

**Isotopic ecology of the modern land snail *Cerion*, San Salvador, Bahamas:  
Preliminary advances toward establishing a low-latitude island paleoenvironmental  
proxy**

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**ABSTRACT**

The isotopic ecology of terrestrial snails from tropical island settings is not known despite the importance of such data sets for paleoenvironmental reconstructions. In this study, variations in carbon ( $^{13}\text{C}/^{12}\text{C}$ ) and oxygen ( $^{18}\text{O}/^{16}\text{O}$ ) isotope ratios obtained during whole-shell and sequential-rib analyses of the modern land snail, *Cerion*, reveal a record of diet and local environment on San Salvador, Bahamas. The mean  $\delta^{13}\text{C}$  value of adult *Cerion* shells collected from  $\text{C}_4$  vegetation is higher by 1.0‰ relative to snails collected from  $\text{C}_3$  plants, suggesting that carbon isotopes in shell carbonate reflect the dominant plant type in the diet, though the broad range of shell carbonate  $\delta^{13}\text{C}$  confirms a varied diet for this genus. The mean  $\delta^{18}\text{O}$  values of adult *Cerion* shells collected from the west coast of San Salvador are 0.8‰ higher than those collected from the east coast of the island. This difference may reflect the incorporation of water vapor derived from  $^{18}\text{O}$ -rich hypersaline lakes located in the island's western interior. Sequential-rib analysis of one adult *Cerion* shell reveals variations in  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  values through ontogeny that may reflect changes in food source and rainfall seasonality, respectively. This study lays the groundwork for future studies to establish fossil *Cerion* as a valuable paleoenvironmental proxy for San Salvador and the Bahamas.