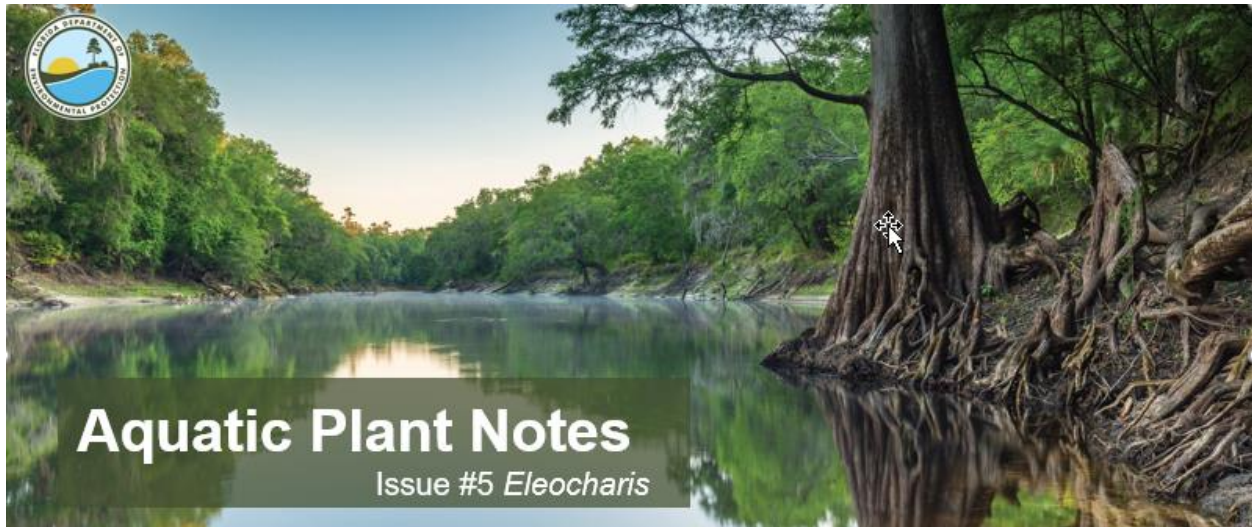




Greetings! This is FDEP's Aquatic Ecology and Quality Assurance Section's periodic e-newsletter to inform Lake Vegetation Index (LVI) samplers and other plant-interested parties of new or noteworthy items related to aquatic plant identification in Florida. In this issue, we introduce *Eleocharis*, a diverse genus of sedge, and provide tips for identifying it in the field and lab.

Eleocharis

Eleocharis is a genus of glabrous (smooth) sedges known commonly as “spikerushes.” They consist of a bladeless sheath around a stem, and the flowers are a single spikelet at the tip of the stem. All *Eleocharis* in Florida grow in wet places, some in completely submersed situations. When *Eleocharis* are emergent, they are either tufted, mat-forming, or have extensive rhizomes or stolons (runners). When *Eleocharis* are submersed, they grow vegetatively (they don't produce flowers or fruits), with some species branching and producing new plantlets at the tips of the stems. For identification purposes here we will divide common Florida *Eleocharis* species found in lakes into 3 groups: robust emergents, wiry and short stemmed (whether emergent or submersed), and slender and long stemmed (emergent or submersed). There are ~24 species in Florida, so please note there are many you may encounter in lake fringes that aren't covered here—especially small, emergent species. This newsletter, however, does include the species likely to be abundant in lakes or on the fringes.

Robust emergent *Eleocharis* species are usually first noticed as stands of medium-dark green stems with conspicuous light brown cylindrical spikes at their tips. They have a thick, erect stem (~0.5-1.0 cm), and a spike that is approximately the same width as the stem. *E. cellulosa* can be distinguished from *E. interstincta* and *E. equisetoides*, because it is smooth-stemmed and does not have cross-walls (Figures 1-3). *E. interstincta* and *E. equisetoides* require achenes to speciate. *E. interstincta* is a south Florida species and *E. equisetoides* is more common in north and central Florida, although their ranges do overlap some in central Florida.

Wiry and short-stemmed *Eleocharis* can be either emergent, in which case they are tufted or mat-forming, or submersed, when they grow in tangled mats and produce spikelets at their tips which sprout and grow right on the parent plant (vivipary), but do not produce flowers or fruits. When wiry, short-stemmed *Eleocharis* have a submersed habit, they should be identified for the LVI as “submersed viviparous *Eleocharis*.” This category includes the species *E. baldwinii*, *E. vivipara*, and *E. acicularis* (Figure 4). When wiry, short-stemmed *Eleocharis* are emergent and mat forming they do produce flowers and fruit, but not always. If spikes are present, the specimen should be collected and identified in the lab. If no spikes are present, it should be left as a genus-level identification (Figure 5).

