SYSTEMATICS AND PHYLOGENY OF PLIO-PLEISTOCENE SPECIES OF TURRITELLIDAE (GASTROPODA) FROM FLORIDA AND THE ATLANTIC COASTAL PLAIN

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ABSTRACT

Turritellid gastropods are among the most widespread, abundant, and diverse mollusks in Plio-Pleistocene deposits of the Atlantic coastal plain and Florida, with at least 46 species and subspecies described over almost two centuries. Yet the systematic status of these common fossil species and their phylogenetic relationships—to each other and to turritellids living today in the western Atlantic—have never been investigated in detail. We make use of recent molecular phylogenetic work on living turritellids and new analyses of shell characters to review the group from this time interval to the present in a comprehensive phylogenetic analysis and assessment of their evolutionary history in the region. We conclude that 20 fossil and two Recent species are valid. Four of these species are placed in the genus *Torcula* Gray, 1847; five in *Caviturritella* new genus, and eleven in "*Turritella*" *sensu lato*. We identify *Torcula perattenuata* as the likely direct ancestor of one of the two turritellid species living today off the southeastern U.S. coast, *Torcula exoleta*, and we elucidate the fossil record of the other extant species, "*Turritella" perexilis* (senior synonym of *Turritella acropora*). We show that *Caviturritella* was extirpated from the United States Gulf and Atlantic coastal plains in the Early Pleistocene but is still represented in the western Atlantic by the living species *C. variegata* in the southern Caribbean. We also present the first detailed treatment of Plio-Pleistocene turritellid fossils from Georgia. Our analysis shows that the Plio-Pleistocene Pinecrest beds of Florida contain 18 co-occurring turritellid species, which is the highest turritellid species diversity in one formation known in the fossil record.

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