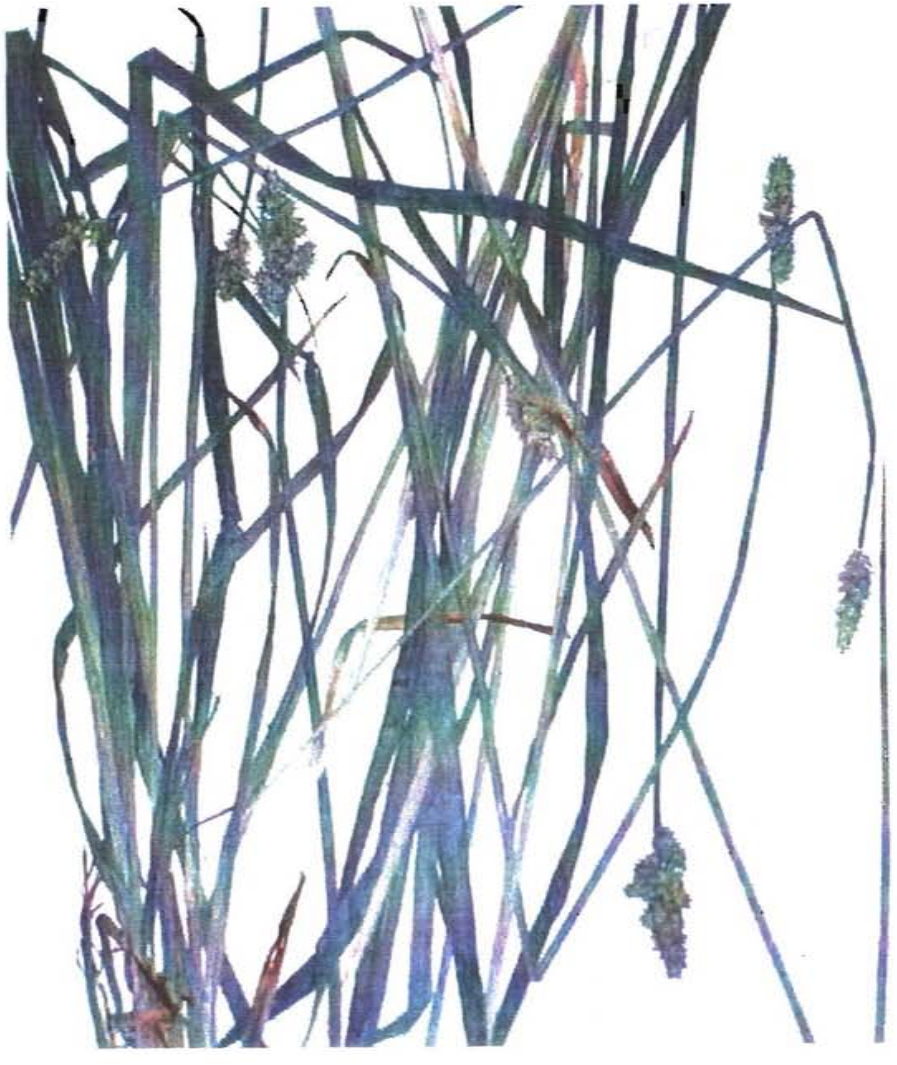
Carex stipata

Owlfruit sedge



- Habit
  - Grows up to 1 meter tall
  - Stout stems
- Leaves
  - Flat leaves
  - 4 to 8 mm wide
- Inflorescence
  - Crowded spikes forming a terminal head
  - Spikes oblong and androgynous
- Flowers
  - Perigynia tapers into a beak
  - Lenticular achenes
  - 2 stigmas
  - Pistillate scales brown with hyaline margins

