SUPPLEMENTARY FILE CAPTIONS

Supplementary Figure 1. Comparison of lithification depths derived from plastron length and carapace length. Overall, both depth proxies are highly concordant (R = 0.91) with only two marked exceptions (one Adocus and one Hoplochelys). However, carapace length for all three Hoplochelys appears to overestimate depth, hinting at a different interrelationship between carapace length, plastron length, and shell height that likely reflects a different evolutionary trajectory in shell construction.

Supplementary Table 1. Plastron size data and plastron-based burial-depth estimates. See linked Excel spreadsheet.

Supplementary Table 2. Carapace size data and carapace-based burial depth estimates. See linked Excel spreadsheet.

Supplementary Table 3. Different surface porosity values used to estimate burial depth.

Supplementary Table 4. Outcomes of similarity tests between plastron- and carapace-based depth estimates. Plastron and carapace depth models are similar.

Supplementary Information 1. Reconstruction of thickness of overlying sediment packages

Supplementary Information 2. R Script See linked R file.