

Lab 9

Putting It All Together: Ants, Ants, Ants

In previous labs, we have compared several data sets and looked for relationships between paired data. In this lab, we will use all our previous commands to reveal the story that the data tell. In place of the step by step directions, you will need to select the commands as you need them.

About the Data

These data, from a study by Peter Nonacs at the UCLA Department of OBEE, involve the foraging habits of thatch ants and seed harvester ants and the strategies that these ants use to balance their ability to collect food and their exposure to risk. The data were collected at the Sierra Nevada Aquatic Research Laboratory (SNARL) in the Great Basin Desert Province.

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. use http://www.stat.ucla.edu/labs/datasets/tant.dta
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Each ant is classified by colony to distinguish ants from the same colony from ants from other colonies. The distance from the mound's entrance is measured in meters. Each ant's mass measures the amount of food or energy for that ant. Headwidt is the measure of an ant's head at its widest section and v5 is a scaled measure of the head width. Worker class or size class sorts

the ants by their head widths. The variables colony, distance, and sizeclass are categorical variables and mass and headwidth are numerical variables.

Lab Questions

Question 1: How large is the sample of thatch ants? How many colonies, distances, and size classes were involved?

Question 2: Graph and then describe the distribution of masses for the thatch ants in this study. Include the shape, center, and spread of the distribution. Are there any outliers or unusual observations? How heavy is a typical thatch ant?

Question 3: Graph and then describe the plot for the head widths of the thatch ants. Include the shape, center, and spread. Are there any outliers or unusual observations?

Question 4: Graph and then describe the relationship between the mass and head width of the thatch ants.

Question 5: Graph and describe the relationship between distance from the mound entrance and mass.

Question 6: Use head widths to determine if different thatch colonies produce different sized ants.

Question 7: Do larger ants tend to travel farther from the mound in search of food?

Assignment

Now download the data for the seed harvester ants.

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. use http://www.stat.ucla.edu/labs/datasets/shant.dta
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Repeat the process for this species. How do the two kinds of ants compare with respect to their size and their foraging habits?