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

Noah M. Gordon

Dr. H. Carl Gerhardt, Dissertation Supervisor

ABSTRACT

Particularly in organisms with a limited breeding period, females must rely on both external and physiological cues to regulate the phenology of reproduction and behavior. I investigated the relationship between male acoustic signals, and the endocrinology 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 phonotaxis in a manner similar to naturally breeding females, suggesting these hormones may influence this reproductive behavior.

Over the time scale of an entire breeding season, females that heard conspecific signals were not more likely to elevate reproductive steroids or to seek out or amplex calling males. On breeding nights, females that heard conspecific calls had elevated levels of estradiol and took longer to oviposit than control females. Females oviposited regardless of whether a male was present, however, postoviposition estradiol and testosterone levels were elevated only in the presence of an amplectant male. My findings suggest that male acoustic signals influenced female reproduction during breeding nights, but not over longer time scales.