



# CALIFORNIA STATE SCIENCE FAIR

## 2005 PROJECT SUMMARY

Name(s) <b>Kristen D. Kelley</b>	Project Number <b>S1907</b>
<b>Project Title</b> <b>Do Crickets Communicate Information about Their Environment through Chirping?</b>	
<b>Objectives/Goals</b> The objective of this project is to test whether crickets communicate information about their environment through chirping.	<b>Abstract</b> To conduct these experiments two test environments must be constructed and a high quality recording made of crickets chirping at different temperatures. The first test environment is used to conduct control experiments and consists of two live cricket chambers at each end of an interconnecting tube. The temperature in each of the two chambers is regulated to one of four temperatures: hot, warm, room and cool. Ten trials were conducted with each pair of temperatures. The second test environment utilized four test chambers connected together via a long four way interconnecting tube. The environments of three chambers are set to three of the test temperatures. The recording of crickets chirping at the fourth temperature is used in the final chamber. Cricket response to the various recorded and live environments is established with twenty trials each of the four recordings for a total of eighty trials.
<b>Results</b> The control trials show that the hot environment is overwhelmingly preferred, with the warm environment being the second choice. 56.3% of crickets preferred the hot environment and 31.3% preferred the warm environment. The four chamber tests using live and recorded environments show that the hot recording attracts crickets almost exactly the same as live chirping with 55% clustered around the recording area. The warm recording attracted 20%.	
<b>Conclusions/Discussion</b> The results of this experiment suggest that crickets do communicate and express which environment is more desirable through chirping. In the majority of the chirping trials, the crickets clustered at the preferred environments or recordings of preferred environments. The crickets did not show a significant different reaction between recorded and live hot environment showing that information about their environment is communicated through chirping.	
<b>Summary Statement</b> The purpose of this project is to determine if crickets communicate environmental information through chirping and more specifically to determine if information is conveyed by sound (chirping) or some other mechanism.	
<b>Help Received</b> Grandfather and father helped with the construction of the test chambers; sound recording equipment provided by school; research advice provided by Mrs. Gushwa	