Carex stipata
Habitat: Wet ground
Classification: OBLW



Cyperus aristatus

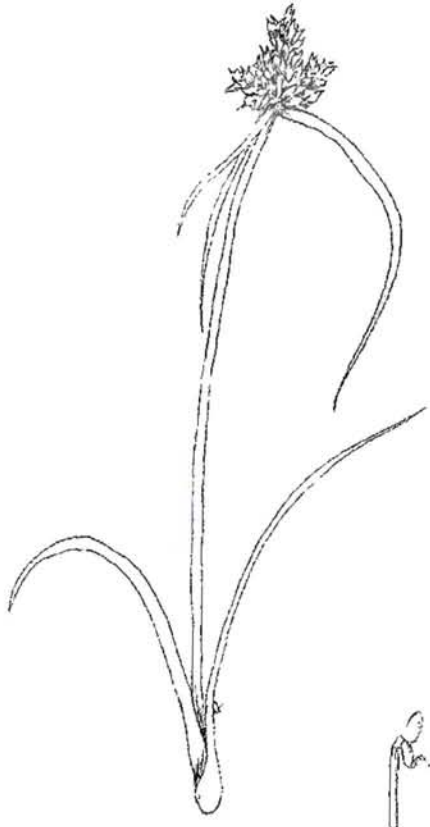
Bearded flatsedge

- Habit
  - Annual
  - Slender; grows to 15 cm tall
  - Odoriferous
- Leaves
  - Flat basal leaves almost as long as culm
  - Sheaths purplish-brown
- Inflorescence
  - Oblong spikelets with 6 to 10 flowers
  - Terminal condensed inflorescence
- Flowers
  - Scales brown with green mid-nerve
  - 1 stamen, 3 stigmas
  - Achene obovoid and three angled

Cyperus aristatus
Habitat: Moist ground
Classification: FACW

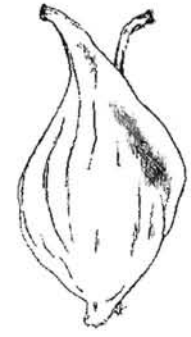
Cyperus fendlerianus

Fendler's Flatsedge



SPIKE OVATE

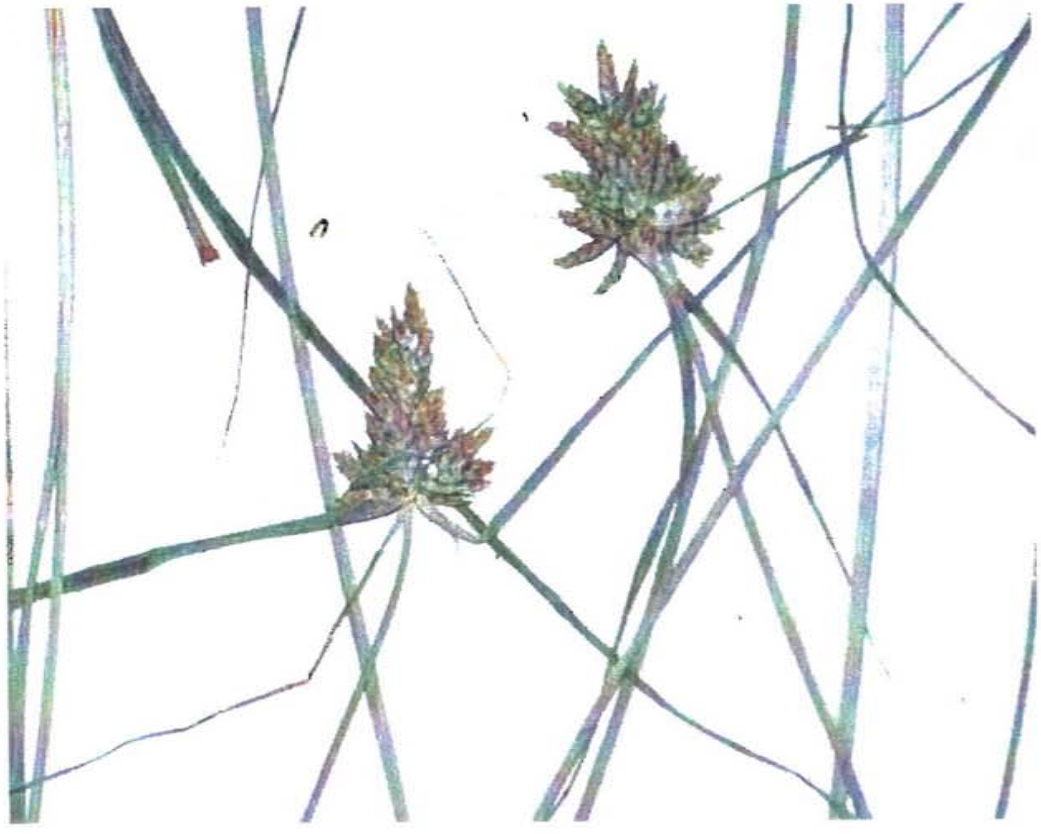
ACHENE



BENT PERIGYNIUM

- Habit
  - Perennial; triangular stem
- Leaves
  - Basal leaves
- Inflorescence
  - 3 involucre bracts
  - Spikes crowded; overall inflorescence triangular
- Flowers
  - Achenes lanceolate
  - Perigynia body gradually tapers to a beak
  - Scales pale green

