

FEATURE ARTICLES

SEX HORMONES IN THE SONG WREN: VARIATION WITH TIME OF YEAR, MOLT, GONADOTROPIN RELEASING HORMONE, AND SOCIAL CHALLENGE

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Abstract. Little is known about the role that hormones play in controlling the life cycles and behaviors of resident, tropical-forest passerines. In this study, we document levels of the sex hormones dihydroepiandrosterone (DHEA), estradiol, luteinizing hormone (LH), progesterone, and testosterone in male and female Song Wrens (*Cyphorhinus phaeocephalus*) during the breeding season. In males, we found no significant seasonal changes in sex hormones and no effect of molt or experimental social challenge on hormone levels. The lack of population-level variation in sex hormone levels throughout the reproductive season highlights the asynchronous nature of reproduction in this species. Stimulation of the hypothalamo-pituitary-gonadal axis through injection of gonadotropin-releasing hormone (GnRH) did not affect sex steroid levels in males but did cause a significant increase in LH levels. Low basal testosterone levels in males and the failure of males to respond to GnRH or social challenge with an increase in testosterone indicates either a limited role for systemic testosterone or a system highly sensitive to small changes in hormone titers. Levels of LH, progesterone, and testosterone were similar in females with and without active brood patches, though DHEA levels were higher in females with them. As in males, reproductive hormone levels in females did not change with body or wing molt. However, although wing molt was not significantly related to brood patch status, body molt was negatively associated with the presence of active brood patches in females. This result may suggest an inability of females to engage in body molt and breeding simultaneously.

Key words: challenge hypothesis, *Cyphorhinus phaeocephalus*, DHEA, GnRH, luteinizing hormone, testosterone, tropics.