

Evolution of snake courtship and combat behavior

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A small study suggests snakes may have developed courtship and male-to-male combat behavior, such as moving undulations, neck biting, and spur-poking, over time, according to a study published September 24, 2014 in the open-access journal *PLOS ONE* by Phil Senter from Fayetteville State University and colleagues.

Behaviors involved in courtship and male-to-male combat have been recorded in over 70 snake species from five families in the clade Boidae and Colubroidea, but before now, scientists had yet to look for evolutionary relationships between these behaviors. The authors of this study analyzed 33 courtship and male-to-male combat behaviors in the scientific literature by plotting them to a phylogenetic tree to identify patterns. The authors identified the patterns in behaviors, which was not always possible, and then used the fossil record to match the behaviors to the snakes' evolution.

Researchers found that male-to-male combat of common ancestors of Boidae and Colubridae in the Late Cretaceous likely involved combatants raising the head and neck, attempting to topple each other. Poking with spurs may have been added in the Boidae clade. In the Lampropeltini clade, the toppling [behavior](#) was replaced by coiling without neck-raising, and body-bridging was added. Snake courtship likely involved rubbing with spurs in Boidae. In Colubroidea, courtship ancestrally involved chin-rubbing and head- or body-jerking. Various colubroid clades subsequently added other behaviors, like moving undulations in Natricinae and Lampropeltini, coital [neck](#) biting in the

Eurasian ratsnake clade, and tail quivering in Pantherophis. Although many gaps in the evolution of [courtship](#) and combat in snakes remain, this study provides a first step in reconstructing the evolution of these behaviors in [snakes](#).

More information: Senter P, Harris SM, Kent DL (2014) Phylogeny of Courtship and Male-Male Combat Behavior in Snakes. *PLoS ONE* 9(9): e107528. [DOI: 10.1371/journal.pone.0107528](https://doi.org/10.1371/journal.pone.0107528)

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