Cyperus fendlarianus
Habitat: Widespread
Classification: UPL



Eleocharis macrostachya

Common Spikerush

TERMINAL INFLORESCENCE

NARROW OBLONG ACHENE

OBTUSE APEX OF SCALE

CYLINDRICAL SPIKE

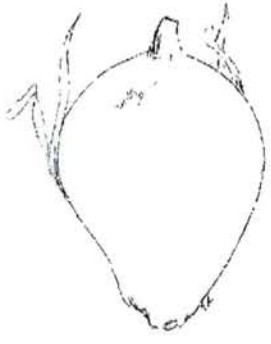
- Habit
  - Perennial
- Leaves
  - None
- Inflorescence
  - Terminal spike
  - Total inflorescence 0.9 to 1 cm long
  - Spike cylindrical
- Flower
  - Achene about 1 mm long
  - Lower scales obtuse; spirally arranged
  - Upper scales acute tipped
  - Perigynia oblong
  - Perfect flower
  - Scales relatively long

Eleocharis macrostachya
Habitat: Wet ground
Classification: OBLW

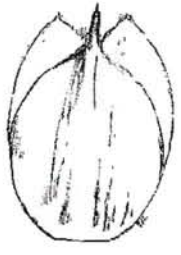
Scirpus acutus

BASAL LEAF SHEATH TAPERING TO LONG BEAK

INFLORESCENCE



OBOVATE ACHENE



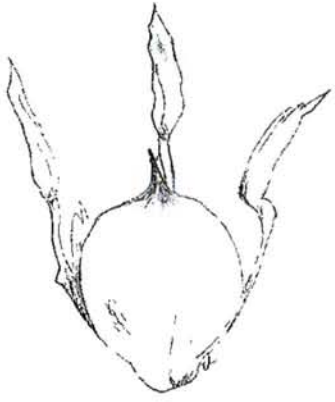
AWNED SCALE

- Habit
  - Perennial
  - Stems round and solid
- Leaves
  - Leaf sheath basal and edges membranous and abruptly tapers to a long beak
- Inflorescence
  - Spikes may be sessile or on a pedicel
  - End of stem is branched into pedicels that have 1 to 2 spikes
- Flowers
  - Perfect flower
  - Spikes ovate; Perigynium obovate
  - Scales acute
- Habitat: Wet ground, in streams
- Classification: Not available

