CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
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Project Number
S1113

Project Title
Map It Out: Pursuit of the Desert Tortoise

Abstract

Objectives/Goals
If aerial photos can be used to identify potential habitats of Desert Tortoises in a known location, then the habitats of Desert Tortoises in an unknown location can be identified using aerial photos.

Methods/Materials
Aerial Photos, marking tape, GPS, Google Earth, pedometer, compass,Magnetic Polycaster Protractor. Use aerial photos of a region where desert tortoises are known to live to identify likely desert tortoise habitats. Use aerial photos of a region where desert tortoises have not been known to live, and select ten areas that may be their possible habitats; five creosote, and five saltbush habitats. Visit the ten areas and mark a start point with marking tape. Walk forward 500m in a line using a pedometer to track the meters covered. Once the 500m mark is reached place another piece of marking tape and walk 10m to the right. Walk back and forth making trasects until there is a plot that is 500m by 50m. Measure the slope and aspect using a Magnetic Polycaster Protractor. Study each row for scat and burrows, and keep count of the number of plants to determine the dominant shrub in that area.

Results
Plot one had a creosote dominance ratio of 375:190. There were six burrows and three pieces of scat. Plot two had a saltbush dominance ratio of 410:250. There were no burrows or scat recorded here. Plot three had a creosote dominance ratio of 385:225. One burrow, but zero scat were recorded here. Plot four was a saltbush habitat with a dominance ratio of 470:200. No burrows or scat were found here. Plot 5 had a creosote dominance ratio of 361:215. However, there were no burrows or scat. Plot six had a saltbush dominance ratio of 413:180. There were no burrows or scat. Plot seven had a creosote dominance ratio of 382:175. There were no burrows recorded here, but there was one piece of scat. Plot eight had a saltbush dominance ratio of 419:280, and no burrows or scat were recorded. Plot nine had a creosote dominance ratio of 431:245. There were not any burrows or scat recorded. Plot ten had a saltbush dominance ratio of 381:250. There were no signs of desert tortoise burrows or scat.

Conclusions/Discussion
The data weakly supported the hypothesis. While three of the ten plots in the unknown region did have signs of desert tortoises, the remaining seven plots did not. Therefore using aerial photography to identify the possible habitats was only successful three-tenths of the time.

Summary Statement
Using aerial photography to identify possible desert tortoise habitats,

Help Received
Mark Hagan and Wanda Deal from the Enviornmental Management Group on Edwards Air Force Base taught me how to identify different plant communities, as well as how to identify desert tortoise burrows and scat. Edward Morgan from the Enviornmental Management Group provided me with aerial