



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Stephen C. Greenfield</b>	<b>Project Number</b> <b>S1305</b>
<b>Project Title</b> <b>Simulation Software of Prey and Predator Species in a Controlled Environment</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this project is to develop a simulation that correlates with the population models that biologists have created. My hypothesis is that it is possible to develop simulation software of species in a controlled environment that correlates with the population models in Biology while the species move, give births, and feed randomly.</p> <p><b>Methods/Materials</b> The simulation employs parameters to control initial populations, average life spans, age range and chances to give birth, and food consumption. The experiments are performed by changing the values of the parameters and the simulation logs the populations of the species. Once the simulation runs long enough for analyses, the logged data is imported into spreadsheet software for graphing.</p> <p><b>Results</b> According to the tests that I carried out with the program, the hypothesis is correct. The information that the program collected and graphed is almost like the graphs that were made by the math equations and biologists. The math equations that are made make a smooth graph and the graph that is made by the program is rigid because it runs randomly.</p> <p><b>Conclusions/Discussion</b> The simulation takes place randomly based on the parameter settings. However, the results produced by the simulation display large similarities in correlation with population models developed by biologists. One of our findings is that the species by themselves make their own territories although it was not part of the simulation model.</p>	
<b>Summary Statement</b> a computer simulation that correlates with the population models that biologists have created	
<b>Help Received</b> my programming teacher taught me how to program	