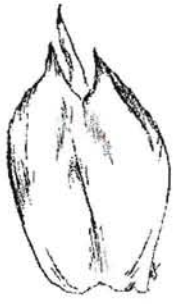
Scirpus americanus

American bulrush

SPIKE OVATE



OBOVATE ACHENE



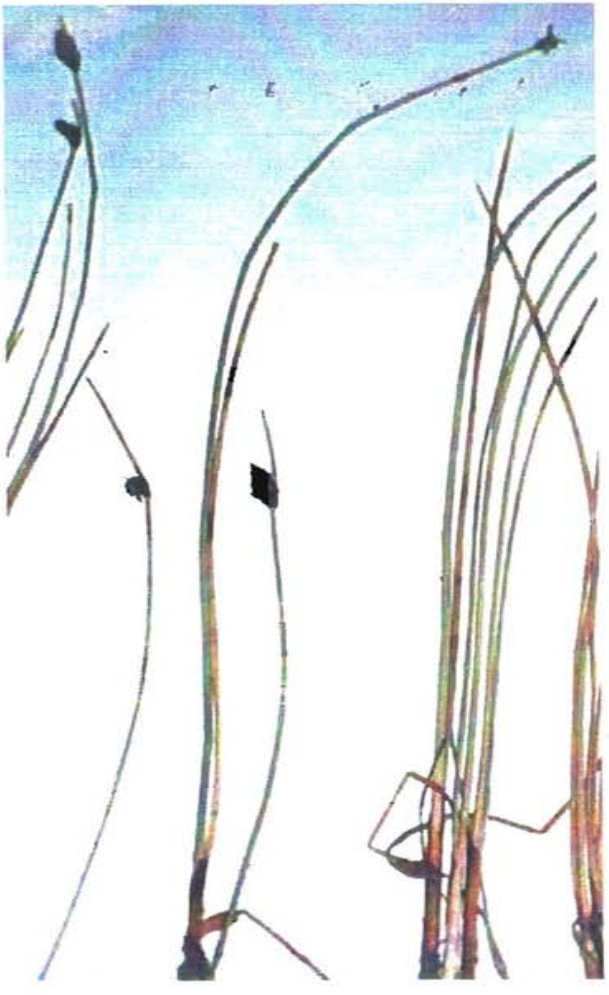
ACUTE - AWNED SCALE

- Habit
  - Perennial
  - Stems triangular; 1 m tall
- Leaves
  - Basal leaf sheaths
- Inflorescence
  - Imbricate (overlapping like shingles)
  - Spikes ovate or egg shaped
  - No pedicels; sessile spikelets
- Flowers
  - Scales spirally arranged
  - Scale acute awned
  - Achene beaked, obovate-orbicular

Scirpus americanus

Habitat: Near ponds and flowing streams

Classification: UPL



Scirpus microcarpus

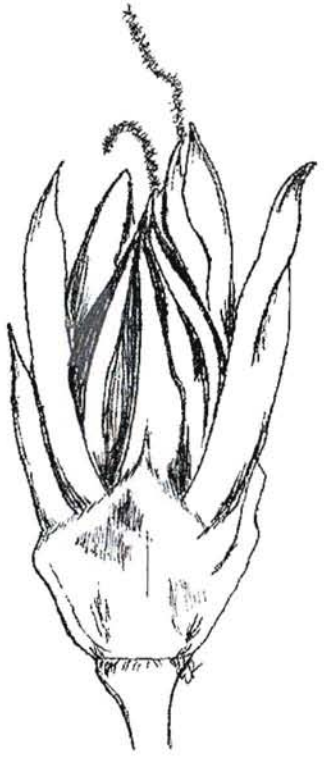
Small Fruit bulrush

- Habit
  - 1 to 2.5 m tall
  - Sheaths tinged with red
- Leaves
  - Leaves rough margined
- Inflorescence
  - Spikes on loose panicles
  - Spikes ovoid oblong, acute, 3 to 4 mm long
- Flowers
  - Scales brown to green, ovate
  - achenes whitish

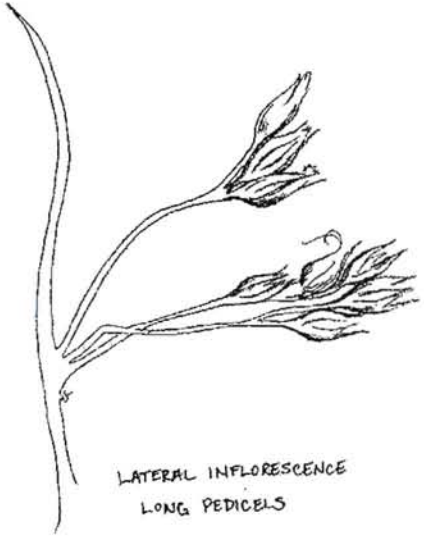
Scirpus microcarpus
Habitat: Wet ground
Classification: not available

