

Report on research supported by the Blake Fund: “Song Performance and Social Mate Choice in Prairie Warblers”

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Overview

I used my Blake Fund award to purchase high-end field recording equipment for use in an ongoing investigation of the connection between female mate choice and male singing in wood-warbler species. In particular, I am testing the prediction that female warblers prefer males whose singing is highly consistent, singing in which successive songs differ very little. I have previously found evidence of such a female preference in Chestnut-sided Warblers (*Dendroica pensylvanica*), and during the breeding season of 2010, I collected data to determine whether a similar preference is present in Prairie Warblers (*Dendroica discolor*).

Activities Completed

My 2010 field work took place in Montague, Massachusetts, and was performed in collaboration with Michael Akresh and David King, who are colleagues of mine at the University of Massachusetts. Working with a small team of undergraduate assistants, we recorded songs from approximately 50 male Prairie Warblers, each one recorded on multiple days over the course of the breeding season. We also collected extensive data on the nesting success of the birds that we recorded, as well as detailed data on the habitat characteristics on the birds' breeding territories. These data on breeding success and territory quality comprise an excellent record of the relative social mating success (acquisition of a territory and social mate) of the birds we recorded. Thus, we now have a data set well suited to reveal correlations between singing behavior and social mating success (our proxy for female mate choice).

Results to Date

Data analysis has been underway since the end of the field season in late July. To assess variability in song characteristics and performance, we're measuring a variety of acoustic features of songs. Thanks to our new recording equipment, we're working with very high-quality recordings and can measure variables that were not previously accessible to us, and all of our measurements are more precise than ever. The increased range and precision of our measurements will increase our power to detect small differences among males, especially with regard to song performance variables.

Our sample of songs is large, and we don't expect to complete our measurements and data analysis until late winter or early spring. However, we have completed a preliminary analysis of songs from a small (5 bird) subset of our sample. In this small dataset, first egg date (our measure of female social mating preference) is associated with consistent-pitch singing and high trill performance (measures of performance ability), but not with song repertoire size or syllable repertoire size (measures of song diversity). These results are consistent with our prediction that female choice in this species is based more on song performance than on song complexity, but we cannot have full confidence in the validity

of this finding until we have analyzed the full song sample. We also still need to complete our vegetation analysis, so that we can determine if the preferred song characteristics are associated with residence in a particular habitat type (e.g., habitat that produces better breeding productivity).

We hope to have our analysis wrapped up and a paper ready for submission by next summer. I am very grateful to the Blake Fund for supporting this research, as well as for supporting future research that will also take advantage of the equipment purchased with the Blake Fund award. Please convey my gratitude and appreciation to the members of the Nuttall Ornithological Club. Please let me know if you'd like me to present my findings at a Club meeting some time.