

FILLING A BIOGEOGRAPHIC GAP: DO VOLUTES WITH PLANKTIC LARVAE ACTUALLY HAVE WIDER GEOGRAPHIC RANGES?

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One possible factor in the longevity and geographic range of a species is its mode of larval dispersal. Several previous studies have suggested that taxa with planktotrophic larvae generally have wider geographic and stratigraphic ranges than those with other larval types. However, if larval type is correlated with habitat, regional sampling gaps may lead to spurious correlations. Larval types preferring better-sampled habitat types would have apparently wider ranges due to sampling error.

Ongoing studies on the Middle and Upper Eocene of North and South Carolina have yielded diverse molluscan faunas which are poorly documented in the current literature. The gastropod family Volutidae is particularly diverse, with at least twelve taxa. Also, it is well-studied in other regions of the eastern U.S. over this time interval. The protoconch morphology is considered to be a reliable indicator of larval lifestyle in this family. It was therefore chosen for the present study.

Although previous studies found that planktotrophic taxa had significantly wider geographic and stratigraphic ranges, almost all of the present taxa have direct development, and many show very wide ranges. As a result, the correlation becomes much less significant. This suggests that habitat preferences and sampling biases may be the main factors determining the apparent pattern of species range and duration for this group.