Juncus balticus

Mountain rush



OVOID CAPSULE WITHIN PERIANTH



LATERAL INFLORESCENCE
LONG PEDICELS

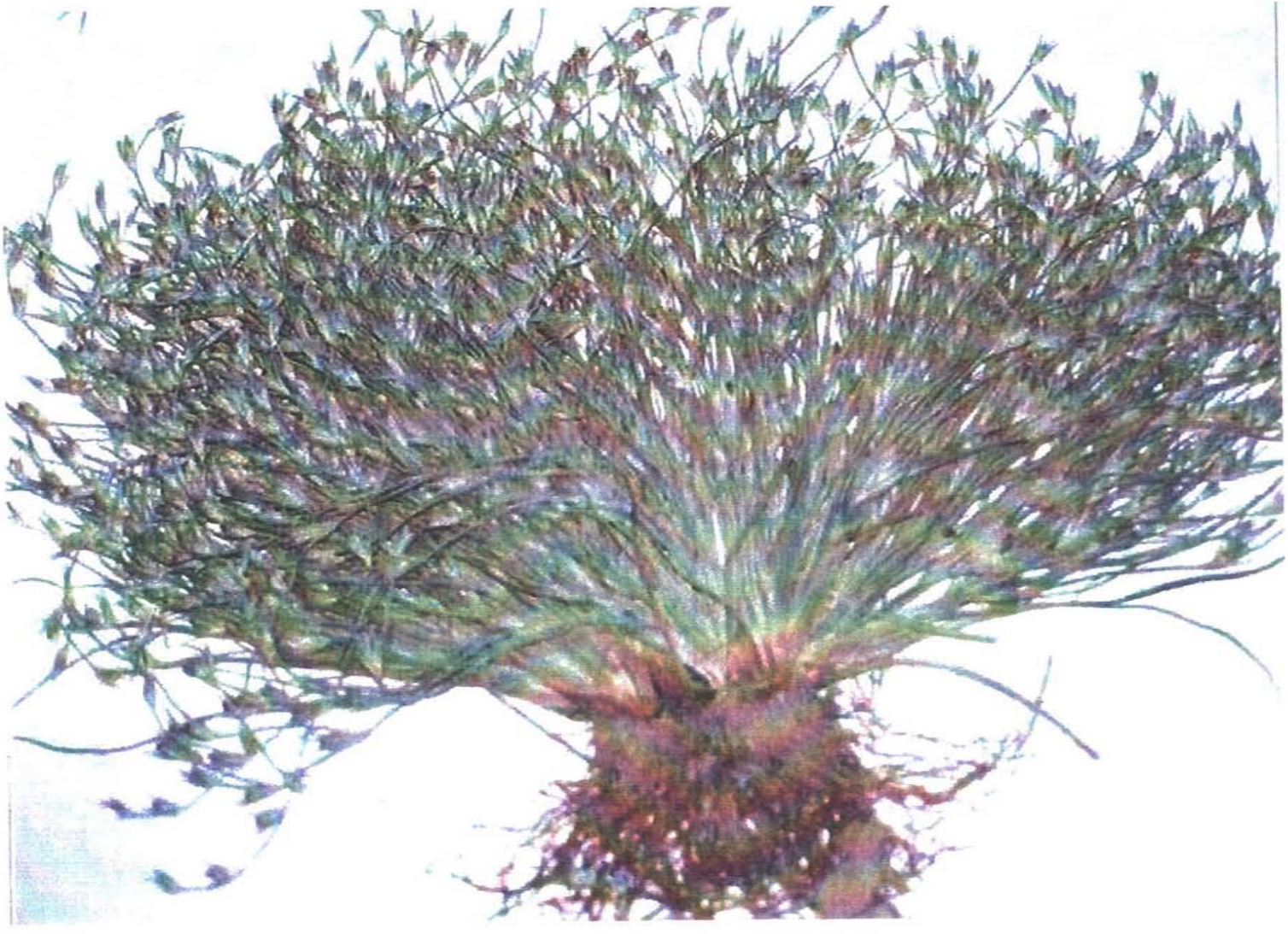
- Habit
  - Perennial
  - Wiry stem
- Leaves
  - Sheaths at base
- Inflorescence
  - Flowers on pedicels; usually 4 on each one
  - Lower bract terete
  - Lateral inflorescence
- Flowers
  - Scales relatively long, acute
  - Capsule is 3 celled, 3 mm long, 1.75to 2 mm wide
  - .75 mm long seeds

