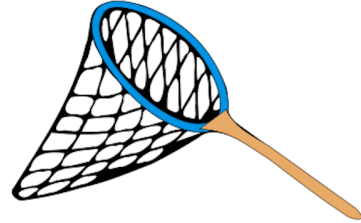


Capture Recapture Lab

Background

Ecologists are often required to determine the number of animals present in certain area. However, it is often impossible to count each individual animal. Instead to determine the number of animals in a population, ecologists will often use the **capture-recapture method**. Scientists will capture a number of animals and attach tags, then carefully return them to their natural habitat. A second group of animals is then tagged and counted, and that number of tagged animals is noted. Scientists with then use proportions in order to estimate the number in the entire population.



Purpose: To simulate how ecologists would use the capture-recapture method to determine a species population.

Materials

- 1 paper bag
- Two seperate coloured papers
- 1 beaker

Procedure

Capture:

1. Obtain two different coloured pieces of paper, a beaker, and a paper bag from the materials bench.
2. Rip each piece coloured paper up into approximately 45 different paper balls. Place them inside the paper bag and shake.
3. With the beaker (representing the net) scoop a few paper balls out of the paper bag. Replace these fish with paper balls of a different colour. These are now 'tagged fish.' Be sure to recored the number of tagged fish in your data table. Place the fish you just caught to the bag and place the new tagged fish back into the paper bag.

There are now _____ tagged fish in the lake.

Recapture:

1. Shake the bag gently.
2. Use your beaker (net) to remove a new sample of fish. Count the number of 'tagged fish' (different coloured fish) in this sample. Record this total in the 'Number of Tagged Fish' column for Sample 1 in the data table.

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- Count the total number of fish in the beaker (net) and record that in the 'Total Number of Fish' column for Sample 1.
- Return all fish to the bag and shake gently. Repeat steps 2 and 3 for nine more trials and take the average.

Analyze

- Use the proportion below to estimate the total number of fish in the lake:

$$\frac{\text{Average \# tagged in sample}}{\text{Average total \# in samples}} = \frac{\text{\# tagged in lake}}{\text{Total \# fish in lake}}$$

The estimated population is _____

- Now count the total number of fish in the lake to determine how close the estimate from the "sampling" is to the actual number of fish in the lake.

The actual population is _____