

Where the Deer and the Antelope Play

New Mexico

Supercomputing Challenge

Final Report

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Team Number: 73

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Team Members:

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Teachers:

- Alan Daugherty
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Project Mentors:

- Ray Rush
- Tom Perkins

Executive summary

Our project is about how the deer and the antelope populations have changed. We are also looking at how the deer and the antelope have migrated into other ranges. We chose this project because our family members have noticed that the ranges and areas that the deer and antelope are in have changed over the years in Quay and Curry counties.

Problem statement

Our problem is trying to predict the further spread and interactions between deer, antelope, and the local ecosystems. We want to see if we can verify the results that the New Mexico Department of Game and Fish has seen in past years in determining how many tags they can sell for hunting purposes.

Description

We used StarLogo TNG because it is an agent based computer modeling program that can keep track of where the agents are, what they are doing, and how they interact with the other agents. Our model represents Quay and Curry counties have deer and antelope that move around and relate with each other and the environment.

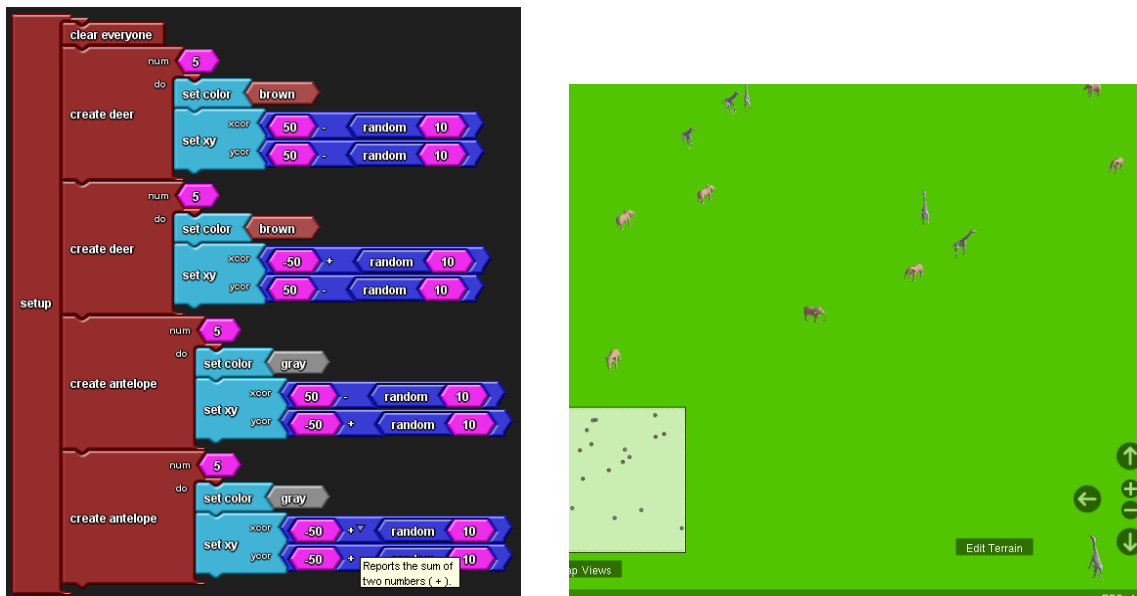
Verification and validation

We know that the deer and antelope have moved in prior years, because our families have noticed a difference in the population of these animals. They have noticed that one year the deer and antelope could be at one pasture eating the wheat and the next they could be ten miles away at a different pasture. The New Mexico Department of Game and Fish have also seen a change. One year, there might have been fifteen deer in a county, and the next year there could be thirty in the same county.

Results

This year we were able to make a simple computer program that has our deer and Antelope moving around within a map of Quay and Curry counties.

The following shows a map of our program and our deer and antelope in Spaceland. Our model does show how deer can move within an area and interact with an ecosystem.



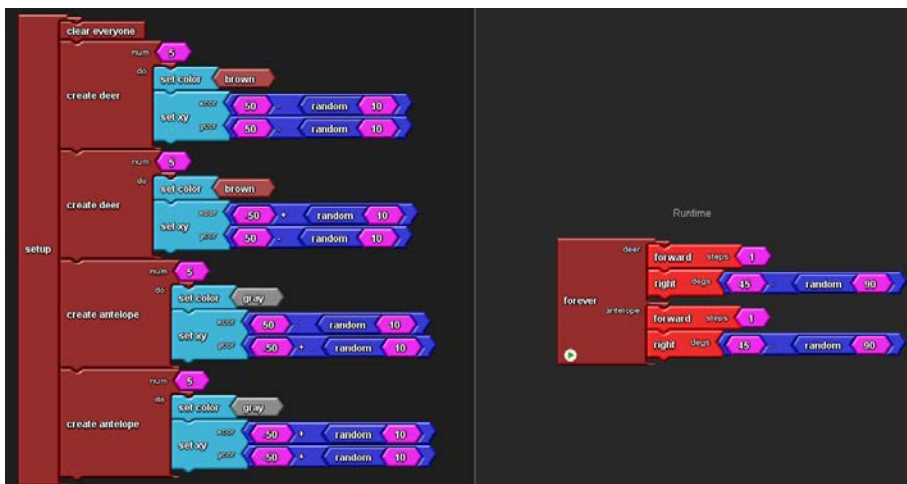
Conclusion

We were not able to make any solid conclusions at this time, needing more research. We would like to continue this project next year.

Tables



This is a small picture of some of our spaceland .



This is a picture of some of our programming.

Achievement

Since it is our first year to use the program Starlogo TNG, we have been mostly learning how to use the program. We have made the deer and antelope walk around and are working on drawing the county lines. We have also been working on building the Caprock, lakes, trees, and farmland.

Acknowledgement

We would like to thank Ray Rush and Tom Perkins for giving us information to do this project. It was very useful. We would also like to thank the New Mexico Game and Fish Department for their help in this project.

Sources

Personal interview: Tom Perkins, New Mexico State Land Office phone number: 505-832-6213 and email: tperkins@slo.state.nm.us

Personal interview: Ray Rush, Farmer phone number: 575-458-7184 and address: QR 36 Mcalister, NM

Species Management and Identification: CEV Multi Media New Mexico FFA Contest Wildlife Material

Deer, Wikipedia, 8 December, 2012

Antelope, Wikipedia, 12 November, 2012

Life on Earth, David Attenborough, 1987