Juncus bufonius

Toad rush

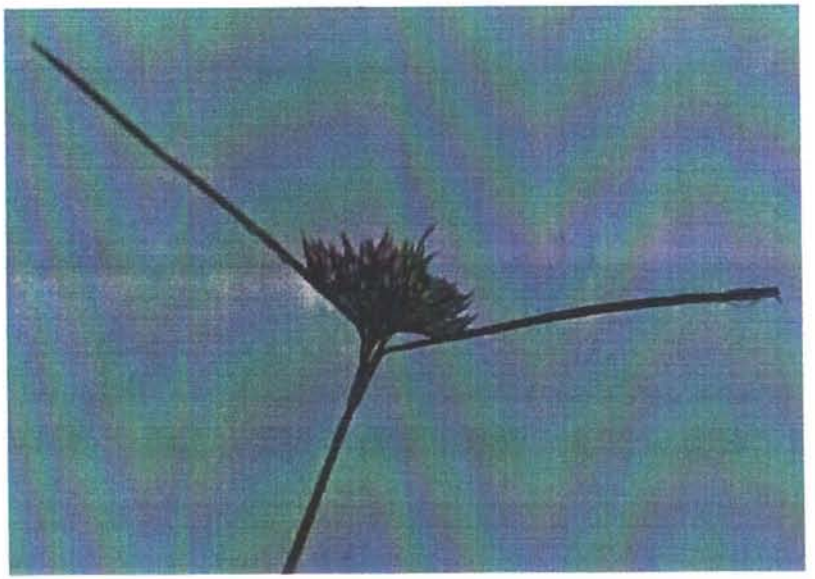
- Habit
  - Grows to 30 cm tall
  - Densely tufted clump
- Leaves
  - Flat or involute to 1 mm wide
  - Sheaths have minute auricles
- Inflorescence
  - Widespread inflorescence
  - Many flowers scattered on branches
- Flowers
  - Perianth 4 to 6 mm long
  - Segments pale green to pale brown
  - 6 stamens
  - Oblong capsule
  - Seeds apiculate

Juncus bufonius
Habitat: Wet ground
Classification: OBLW



Juncus confusus

Colorado rush



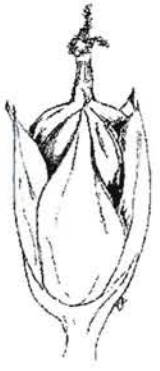
- Habit
  - Grows up to 40 cm tall
- Leaves
  - Basal, flat, or involute; whitish
- Inflorescence
  - Compact head
  - Lower bract filiform and exceeds inflorescence
- Flowers
  - Perianth 3 to 4 mm long
  - Segments have green center surrounded by brown stripes
  - 6 stamens
  - Capsule retuse at apex and 3 celled
  - Seeds apiculate at both ends

Juncus confusus
Habitat: Damp or wet meadows
Classification: FACW

Juncus drummondii

Drummond's rush

INFLORESCENCE



CAPSULE SURROUNDED BY PERIANTH

CAPSULE OBLONG

INNER PERIANTH WITH ANTHER

- Habit
  - stems to 30 cm tall
- Leaves
  - have basal sheaths; blades are bristle like
- Inflorescence
  - is in individual clusters of 1-5 flowers appearing lateral
  - Leaf like bract subtends the inflorescence
- Flowers
  - 5-6 perianth segments; acute; margins papery, middle dark
  - capsule dark purple-brown; oblong to oval shape, abrupt beak
  - seeds white appendaged
  - 6 stamens

Juncus drummondii
Habitat: wet grounds and bogs
Classification: FACW

Juncus interior

Inland rush

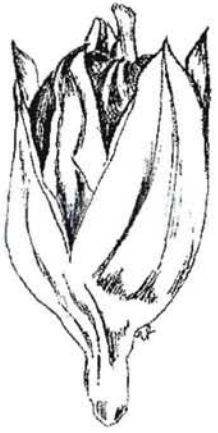
*Note: Some books refer to *Juncus interior* as a synonym of *Juncus tenuis* due to similarity.

- Habit
  - Grows to 1 meter tall
  - Terete stem
- Leaves
  - Flat to involute
  - Sheaths loosely envelope stem
- Inflorescence
  - Spreading, many flowered
  - Lower bract exceeds inflorescence
- Flowers
  - Perianth 3 to 4 mm long
  - 6 stamens
  - Capsule obtuse to apiculate at apex
  - Seeds are apiculate
- Habitat: Wet meadows
- Classification: FACW

