CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
J1906

Project Title
Stick, Slime, and Slide: Turban Snail Survival Series

Abstract

Objectives/Goals
I performed a series of eight related experiments and studies to determine if the black turban snail (Tegula funebralis) is well suited to its rocky shore habitat. I focused on the turban snail's shell strength, structure, the effect of waves, and the snail's reaction to predation.

Methods/Materials
I used clay to represent the force of waves, a hose to represent the pressure of waves, and various surfaces (smooth, sandy, and rocky) to represent the habitat of black turban snails. I used a pisaster star (Pisaster giganteus), a natural predator, to observe the black turban snail's response to the threat of predation. For the clay study, I used only turban snail shells; live black turban snails were used for all other experiments and studies.

Results
The turban snail's hydrodynamic shape helps it withstand the constant pressure of waves and its strong foot helps it hold on to its rocky surface. But its shape and foot don't always protect it from predators. A turban snail will do one of three things in response to predation: drop, "run," or clamp down. The turban snail's quickest response to a pisaster star, a common tide pool predator, is to release its grip on the surface and drop. But where it falls determines if it can turn over and whether or not it can escape.

Conclusions/Discussion
A black turban snail's conical shell design and compressive strength enable it to survive in the intertidal zone. The uneven surface of the rocky shore and the constant presence of waves help the black turban snail turn over and distance itself from a predator. Its ability to survive for a period of time outside of the water allows it to deliberately escape from a predator. My study series suggests that the black turban snail's survival skills are perfectly suited to its marine habitat.

Summary Statement
I conducted a sequence of eight related experiments and studies to determine if the black turban snail (Tegula funebralis) is well suited to its rocky shore habitat.

Help Received
My mother helped me type my report.