

AN UNDESCRIBED STRUCTURAL FEATURE IN THE MARSUPIUM
OF *ELLIPTIO LANCEOLATA* (LEA 1828) (UNIONIDAE)

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ABSTRACT

Some populations of Elliptio lanceolata (Lea 1828) from the Atlantic drainage of the United States bear a longitudinal rib on the posterior surface of each of a number of interlamellar septa near the middle of the marsupial (outer female) demibranch. A discussion of the taxonomic implications of this discovery concludes with the rejection of E. arctata (Conrad 1834) as a possible name for such populations. The septal ribs of E. lanceolata are contrasted to the structurally and evolutionarily very different ones found in Uniomerus. Possibly the ribs in E. lanceolata developed as a source of additional support for the marsupium.

Samples of *Elliptio lanceolata* (Lea 1828) from the Cape Fear River, North Carolina, exhibit a curious structural feature of the marsupial water tubes: a more or less conspicuous rib runs medially along the interlamellar septum for most of the height of the (outer) demibranch. Although plainly visible from the anterior side, the rib intrudes into the lumen of the water tube from only the posterior surface of the septum (why the reverse should not be the case is obscure). The rib is more common and strongly developed on septa which lie at or near the longitudinal midpoint of the demibranch - i.e., in the region of its greatest height. The rib interferes with formation of the egg mass, which exhibits a corresponding, more or less straight, shallow groove on its anterior surface.

These *Elliptio* are referable to *Unio perlatus* Lea 1863, whose type locality is "Cape Fear River, Black Rock Landing [=2 mi. S Kings Bluff, Bladen Co.], North Carolina" (Johnson, 1970: 332). Most of my material is from points upstream in Bladen and Cumberland Counties. Johnson (*ibid.*) referred this taxon to *Elliptio arctata* (Conrad 1834), originally described from the Alabama River system in the Gulf drainage and, in the Atlantic drainage, "known only from the several type lots [of its synonyms], and from a rather large unlocalized series from the Cape Fear River, North Carolina." An unusually thin and laterally compressed shell with a somewhat arcuate ventral margin is common to all this material - and does resemble the shell of Gulf drainage *E. arctata* - but these characters frequently occur in *E. lanceolata*,

particularly in the southern one half or so of its range.

That Johnson's (*ibid.*) concept of Atlantic drainage *Elliptio arctata* depends upon scattered specimens without unique conchological characters suggests that there is little to be gained by separating this material from *E. lanceolata*. The septal ribs of Cape Fear River *lanceolata* might be grounds for distinguishing them taxonomically from other *Elliptio* had I not observed (a less developed version of) this phenomenon in conchologically ordinary *lanceolata* from the Patuxent River system on the Western Shore of Maryland near the northern limit of this species' range. (It must be emphasized that this point of view does not preclude the possibility that true *arctata* occurs somewhere in the Atlantic drainage.)

Otherwise than septal ribs, Cape Fear River *Elliptio lanceolata* do not differ anatomically from the descriptive notes of Ortmann (1912), Reardon (1929), or Fuller (1971). Therefore, I am inclined to view these ribs as nothing more than another (and occasional) difference between this species and the more common and widespread *E. complanata* (Lightfoot 1786), from whose ancestors the *lanceolata*-type was probably an offshoot.

The single, longitudinal groove on the anterior surface of the egg mass in some *Elliptio lanceolata* is reminiscent of the numerous, transverse grooves on both surfaces of the egg mass in *Uniomerus*. In the latter genus, egg mass sculpture reflects imperfect septal fusion (Fuller, 1971), whereas the septum is a per-

fectly fused, superficially smooth structure in *Elliptio*. The septal ribs of *lanceolata*, then, appear to be an adaptation which has little or nothing to do with the degree of development of the septum. Perhaps their role is to provide the marsupium with additional support against its collapse and the destruction of its contents. Perhaps these ribs developed during a prolonged arid period, when desiccation was a threat to life and reproduction.

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