Juncus longistylis

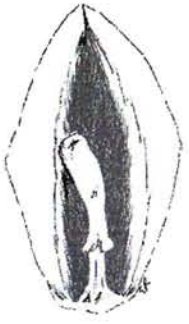
Longstyle rush

INFLORESCENCE



CAPSULE SURROUNDED BY PERIANTH

CAPSULE

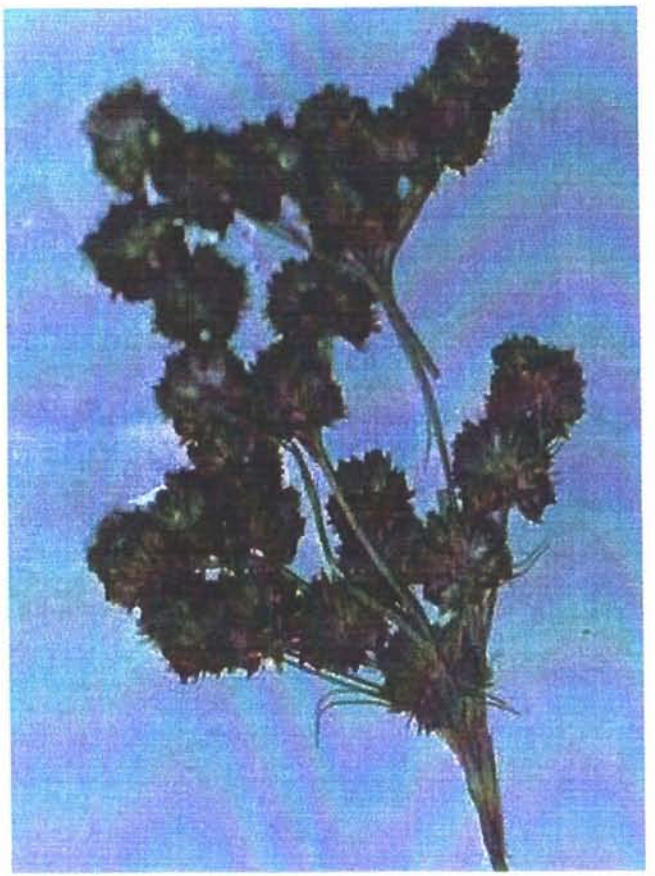


PERIANTH SEGMENT

- Habit
  - Perennial; round stems
- Leaves
  - Basal leaves
- Inflorescence
  - Head like inflorescence
- Flowers
  - Scale obtuse-acute
  - 6 stamens
  - Apex retuse
  - Capsule dark purple-brown
  - Capsule trigonous in cross section
  - Capsule 4 to 5 mm long

Juncus marginatus

Grassleaf rush

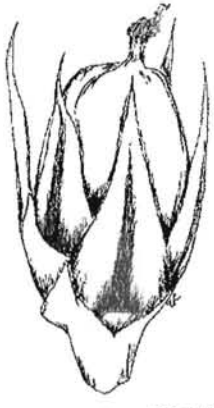


- Habit
  - Grows up to 80 cm tall
- Leaves
  - Transversely flattened
  - Sheaths have rounded auricles
- Inflorescence
  - Open cyme of head like clusters
  - Clusters have no more thatn 10 flowers
- Flowers
  - 3 mm long perianth
  - Inner segments longer than outer segments; outer segments reddish brown
  - Rounded capsule at apex; 3 celled
  - 3 stamens; reddish anthers
- Habitat: Damp or wet ground
- Classification: FACW

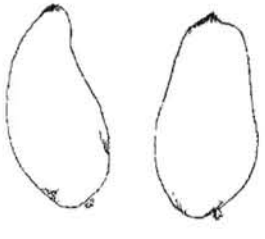
Juncus tenuis

Poverty rush

*Note: Some books also refer to *Juncus interior* as a synonnym of *Juncus tenuis*.



CAPSULE SURROUNDED BY PERIANTH



SEED
OVOID - ELLIPSOID

INFLORESCENCE

- Habit
  - Grows 20 to 60 cm tall
- Leaves
  - Basal leaves
  - Flattened or involute
- Inflorescence
  - Panicle is loose with many flowers
  - Subtending bracts leaf like; exceeds inflorescence
- Flowers
  - Perianth 3 to 4 mm long; green to pale greenish brown
  - ovoid one celled capsule; 6 stamens
  - filaments longer than anthers

Juncus tenuis
Habitat: Wet ground
Classification: FACW

Juncus xiphioides

Irisleaf rush

- Habit
  - Compressed stems; 2 edged
  - Grows to 80 cm tall
- Leaves
  - Blades 3-12 mm wide
  - Membranous margins
- Flowers
  - Perianth 2.5-3.5 mm long
  - Segments brownish, lanceolate, acuminate
  - 3-6 stamens
  - oblong capsule that exceeds perianth

Juncus xiphioides

Habitat: Marshy meadows and streams

Classification: OBLW

GLOSSARY OF TERMS

Per H.D. Harrington

Achene. dry, solid fruit surrounded by the perianth

Acuminate. tapering to the apex, the sides more or less pinched in before reaching the tip

