HANDS-ON LAB

Quadrat Sampling

Ecologists often use quadrats—square or rectangular grids—to collect data about population numbers in an ecosystem. In this activity, you will use a quadrat to collect data on three species.

MATERIALS
- calculator
- meter stick
- quadrat

PREDICT

Does quadrat sampling provide an accurate estimate of a population size within a defined area?

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PROCEDURE

1. Obtain a quadrat frame. Measure, calculate, and record the area of the quadrat.

2. Stand at the edge of the area you will sample and randomly throw your quadrat. Make sure your quadrat does not overlap with another.

3. Count how many individuals of each species are in your quadrat. Record your data in a data table in your Evidence Notebook. Repeat this procedure three times.

ANALYZE

1. Combine your data with that of your classmates. Find the average number of each species for all of the samples.

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2. Obtain the area of the sampling plot from your teacher. Calculate how many quadrats would fit in the area of the sampling plot. Multiply this value by the average number of each species found in one quadrat to estimate the population of each species.

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SCALE, PROPORTION, AND QUANTITY

1. Calculate the density of each species. Which species had the highest density? Which had the lowest? Why do you think that is? Compare your population estimates to the actual population number that your teacher provides. Was your estimate accurate? Why or why not?

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2. How can you make sure that your estimate of population size will be as close to the actual population size as possible?

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3. Why do scientists only gather data for a part of the population, instead of the entire population? How does this affect the accuracy of the final population count?

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