

# Mitch Tucker, Biological Sciences

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## **Effects of polyploidy on female call preference in gray treefrogs, *Hyla chrysoscelis***

*Mitch Tucker, Sarah Humfeld, and H. Carl Gerhardt*

The gray treefrog complex consists of two cryptic species; *Hyla versicolor* is a tetraploid (N=48) species that arose from the polyploidization of its diploid counter-part, *H. chrysoscelis* (N=24) and two other extinct treefrog species. Speciation via polyploidy is almost instantaneous because polyploid species are isolated reproductively from their non-polyploid ancestors. However, the establishment of newly arisen polyploid lineages requires assortative mating between polyploids. Genome duplication has been shown to affect the quality of the male's species-specific mate-attraction signal, thus polyploids could be reproductively isolated from their diploid ancestors through the action of female mating preferences. Autopolyploid individuals I generated last summer (polyploidy was verified by initial karyotyping) are currently reaching sexual maturity. Once sexually mature, the acoustic mate-choice preferences of female polyploids will be tested using playback experiments. The experimental tests will compare preferences for call traits that vary between the two species, including frequency, pulse shape, and pulse rate. We hypothesize that these changes in the communication system result from ploidy-induced changes in tissue and cellular dimensions. Thus, as a related experiment, we will also look for effects of larval density on blood cell size, male calls and female preferences. We expect to find that polyploidy affects the advertisement-call preferences of female *H. chrysoscelis* treefrogs, independent of other factors. Preliminary results indicate that autopolyploid individuals are able to reach sexual maturity and that there is an effect of polyploidy on blood cell size.