

A photograph of a field of tall, golden-brown grasses and sedges. The plants are in the foreground and middle ground, with some taller, darker green plants in the center. The background shows a line of trees under a bright blue sky with scattered white clouds. The overall scene is a natural, open landscape.

GRASSES, SEDGES AND RUSHES: An Introduction

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Graminoids

- Includes the grass and grass-like plants:
 - Poaceae (Grasses)
 - Juncaceae (Rushes)
 - Cyperaceae (Sedges)
- Herbaceous plants with long, narrow, linear leaves
- Diminutive parts
- Specialized terminology
- Superficially similar





Florida Graminoids

- Account for almost 16% of all species
- 15% of all exotic species
- 14% of all FLEPCC Cat 1 Species
- 12% of Cat 2 Species
- Graminoids are present in every community type and are either dominant or an important component in:
 - Marshes
 - Prairies
 - Flatwoods
 - Sandhills
 - Scrub

Distinguishing Characters

Character	Cyperaceae	Juncaceae	Poaceae
Habitat	Moist to wet areas	Wet areas	Throughout
Stems	Triangular in cross section Internodes solid Nodes not jointed	Terete (round) Internodes solid Nodes not jointed	Terete to ellipsoid Internodes mostly hollow Nodes jointed
Leaves	3-ranked Flat or v-shaped Sheath closed	3-ranked Blades flat or round Sheath open	2-ranked Blades mostly flat Sheath open
Subtending Bracts	Present, often prominent	Present, but not prominent	No*
Fruit	Achene	A capsule with many seeds	Caryopsis (grain)

Vegetative Characteristics



1



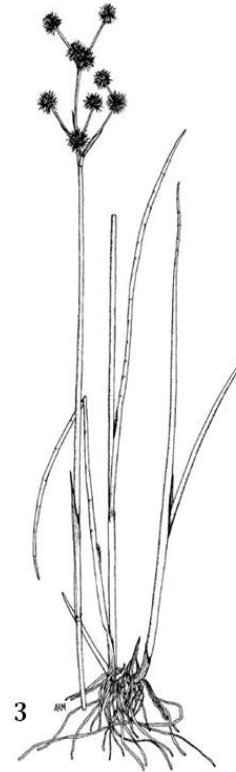
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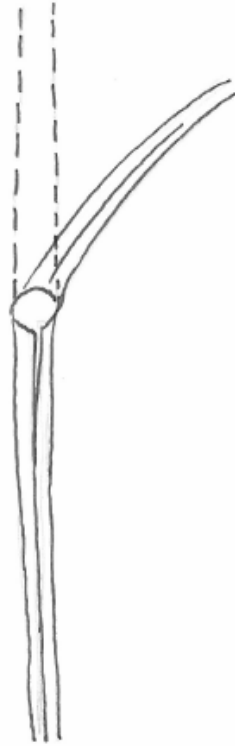
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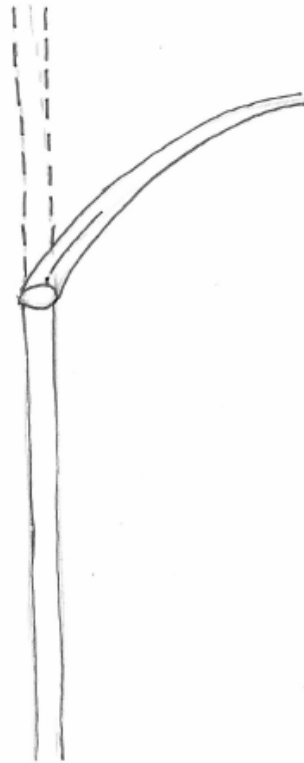
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Vegetative Characteristics

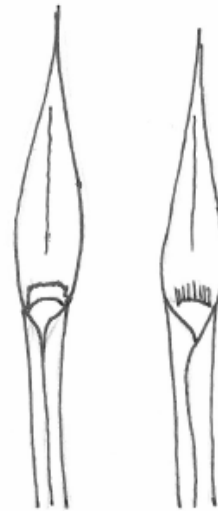
Sheath and Ligules



Open Sheath
(Grasses and
Rushes)



Closed Sheath
(Sedges)



Ligules
(Grasses)

Vegetative Characteristics

The Spikelet



Grasses
A floret (palea + lemma) subtended 2 bracts (glumes).



Sedges
A floret is contained by a single scale.

