CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
Katherine A. Houk

Project Number
31280

Project Title
Correlation of Owl Limpet Population to Algae Species Distribution

Abstract

Objectives/Goals
In my project I wanted to discover if Owl Limpets tend to live in close proximity with a specific species of algae. I also was interested in seeing if the females feed on a different species of algae than the non-territorial male Owl Limpets. I hypothesized that the male and female Owl Limpets would live in close proximity with different species of algae because the female and male Owl Limpets are located in different regions of the tide pools.

Methods/Materials
For my project, I used eight 2500 cm square quadrats which I laid down in vertical transects with each quadrat 5 meters apart. I documented detailed descriptions of 600 grid samples I recorded the temperature of the ocean water, the air, and the sand. I documented all of the Owl Limpets, algae species, and other invertebrates in the transect and took photographs of each quadrat. I measured the owl limpets in mm and took detailed notes on the surrounding organisms and recorded all the algae species in the quadrat. I repeated my procedures on multiple days. I documented 24 quadrats in three transects and found 114 owl limpets of varied size and age.

Results
The 114 Owl Limpets I observed were mainly dwelling in the high-tide and mid-tide zones. I found that Owl Limets with a shell length of greater than 40 mm were generally dwelling in the three deepest of the quadrats in all of the transects. Both male and female Owl Limpets resided near Mastocarpus, Tar Spot Algae. Female Owl Limpets tended to live in close proximity with Rockweed (Elvetia) which increased in density from 25.9% near males to 47.3% of the surface area where females were. Encrusting Coralline Algae density increased from 24.8% to 51.3% of the surface area where males resided.

Conclusions/Discussion
The 114 Owl Limpets I observed were mainly dwelling in the high-tide and mid-tide zones. I found that Owl Limets with a shell length of greater than 40 mm were generally dwelling in the three deepest of the quadrats in all of the transects. Both male and female Owl Limpets resided near Mastocarpus, Tar Spot Algae. Female Owl Limpets tended to live in close proximity with Rockweed (Elvetia) which increased in density from 25.9% near males to 47.3% of the surface area where females were. Encrusting Coralline Algae density increased from 24.8% to 51.3% of the surface area where males resided.

Summary Statement
This project explored whether male and female Owl Limpets might live in close proximity with different species of algae.

Help Received
Thank you to my father who supervised me at the tide pools. Thanks to my science teacher who lent me equipment and provided scientific guidance.