

Public Abstract

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Title:BEHAVIORAL ENDOCRINOLOGY OF FEMALE GRAY TREEFROGS, *HYLA VERSICOLOR*, IN RESPONSE TO ACOUSTIC STIMULATION

Particularly in organisms with a limited breeding period, females must rely on both external and physiological cues to regulate the timing of reproduction. I investigated the relationship between male advertisement calls, and reproductive hormones and behavior of females in the gray treefrog, *Hyla versicolor*. I found that wild female treefrogs show the greatest elevation of steroids on breeding nights, and non-breeding females had elevated levels of estradiol and testosterone during the breeding season relative to the non-breeding season. Injections of progesterone and prostaglandin elevated estradiol levels and promoted reproductive behaviors in a manner similar to naturally breeding females. Over the time scale of an entire breeding season, females that previously heard male calls were not more likely to elevate reproductive steroids or to seek out calling males. On breeding nights, females that heard male calls had elevated levels of estradiol and took longer to deposit eggs than females that did not. Most females laid eggs on breeding nights regardless of whether a male was present, however, steroids were elevated only in the presence of a male. My findings suggest which hormones may be influencing female reproductive behavior, and the time scales over which male calls influence female reproduction. Overall my research contributes to a greater understanding of the mechanisms regulating vertebrate reproduction, which could have implications for conservation or captive management of frogs.