Population Sampling Lab:

An ecosystem is a community of interacting organisms. To get a better understanding of the community of organisms living within an ecosystem, ecologists take random samples to gain a representation of what relationships exist in a certain area. A random sampling procedure requires that all portions of the area or group being studied are equally represented in the samples taken. Actual counts of organisms, as well as notes on behaviors of organisms are important to better understand a specific ecosystem. Ecologists must also consider environmental conditions that affect each population within an ecosystem. Things such as temperature, drought, and pollution can have an impact on certain populations. For this lab you will be conducting quadrant sampling of a population of Western Red Lilies.

Quadrant Sampling:

Procedure:

1. Dump the bag of rice on the grid.
2. Randomly choose a quadrant and count the number of grains of rice in that quadrant. Record this number in your data table.
3. Choose nine other random quadrants and repeat step 2 for each quadrant.
4. Calculate the average population for the quadrants. Add the populations of each quadrant and divide by the total number of quadrants (10).
5. Multiply the average by the total number of quadrants. This is the total population for this area.

Observations and Calculations:

Quadrant Number	Location on Grid	Population of Quadrant
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

A) Average population of quadrant:

B) Estimated total population of Western Red Lilies for the area:

Discussion Questions:

1. The quadrant method is really only an estimate. What factors (variables) might cause a difference between your population estimate and a census in the same area?

2. What do you think is the best way to select the quadrants?

3. What are three possible sources of error that you may have encountered when completing this lab?

4. With what kind of populations would you use this method (plants or animals)? Why?