

# Species Factsheet

## *Nitellopsis obtusa*, Starry Stonewort

*Nitellopsis obtusa* is a macroalgae in the family Characeae which is non-native in Wisconsin. It is dioecious, meaning its gametangia (female oogonia and male antheridia) are found on separate plants. Gametangia develop at branchlet nodes adjacent to large cells called bracts. These large bract cells are easily mistaken for furcated or forked branchlets, a characteristic of the related genus *Nitella*. Instead, *N. obtusa* has simple, or non-forked branchlets similar to the more common genus *Chara*.

Only male *N. obtusa* (antheridia) plants are currently known in North America. While in the field keep an eye out for gametangia. Often, *N. obtusa* gametangia are visible with the naked eye, however determining if they are oogonia or antheridia might require a 20x Hasting triplet hand lens. The 20x hand lens is very small (8.3 mm diameter; focal distance 1.3 cm) and some find it difficult to use. It is always recommended to collect voucher specimens in the field and use a microscope to assist in identification when back in the lab.



**Figure 2.** *Nitellopsis obtusa* antheridium (male reproductive structure) at branchlet node. (Sleith et al., 2015).

### Terminology

**Gametangium (plural gametangia)** – specialized organs where egg or sperm (gametes) are produced (Figure 1a-e)

**Oogonium** (plural oogonia) – organ where the egg is produced; typically oblong, light green to dark brown in color, always covered with five spiral jacket cells and topped with a cluster of five small ‘crown’ cells

**Antheridium** (plural antheridia) – organ where sperm are produced; typically globose, light green to dark orange in color (Figure 1a, Figure 2)

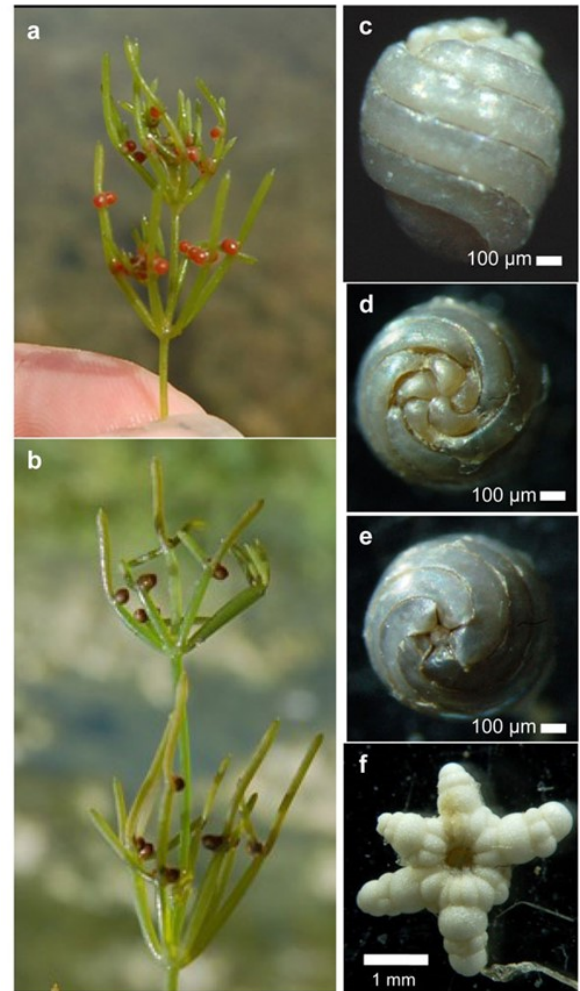
**Oospore(s)** – fertilized oogonium; result of gametes fertilization formed by sexual reproduction

**Gyrogonites** – calcified oospores (Figure 1c-e); can form a seed bank for long term survival

**Bulbil** – starch-rich, asexual reproductive structure; results in clone of parent; develop predominately on rhizoids (thin, root-like filaments), star-shaped only in *Nitellopsis* (Figure 1f)

### References

- Boissezon, A., D. Auderset Joye & T. Garcia (2017). Temporal and spatial changes in population structure of the freshwater macroalga *Nitellopsis obtusa* (Desv.) J.Groves. Botany Letters, 165(1): 103-114.
- Sleith, R.S., A.J. Havens, R.A. Stewart & K.G. Karol. (2015). Distribution of *Nitellopsis obtusa* (Characeae) in New York, U.S.A. Brittonia. 67(2): 166-172.



**Figure 1.** *Nitellopsis obtusa* a. habit of male with antheridia b. habit of female with calcified oospores (gyrogonites) c. side view of gyrogonites d. top view of gyrogonite e. bottom view of gyrogonite f. star shaped bulbil (Boissezon et al., 2017).