Permit 2016-002:

Name:
J. Andrew Roberts

Department or Organization:
Ohio State University

Email Address:
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Are you requesting renewal of a previously approved permit applicaton?
No

Type of activities at The University of Akron Field Station and Bath Nature Preserve
Research

Title of project or class name and course number:
The Evolution of Complex Courtship Displays in Wolf Spiders

Date/Dates requested:
4/1/16-6/30/17

Number of people in group:
1

I am requesting permission to use a Research Area.
Yes

I am requesting permission to use a Sensitive Area.
No

I am requesting permission to use areas outside of the designated Research or Sensitive Areas.
No

I would like to use the Martin Center for Field Studies and Environmental Education for this prop...
No

Will the activity involve destructive sampling/collecting?
Yes

Which Research Areas?
Grandview Alley

Please explain how the material will be collected (including equipment), and an estimate of how m...
I will be hand collecting juvenile wolf spiders (Schizocosa crassipalpata) using small (4oz) sample vials. Less than 100 individuals will be collected for this study. These animals occur at very high density and the number collected will have little or no impact on the natural population.

Provide a brief description of (1) your proposed activities, (2) goals, and (3) impacts of your u...
This collaborative project continues, and hopefully concludes work initiated in 2010 by graduate student, Mitch Bern, from the University of Nebraska. Most of the credit for the following project description goes to him.

All animal interactions, either within or between species utilize signals as their basal components. While many displays throughout the animal kingdom simultaneously utilize multiple signals, often in multiple modalities, the function and significance of these complex displays are not well understood. In an attempt to better understand the evolution of complex animal signaling displays, Todd Blackledge (University of Akron), Eileen Hebets (University of Nebraska), Jason Bond (Auburn University), and I (J. Andrew Roberts, Ohio State University) are conducting a study on two species of co-occurring wolf spiders, Schizocosa bilineata and Schizocosa crassipalpata.

The Bathe Nature Preserve contains the only known population of Schizocosa crassipalpata and one of only three known populations of Schizocosa bilineata. There are undoubtedly other populations elsewhere, but these two are co-occurring and easily accessible, making the Bathe Nature Preserve an ideal collection site. Both of these species have courtship displays in which males court females using both a leg waving motion (a dance) and substrate borne vibratory signal (a song). The degree to which the song and dance is utilized in the total display varies between these two species. In order to determine the relative function and importance of each of these signals for male courtship success Mitch Bern was able to collect spiders from the Bathe Nature Preserve and then independently manipulate male condition, the visual signal and the vibratory signal. By comparing male courtship success across the

different combinations of these three treatments he was able to elucidate the function of each signal type and its relative importance in the overall display. The co-PIs listed above will continue this work and will add further behavioral and subsequent genetic analysis from specimens collected in 2016/2017. With this data, we should be able to better understand the evolutionary relationship between the species.

By checking this box, I agree to the above terms and state that all of the above information is c...

I agree