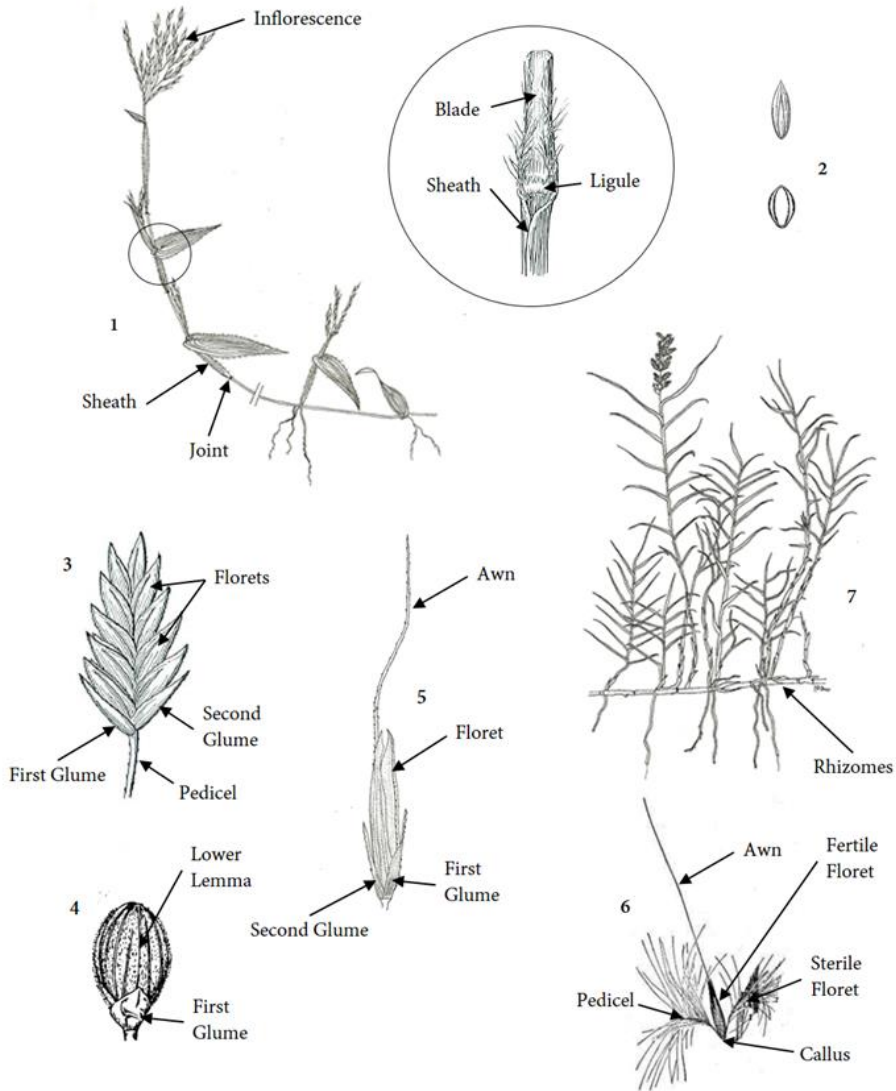


Rushes
A flower with sepals, petals and 2-6 stamens.

GRASSES



GRASSES



Grass Morphology. 1. Vegetative features; 2. Caryopsis (grain). 3-6. Spikelets: 3. Spikelet with many florets. 4. Spikelet with 2 florets (dorsally compressed); 5. Spikelet with one floret (laterally compressed); 6. Spikelet with 2 florets (Andropogon); 7. Rhizomes

- 446 species
- 120 Genera
- 9 larger genera:
 - Aristida (22)
 - Andropogon (18)
 - Dichanthelium (24)
 - Digitaria (20)
 - Eragrostris (29)
 - Panicum (16)
 - Paspalum (30)
 - Setaria (15)
 - Urochloa (14)
- Many widespread species distributed across most habitats
- Key Characters:
 - Stems have joints
 - Leaves 2-ranked
 - Stems hollow
 - Sheaths open

