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Research Article

**Sex ratios of American alligators (Crocodylidae): male or female biased?**

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**Abstract**

Recent theoretical papers on temperature-dependent sex determination in reptiles are based on the assumption that crocodylian populations, particularly adults, are markedly female biased. While there is evidence that some crocodile populations may conform to this expectation, there is no compelling evidence that American alligator populations are female biased anywhere in the species' range. Previous data had indicated that some populations of juvenile and/or adult alligators were significantly male biased. However, these studies were criticized for sampling errors. Adult males typically occupy a different habitat from that of females, and males frequent areas where they are more likely to be caught. In contrast, in juveniles, both sexes occupy the same habitat. We determined the sex ratios of c. 3000 juvenile alligators collected from 11 sites over 6 years in south Louisiana. Our results indicate a significant sex bias (58% male), but variation was evident among samples. Sex ratios varied by year and site, and the interaction of these factors was significant. At one site in one year, there was a female bias (71%), but in no year was there an overall female bias across sites. From this study and earlier reports, we conclude that there is no evidence at present of female-biased sex ratios in the juvenile and/or adult alligator populations, and consequently, that certain models of temperature-dependent sex determination in reptiles require re-evaluation. Furthermore, our data suggest a pattern of differential mortality of females vs males during the first years of life, a pattern consistent with a key prediction of several differential fitness models for the adaptive significance of temperature-dependent sex determination in reptiles.

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