



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Taryn R. Holliday	Project Number J1910
Project Title Does Food Source Affect the Behavior of Viviparis malleatus?	
Abstract Objectives/Goals Two previous experiments led me through behavioral observation and effects of dissolved oxygen on the Viviparis malleatus (Trapdoor snail). This year's study focused on food source as a behavioral modifier for this lower-order animal. Using a floating and a vertically aligned food source, I tested whether they would vary from their natural habitat of living at the bottom of the pond. I hypothesized that they would alter their behavior in the quest for survival. Methods/Materials The manipulated variables were the food sources of the floating food (Azollo and Duckweed) and the vertically aligned food source (Anacharis and Elodea). Large bowls were set up with the different food sources and trapdoor snails were added. Approximately 60 snails were identified and observed during the project, which lasted from 10/15/05-4/7/06. The responding variable data includes behavioral tallies and weight, both as grouped populations and as individuals. Results Data showed that the trapdoor snails with the food source of Azollo/Duckweed (floating source) were indeed more active. These snails gained a total of 15.8 g. The snails with the Anacharis/Elodea (vertically aligned source) maintained their natural behaviors of staying in the bottom of the bowl. These snails gained an average of 8.1 g. Most importantly, the snails with Azollo/Duckweed were 5 g less than the Anacharis/Elodea population early in the project. By the end of the project, the Azollo/Duckweed snails were within 0.3 g of the snails with Anacharis/Elodea. Conclusions/Discussion Trapdoor snails are natural bottom-dwellers so any change in this behavior can be noted as significant. Since trapdoor snails are gilled, they do not have the oxygen requirements of many pulmonate (lunged) aquatic creatures. Changes in their natural tendencies such as travelling patterns are also significant given that extra activity would require more metabolic energy, thus more food and oxygen. I believe that the snails with the Anacharis/Elodea stayed at the bottom because they did not have to move around the bowl to eat; the food source was readily available and their natural inclination is to stay at the bottom. The snails with Azollo/Duckweed gained more weight because they were eating more often, increasing their activity, and in general, developing into a healthier snail.	
Summary Statement Food source affects behavior of Viviparis malleatus (Trapdoor Snails).	
Help Received Teacher as facilitator.	