Apiculate. ending in an abrupt slender tip which is usually not stiff

Auricles. ear-shaped appendages often occurring in pairs, situated at the top of the leaf sheath

Awn. stiff hair usually protruding from the bract

Bidentate. two-pronged tip of achene or bract

Bract. usually a leaf-like structure that begins at the base of the inflorescence and subtends it

Capsule. dry fruit subdivided into three or more sections containing many seeds

Culm. stem

Cuspidate. tipped with an abrupt, short, sharp, firm point

Cyme. cylindric inflorescence

Fibrillose. with fine fibers

Filiform. threadlike; long, slender, and terete

Gynacandrous. having both male and female flower parts

Imbricate. partly overlapping like shingles on a roof, either vertically, laterally, or both

Involucre. a more or less distinct whorl of reduced leaves

Involute. stems or leaves curling inward to form a tube

Lanceolate. base round and coming to point at the other end

Lenticular. lens shaped; biconvex in shape

Nodulose. provided with minute knobs

Oblong. rectangle shaped with broad, round corners

Obovate. rounded top that tapers at the bottom; shaped like a heart

Orbicular. square shaped with broad, round corners

Ovate. egg shaped

Ovoid. a three-dimensional figure ovate in outline

Panicle. spreading

Pedicel. extension of the stem (like a stalk) usually having a flower or cluster of flowers at the end

Perianth. papery sac that surrounds the achene

Pedunculate. the stalk to a solitary flower or to an inflorescence

Perigynia. the achene surrounded by the perianth

Pistillate. having female flower parts only

Revolute. Rolled backward from each margin upon the lower side; opposite of involute

Rhizome. horizontal root extension

Scabrous. rough

Septate. divided by one or more partitions

Striate. marked with fine longitudinal lines, grooves, furrows, or streaks

Staminate. having male flower parts only (stamens)

References

Allred, Kelly W. A Field Guide to the Grasses of New Mexico. Department of Agricultural Communications. 1993.

America's Wetlands, 1999. http://www.epa.gov/owow/wetlands/vital/status.html (accessed June 1999)

The Conservation Foundation, Washington, D.C. Protecting America's Wetlands, An Action Agenda. 1989.

Cowardin, 1979. Lewis M. Cowardin, V. Carter, G.C. Glet, and E.T. LaRoe. Classification of Wetlands and Deepwater Habitats in the United States. U.S. Fish and Wildlife Service. Washington D.C., publication no. FWS/OBS-7931. 1979.

E.O.-11988. Floodplain Management 42 F.R. 26959. May 25, 1977. Amends E.O. 11644 February 8, 1972

E.O. – 11990. Protection of Wetlands 42 F.R. 26961. May 25, 1977. Amended by E.O. 12608 Sept. 9, 1987; Sec E.O. 11514 March 5, 1970.

Foxx an Hoard, 1990. Teralene S. Foxx and Dorothy Hoard. Flowering Plants of the Southwestern Woodlands. Otowi Crossing Press. 1990.

Foxx et al., 1998. Teralene S. Foxx, Leland Pierce, Gail D. Tierney, Leslie A. Hansen. Annotated Checklist and Database for Vascular Plants of the Jemez Mountains. Los Alamos National Laboratory report LA–13408. 1998.

Harrington, H.D. *How to Identify Grasses and Grass-like Plants*. The Swallow Press Inc. Chicago. 1977.

Hurd, Emerenciana G., Sheryl Goodrich, and Nancy L. Shaw. Field Guide to Intermountain Rushes. U.S. Forest Service. May 1994.

Lawrence, 1971: G.H.M. Lawrence, *Taxonomy of Vascular Plants*. The McMillan Company. New York. p. 823.

Martin and Hutchins, 1980. William C. Martin and Charles R. Hutchins. *A Flora of New Mexico*. J. Cramer Germany. 1980.

Reed, 1988. Porter B. Reed. National List of Plant Species That Occur in Wetlands: New Mexico, U.S. Department of the Interior, Fish and Wildlife Service Biological Report NERC-88/18.31. 1988.

Teton Science School, Biologue. A Journal of Interpretation and Discovery of Life Science. Vol. 4, Number 1.

Tuxill, 1990. Jacquelyn L. Tuxill. Wetlands at the Crossroads. E Magazine. 1990.

Wetlands and Waterfowl, 1999. http://digital sportsman.com/wetlands/why.htm (accessed June 1999)