CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J1222

Project Title
The Balance of Nature: How Does Varying the Number of Freshwater Snails Affect a Closed Aquatic Ecosystem?

Abstract

Objectives/Goals
The purpose of this experiment was to find out the effect of varying the number of freshwater snails in a closed aquatic ecosystem. I predicted that a closed aquatic ecosystem with two freshwater snails and one freshwater plant would provide the best balance and healthiest ecosystem.

Methods/Materials
The experiment involved setting up 12 identical jars with gravel, a thermometer, one freshwater plant, and purified water. Each of the three trials had a jar with no snails, 1 snail, 2 snails, and 4 snails. The pH of the water was recorded for each jar at the beginning and end of the experiment. Each day, for 12 days, the following information was recorded for each jar: condition of the water, condition of the plants, condition of the snails, and water temperature. A photogragh of each trial was taken daily and all jars were rotated for equal sun exposure.

Results
The results showed that the water temperature and pH did not change over time in the jars. The water conditions did not change in the 0 snail jars or 1 snail jars. The water clarity started to change in the 2 snail and 4 snail jars on day 9 and changed to murky and discolored by the end of the experiment. The plants stayed green and sprouted new growth in the 1 snail jars. The 0 snail, 2 snail, and 4 snail jar plants developed brown, transparent leaves, and many died by the end of the experiment. The snails were active in all the snail jars through day 9. The snails in the 2 snail jars and 4 snail jars became less active on day 10 and all the snails died by the end of the experiment in these jars.

Conclusions/Discussion
In conclusion, my hypothesis was not correct. The 2 snail jars with one plant did not have the most balanced ecosystem. The plants and snails died and the water became murky, brown and slimy. When there is too much of one thing or not enough of another, the effects spread throughout the unbalanced system. The 1 snail jars with one plant had the most balanced ecosystem. The plants started to sprout new growth, the snails stayed active and the water stayed clear. I learned that there is a balance in nature and changes or disturbances to even small parts of the system can have significant effects.

Summary Statement
My project tested the effect of varying the number of freshwater snails in a closed aquatic ecosystem.

Help Received
My mom helped me set up the experiment and help put together my board. My dad helped me make the graphs for my board and report.