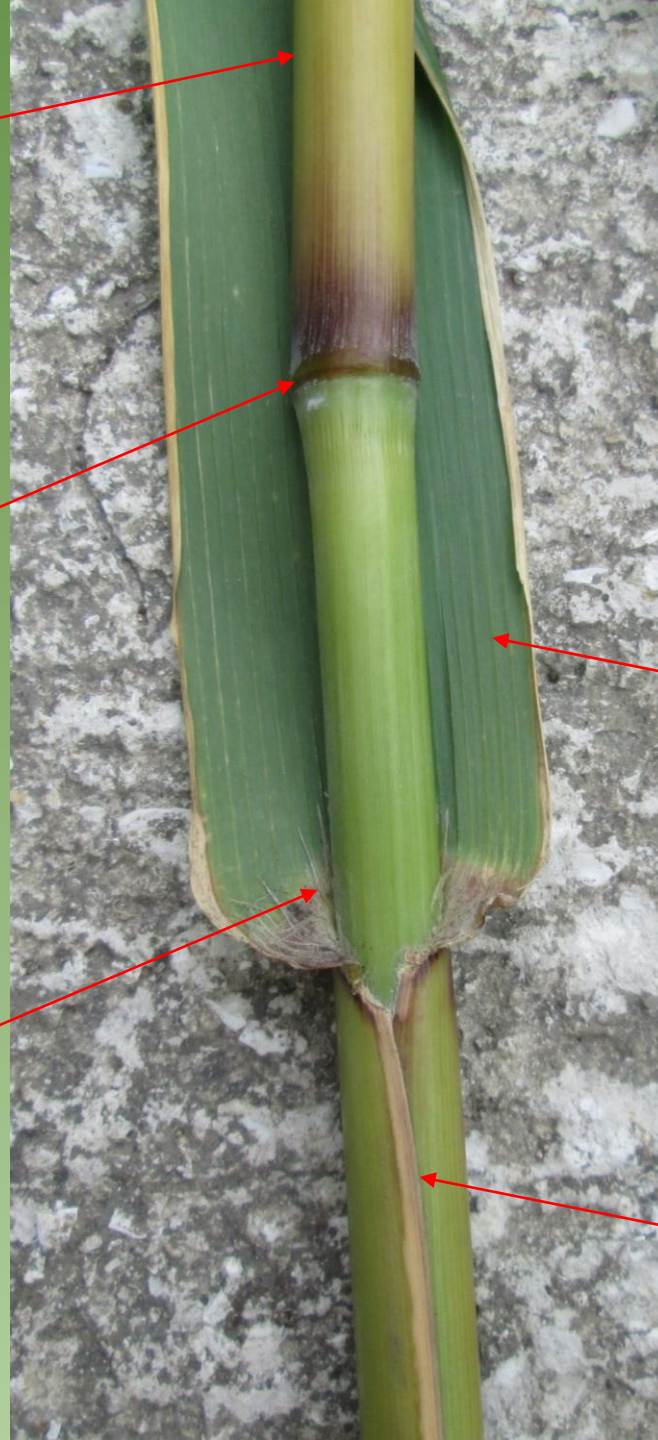
Internode

Joint
(Node)

Ligule Hairs

Blade
(parallel venation)
often with
prominent
midvein

Sheath open
(overlapping)





SEDGES

SEDGES

- 276 Species
- 21 Genera
- Four large genera account for almost 80% of all the species:
 - *Carex* (73)
 - *Cyperus* (58)
 - *Rhynchospora* (56)
 - *Eleocharis* (30)
- Mostly freshwater or brackish wetland habitats
- Several widespread species
 - *Cladium jamaicense*
 - *C. surinamensis*, *C. polystachyos*
 - *R.odorata*, *R. microcarpa*
- **Key Characters:**
 - Trigonus stems (cross section)
 - Inflorescence subtended by bracts
 - Three-ranked
 - Leaves v- or w-shaped (cross section)



Cyperaceae genera: 1. *Carex* (inflorescence and peryginium and achene); 2. *Eleocharis* (plant, spike and achene); 3. *Fuirena* (Spike, paddle like structure and achene); 4. *Scleria* (inflorescence, and achenes); 5. *Abilgaardia ovata* (inflorescence, spikelet and achene); 6. *Schoenus nigricans* (inflorescence, spikelet and achene); 7. *Cladium jamaicense* (inflorescence, achene and close up of blades); 8. *Rhynchospora* (inflorescence and achenes); 9. *Cyperus* (inflorescences, spike and achenes)

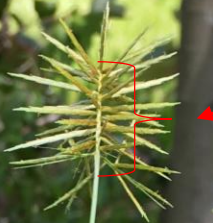
Spike



Culm



Rachis



Peduncle



Involucre
(bracts subtending
the inflorescence)





