



AQUATIC PLANT NOTES

Issue #3

Introducing the Bladderworts

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. The focus of the next few newsletters will be distinguishing between similar species of *Utricularia* (the bladderworts). This issue will introduce the genus, and compare two common, and commonly confused, species, *Utricularia floridana* and *U. foliosa*.

The Genus Utricularia

Utricularia is a genus of carnivorous, aquatic (free floating) and semi-aquatic (attached to wetland soil) herbaceous plants. *Utricularias* typically form mats or colonies and produce small bladders that trap and digest tiny aquatic organisms. The vegetative parts of *Utricularia* are not clearly separated into roots, stems, and leaves, and can be best described as having dissected "branches" that take different forms depending on the species. Flowers are two-lipped and either yellow, purple, or white. There are over 200 species of *Utricularia* worldwide, and 14 species of *Utricularia* native to Florida.

The bladders of *Utricularia* are understood to be among the most complex structures in the plant kingdom. They are somewhat like suction bulbs, with valves and bristle-like hairs at the opening that are sensitive to the motion of passing organisms like water-fleas (*Daphnia*). The hairs trigger the flattened bladder to inflate, sucking water and the prey inside, and closing the valve after it. For an up-close look at the *Utricularia* bladder mechanism: https://www.youtube.com/watch?v=Zb_SLZFsMyQ.

Utricularia floridana and Utricularia foliosa

Utricularia floridana and *U. foliosa* are two species of aquatic bladderwort found in Florida lakes. *U. floridana* is an occasional species that may be locally abundant, and is found in the northern and central peninsula and the central and western panhandle. *U. foliosa* is frequently found throughout the peninsula, and in the central panhandle. Both species have extensive submersed vegetation, and emergent stalks of yellow flowers, but they are readily distinguished, with or without flowers. *U. floridana*'s growth form looks like a foxtail or feather boa, while *U. foliosa* has spreading, more dissected leafy branches that are triangular in outline, giving it the look of an underwater fern. *U. floridana* stems attach to the substrate, while *U. foliosa* is completely free-floating. The scapes (main flowering/fruiting stalks) of *U. floridana* are about twice the length of those of *U. foliosa*. The mature pedicels (individual

fruiting stalks) are recurved (bent downward) in *U. foliosa*, and straight and erect in *U. floridana*. *U. foliosa* has a distinctive, thick, flat, slimy stem, and *U. floridana* lacks this feature.

Utricularia floridana

- ❖ Foxtail or feather boa-like growth form
- ❖ Separate foliar branches and bladder branches (dimorphic)
- ❖ May be locally very abundant; may be dominant or co-dominant in LVI
- ❖ Color is green to purple
- ❖ Slender, round main stem
- ❖ Emergent yellow flowers
- ❖ Straight, erect individual fruiting stalks

Utricularia foliosa

- ❖ Branched leafy growth with triangular outline
- ❖ Separate foliar branches and bladder branches (dimorphic)
- ❖ May be very abundant; may be dominant or co-dominant in LVI
- ❖ Color is green to purple
- ❖ Flattened, thick, slimy main stem
- ❖ Emergent yellow flowers
- ❖ Recurved individual fruiting stalks



Figure 1. *Utricularia floridana* habit, foxtail appearance (Photo by Ashley O'Neal, FDEP)



Figure 2. *Utricularia foliosa* habit, triangular in outline. (Photo by Mike Dalsis, FDEP)



Figure 3. *Utricularia floridana*, abundant and in full flower (Photo by Nia Wellendorf, FDEP)



Figure 4. *Utricularia foliosa*, in flower (Photo by Shirley Denton, ISB)



Figure 5. *Utricularia floridana*, underwater view (Photo by Leif Boman, FDEP)



Figure 6. *Utricularia foliosa*, thick, flat main stem. (Photo by Nia Wellendorf, FDEP)



Figure 7. *Utricularia floridana*, bird's eye view (Photo by Leif Boman, FDEP)



Figure 8. *Utricularia foliosa*, foliar branches on left, bladder branches on right (Photo by Shirley Denton, ISB)

References

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