Ants in a Drought

New Mexico

Supercomputing Challenge

Final Report

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Team 36

Jackson Middle School

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Executive Summary

Honey pot and Black ants need to be able to attain food and water to thrive. The presence or absence of water in the ecosystem affects the ability of these ants to thrive. This project compared how honey pot ants and black ants do forging for food or water in an environment that is not desert but neither wetter lands but in the middle, and see how they adapt and find food and water in a new environment. I created an adapted Netlogo model that showed differences in the amount of food and water the ants have. It appeared that it affected the pheromone trails an ant used to attain food and water.

Statement of the Problem

The main problem that I'm trying to solve is how black ants and honey pot ants will do if they were to be put in to an environment that is in between wet lands and desert lands. The reason I picked these ants is because the ants live in two different environments and they get food in different ways so I decided to compare the two ants' behaviors in a drought.

Description of Method Used to Solve the Problem

I assumed that the ants would start to migrate to a different area where the food was not as scarce. Now that I have worked on and looked at the running program I find the results are that the ants stayed around the nest and they started to go in a big square. I need to continue to work on the program and run it many more times before I have a better answer.

Results of Study

When the ants leave the nest and found and returned with food I assigned them the color blue to indicate that they had got food and are going back to the nest. Once they got to the nest they were assigned the color magenta to show that they have gotten food once already. This ties in to the problem because it shows the ants getting the food and water from the colored spots.

Most Significant Achievement on the Project

My most significant achievement on the project is we set the ants to go to a side, either left or right, depending on which nest they came from but the ants never went back to the nest they came from.

Graphs/Tables

Graphs and tables are not ready just yet but I'm still working on the programming. I have learned so much in the past weeks about what I could do to improve my program and with that I have been trying new things on the program. I will update my information before the finals.

References

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