RUSHES

RUSHES

- 24 Species
- 2 Genera
 - *Juncus* (22)
 - *Luzula* (2)
- Mostly freshwater wetland species
- Several species are very common throughout the state:
 - *Juncus roemerianus*
 - *Juncus effusus*
 - *Juncus megacephalus*
 - *Juncus marginatus*
- **Key Characters:**
 - Round stems
 - Closed sheath
 - Capsule with many seeds



Figure 3: *Juncus* genera. 1-4. Inflorescence type. 1. Head-like (globose); 2, 3, 4. Open panicle. 5-8. Capsules. 5,6. Long, tapering to the apex. 7,8 Abruptly pointed or with short-tapered tip. 9-10. Achenes.



Peduncle

Inflorescence
(head-like
cluster of
capsules)

Bracts subtending
the inflorescence
(not prominent)

Culm

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Grasses and Sedges of Palm Beach and Martin Counties www.floridagrasses.org



Photographs and Illustration Credits:

Photographs:

Erick Revuelta; (*Juncus effusus*), southalabamawildflowers.weebly.com (*Juncus polycephalus*)

Illustrations:

Figure 1: 1. *Neyraudia reynaudiana*. Courtesy of Utah State University. Illustrator: Mary Bankworth. 2. *Rhynchospora microcarpa*. Courtesy of Flora of North America Association. Illustrator: Barbara Alongi. 3. *Juncus megacephalus*. Courtesy of University of Florida IFAS.

Figure 2: *Arthraxon hispidus*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. 2. *Dichantherium aciculare* Hitchcock and Chase. 3. *Digitaria pauciflora* (Hitchcock and Chase). 3. Unknown....; 4. 18. *Dichantherium aciculare* Hitchcock and Chase. 5. *Muhlenbergia capillaris*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. 6. *Andropogon glomeratus*. Hitchcock and Chase. 7. *Distichlis spicata* Courtesy of the Flora of Virginia. Illustrator: Michael Terry.

Figure 3. *Cyperus esculentus*. Courtesy of the University of Georgia. Illustrator: Barbara N. Culbertson. *Cyperus entrerianus*. Courtesy of Flora of North America Association. Illustrator: Yevvon Wilson-Ramsey. *Cyperus echinatus* Courtesy of Flora of North America Association. Illustrator: Yevvon Wilson-Ramsey. *Cyperus ligularis*. Courtesy of Flora of North America Association. Illustrator: Yevvon Wilson-Ramsey. 6. *Cyperus haspan*. Courtesy of the University of Georgia. Illustrator: Barbara N. Culbertson. 7. *Cyperus refractus*. Courtesy of Flora of North America Association. Illustrator: Yevvon Wilson-Ramsey. 8. *Cyperus esculentus*. Courtesy of the University of Georgia. Illustrator: Barbara N. Culbertson. 9. *Cyperus lupulinus*. Courtesy of Flora of North America Association. Illustrator: Yevvon Wilson-Ramsey. . 13. *Cyperus ochraceous*. Courtesy of the University of Georgia. Illustrator: Melanie Darst. 11. *Cyperus elegans* Courtesy of the Flora of North America Association. Illustrator: Yevvon Wilson-Ramsey. 12. *Cyperus flavescens*. Courtesy of the University of Georgia. Illustrator: Barbara N. Culbertson. 13. *Cyperus distinctus* Courtesy of the University of Georgia. Illustrator: Barbara N. Culbertson.

Figure 4. 1. *Juncus scirpoides*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. 2. *Juncus tenuis* Courtesy of the Flora of Virginia. Illustrator: Michael Terry. 3. *Juncus effusus*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. 4. *Juncus marginatus*. Courtesy of the University of Georgia. Illustrator: Grady W. Reinert. 5. *Juncus bufonius*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. *Juncus scirpoides*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. *Juncus tenuis*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. *Juncus marginatus*. Courtesy of the Flora of Virginia. Illustrator: Michael Terry. 9. *Juncus canadensis*. Courtesy of the University of Georgia. Illustrator: Grady W. Reinert. 10. *Juncus megacephalus*. Courtesy of the University of Georgia. Illustrator: Grady W. Reinert. 11. *Juncus romerianus*. Courtesy of the University of Georgia. Illustrator: Grady W. Reinert. 12. *Juncus marginatus*. Courtesy of the University of Georgia. Illustrator: Grady W. Reinert.