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Mussel of the Month

The **August 2017 Mussel of the Month** is Strophitus undulatus. Strophitus is a genu species, widespread in eastern North America.

UMMZ 209137. Lake Pepin, Lake City, Minnesota. Wagner!
(type of S. rugosus pepinensis F.C. Baker)

There are three species currently classified in the genus Strophitus. S. undulatus, our M the Month, is widespread in the Interior Basin, Hudson Bay, Great Lakes, and the Nortl Slope drainages in eastern North America. Its genus-mates, **S. connasaugaensis** and **subvexus**, are both endemic to waters of the Gulf Coastal Plain. There is some interes biogeography to discuss there, but we are going to focus on systematics and classificat month. Strophitus is emblematic of the remaining work yet to do on American mussels

North American freshwater mussels are among the best studied in the world, and Strop well known owing to its broad range. We would have expected that its classification wa on as firm of a foundation as any other genus. It turns out that is true, but if you read of the Month frequently, you know that many genera are pretty rickety. Strophitus is o

Strophitus is a Rafinesque (1820) genus created solely for S. undulatus. The genus wa throughout the 19th century in various lists, as often as not synomyzing it with the the concept of **Anodonta**. Conrad (1853) used Strophitus for a hodge-podge of species no in **Anodontoides**, **Alasmidonta**, **Simpsonaias**, **Lasmigona**, **Pegias**, as well as S. u Our current concept of Strophitus dates from Simpson (1900, 1914). He included the t species listed above, plus Anodontoides radiatus and Alasmidonta wrightiana.

Simpson (1900, 1914) recognized Strophitus as distinct based on the arrangement of t in the marsupium. Lefevre & Curtis (1912:122) described it this way:

> "[Strophitus] is unique among the Unionidae in that the embryos and glochidia a embedded in gelatinous cords (called 'placentae' by Sterki, 'placentulae' by Ortm which lie transversely in the gills, whereas in all other cases the egg masses are placed vertically, each one occupying an entire water tube. In Strophitus, on the hand, the cords are packed closely together, like chalk crayons in a box, a variab number being contained in a single water tube, while the blunt ends of the cords distinctly seen through the transparent external lamella of the outer gill."

Both Simpson (1900) and Ortmann (1912) provided descriptions of these structures, b were as colorful as the this! See Watters (2002) for a detailed description of those "cor glochidia.

These descriptions of such striking reproductive characters were based on S. undulatus Simpson (and everyone else) attributed these diagnostic traits to the genus. However, species of Strophitus were classified as such based on similarities of the hinge. A new g species was established because they shared such a strikingly unique arrangement of l marsupium that Simpson coined a new word ("Diagenae") to describe it, but it was onl in one species.

That alone does not mean that Strophitus is not a good genus — that it is not monophy all, having a curved hinge and weak hinge teeth may in fact be shared derived homolo synapomorphies) among S. undulatus, S. connasaugaensis, and S. subvexus. Howeve out that they are not. At least two phylogenetic analysis to-date have included more th species of Strophitus (Chong et al., 2008; Inoue et al., 2014), and each species appea a more recent common ancestor with members of other anodontine genera than with e However, for neither of these studies was the phylogeny of Strophitus the objective, ar sleeping dog was left to lie.

So, add Strophitus to the list of genera that would benefit from more attention by taxo

Classification:

Phylum Mollusca
Class Bivalvia
Subclass Palaeoheterodonta
Order Unionoida

Family UNIONINDAE Rafinesque, 1820
Subfamily UNIONINAE s.s.
Tribe ANODONTINI Rafinesque, 1820

Genus ***Strophitus*** Rafinesque, 1820

Species ***Strophitus undulatus*** (Say, 1817)

To find out more about Strophitus, check out:

- **Chong, J.P., J.C. Brim-Box, J.K. Howard, D. Wolf, T.L. Myers & K.E. Mock.** Three deeply divided lineages of the freshwater mussel genus Anodonta in weste America. Conservation Genetics 9: 1303-1309.
- **Inoue, K., A.L. McQueen, J.L. Harris & D.J. Berg. 2014.** Molecular phylogene morphological variation reveal recent speciation in freshwater mussels of the ger Arcidens and Arkansia (Bivalvia: Unionidae). Biological Journal of the Linnean So 112(3): 535-545.
- **Lefevre, G. & W.C. Curtis. 1912.** Studies on the reproduction and artificial pro fresh-water mussels. Bulletin of the Bueau of Fisheries, 30: 107-201.
- **Simpson, C.T. 1900.** Synopsis of the naiades, or pearly fresh-water mussels. Pr of the United States National Museum 22: 501-1044.
- **Simpson, C.T. 1914.** A descriptive catalogue of the naiades, or pearly fresh-wa Parts I-III. Published by Bryant Walker, Detroit, Michigan. 1540 pp.
- **Watters, G.T. 2002.** The kinetic conglutinate of the creeper freshwater mussel, undulatus (Say, 1817). Journal of Molluscan Studies 68(2): 155-158.

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"Making the world a better place, one mollusk at a time."