

INTEGRATION OF METHODS TO STUDY MATE CHOICE BEHAVIOR IN TREEFROGS

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ABSTRACT

My research incorporates results from a variety of methods to understand behavior. In my dissertation, I examined female behavior to novel, complex calls. In the gray treefrog species complex, *Hyla versicolor* and *H. chrysoscelis*, males only produce simple calls but females respond favorably to artificial, complex calls. Potential rules that constrain the attractiveness of these novel calls may be explained by temporally-selective neurons that count pulses. I describe how the response properties of neurons may contribute to the behavioral selectivity of these treefrogs, as well as examine species differences in behavior. I further explored behavioral differentiation by using genetic methods to determine genetic differentiation within the species *H. chrysoscelis*. Behavioral differences have been reported between different populations of this species. Using microsatellite loci, I found evidence for three distinct lineages: eastern, western, and Ozark. Overall, my results provide insights on mate choice behavior and how results using different methodologies, such as neurophysiology and genetics, contribute to a thorough understanding of behavior.