Project Report

Hybridization, climate change and habitat alterations

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We are studying a hybrid zone between two subspecies of hummingbird in Texas – black-chinned (BCHU) and ruby-throated (RTHU) hummingbirds. We are interested in the degree of hybridization that is occurring between these species and the role differences in male courtship behavior could be playing in hybridization (promoting or hindering this process). There are two main features of the courtship behavior of these species – U-shaped dives where males produce a sonation with their tail and shuttles which occur closer to females and generate a buzzing sound.

Previous genetic work in the system and observations from eBird suggested Travis County occurred at the center of the hybrid zone making it the perfect setting for our work. We spent just under a week in Pace Bend (May 19-22, 2021), quantifying the courtship behavior of male hummingbirds using video cameras and sound recorders. We also captured these birds to obtain feather and blood samples.

We are still working on the data we obtained but we can say that phenotypically the birds we captured in Pace Bend appear to be BCHU. The sounds produced in their courtship displays do not align perfectly with this species; data obtained outside the hybrid zone (in western and eastern Texas) show that the tail sonations RTHU produce in their U-shaped dives are at a lower frequency sounds then BCHU (Figure). The opposite trend is observed in the shuttles. Males from Pace Bend (Hybrid) are closer to BCHU in their shuttles but there are still significant differences, with hybrid males producing higher frequencies during this display element. We are still analyzing the videos from these birds and extracting DNA to examine their genetic makeup. Future work will examine female preference for hybrid displays.

We are thankful to the Travis County Parks and Balcones Canyonlands Preserve for allowing us to conduct research in the park this year. One postdoc and four undergrads worked on this project; obtaining important training for their research careers.

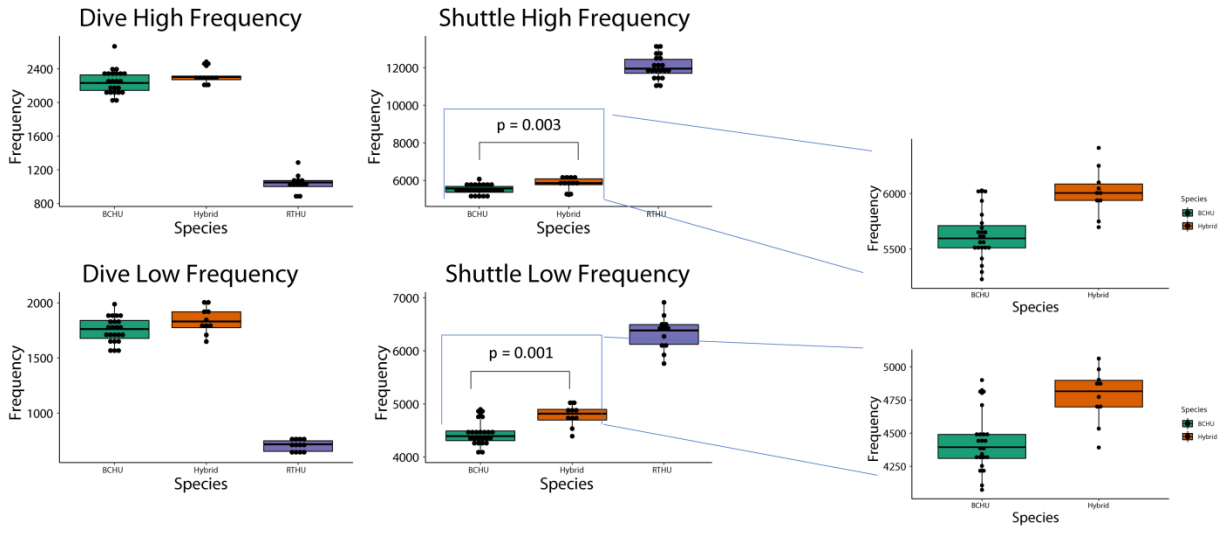


Figure. Preliminary comparisons of sounds produced during the courtship displays of male hummingbirds.