CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
Damion J. Delton

Project Number
J1906

Project Title
How Do Severe Temperature Spikes Affect the Planorbis rubrum (Ramhorn Snail) Egg-laying and Survival?

Abstract

Objectives/Goals
In my study of snails this year, I wondered why there was a population decrease of the Planorbis rubrum. I also wondered what happened to the Marisa rotula, the striped tropical snail that took over the pond in my Year 2 study of snails.
My objective of this study (Year 3) was to observe how the specie Planorbis rubrum of ramhorn snails lay eggs and survive in different temperatures. My goal was to see if the cold temperatures could be the cause of a decrease in ramhorn population seen in a local pond.

Methods/Materials
Control aquariums were inside and outside while another aquarium shifted between the two environments biweekly. I used ramhorn snails (Planorbis rubrum) in ordinary aquariums and recorded eggs laid and behavior patterns throughout the trials. Additionally, eggs were monitored to ascertain survival rates.

Results
The ramhorn snails that switched from the indoor to outdoor environments laid more eggs overall. The warming up period following the cold proved to be the most productive for egg-laying. However, once laid, the majority of the eggs did not survive the subsequent exposure to the cold.

Conclusions/Discussion
In conclusion, cold snaps followed by warming will indeed encourage egg-laying. However, where survival and population maintenance is an issue, a protected, warmer area in the habitat would be necessary for the young snails to survive.
But the temperatures were only part of the reason why there was a decrease in snail population last year. Marisa rotula are tropical snails and are more aggressive breeder than the Planorbis rubrum. During the winter months, the tropical Marisa Rotula did not survive, and the Planorbis rubrum numbers were greatly decreased.
The eventual repopulation in this pond by the hardy Planorbis rubrum is nearly assured; however, it will be much slower than expected due to the cold temperatures. Additionally, any further inhabitation by tropical snails should be discouraged.

Summary Statement
Temperature spikes affect ramhorn snail (Planorbis rubrum) egg-laying patterns and young snail survival rate.

Help Received
Teacher as mentor