Slender and long-stemmed *Eleocharis* species include *E. elongata* and *E. robbinsii*. The stems of these species are grassy, ~1-3mm wide, rounded to triangular, spongy and flexible, the spikes not thicker than the stem below, with the emergent portions typically leaning over in the water or partially floating. Both species form extensive mats.

Eleocharis cellulosa

- ❖ Tall (growing to ~0.7m)
- ❖ Stem that is round in cross section, but smooth on the outside (not septate—no cross walls that form ridges) and spongy
- ❖ Stout rhizomes
- ❖ Can form dense stands, usually in shallow water
- ❖ Achene light brown with textured surface



Figure 1. *Eleocharis cellulosa* (Photos floridagrasses.org and Joshua Campbell ISB)

Eleocharis interstincta

- ❖ Tall (1m+ “giant” spikerush)
- ❖ Stem round, ~1 cm thick, septate (conspicuous cross walls showing as light green lines on outside of stem)
- ❖ Stout rhizomes
- ❖ Dense stands
- ❖ More common in S FL
- ❖ Achene yellowish-gray, finely striate; bristles barbed, exceed achene

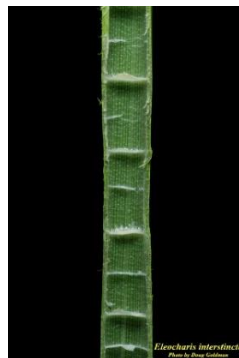


Figure 2. *Eleocharis interstincta* (Photos Betty Wargo, Doug Goldman, Joshua Campbell ISB)

Eleocharis equisetoides

- ❖ Tall (to ~1m)
- ❖ Stem round, septate, bumpiest of three robust species
- ❖ Stout rhizomes
- ❖ Dense stands
- ❖ More common in Cen and N FL (range overlaps w/*E. interstincta* in Polk Co.)
- ❖ Achene very finely textured, bristles slender, short or absent
- ❖ Very similar in overall habit to *E. interstincta*

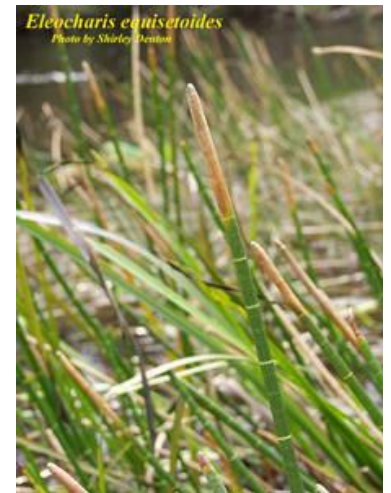


Figure 3. *Eleocharis equisetoides* (Photos Shirley Denton, Joshua Campbell ISB)

Submersed viviparous *Eleocharis*

- ❖ Short, wiry stems, often in tangled mat
- ❖ Produce new plantlets at the tips, but no flowers or fruits
- ❖ Includes *E. baldwinii* (most common), *E. vivipara*, *E. acicularis*
- ❖ ID as “submersed viviparous *Eleocharis*” for the LVI



Figure 4. Submersed viviparous *Eleocharis* (Photos top to bottom: Outdoors Alabama, Ann Murray UF/IFAS, DEP)

Emergent, mat-forming *Eleocharis*

- ❖ Short, wiry stems (<20cm)
- ❖ *Eleocharis baldwinii* (“road grass”) most common
- ❖ In saturated soil or shallow water
- ❖ Produces a reddish-brown spike that is wider than the stem, with flowers/fruits
- ❖ Also can be viviparous!



Figure 5. Emergent mat-forming *Eleocharis* (Photos top to bottom: Shirley Denton ISB, DEP, Joshua Campbell ISB)

Eleocharis elongata

- ❖ Stems slender (1-3 mm), long (to 0.8m), grass-like, spongy
- ❖ Stems rounded to barely angled
- ❖ Weakly erect to floating when emersed
- ❖ Rhizomes red
- ❖ Achenes smaller (.5-1.5 mm)
- ❖ Dark band on floral scale



Eleocharis robbinsii

- ❖ Stems slender (1-3mm), long (to 0.8m), grass-like, spongy
- ❖ Stems strongly triangular
- ❖ Weakly erect to floating when emersed
- ❖ Rhizomes not red
- ❖ Achenes larger (2.0 mm-2.5 mm)
- ❖ No dark band on floral scale



Figure 6. Top *Eleocharis elongata*; Bottom *E. robbinsii* (L) and *E. elongata* (R) (Photos Nia Wellendorf, ISB top, DEP)

Figure 7. *Eleocharis robbinsii* (Photos Nia Wellendorf, ISB top, DEP)

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