Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block\_\_\_\_\_\_

**Quadrat Sampling Lab Simulation**

**Instructions:**

1. Pick up your supplies (4 Popsicle sticks, one bag of mixed beans, tray)

2. Construct your quadrat by taping 4 Popsicle sticks together and making a perfect square.

3. Spread the mixed bag of beans “organisms” out into your tray “ecosystem”.

4. Randomly drop your quadrat (close your eyes), and record data of the number of different species present

5. Repeat dropping the quadrat for a total of 5 times for each ecosystem.

**Section 1: Percent Frequency -** Collect Data and determine the % frequency for each species in the ecosystem.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Species** | **Quadrat 1** | **Quadrat 2** | **Quadrat 3** | **Quadrat 4** | **Quadrat 5** |
| Northern |  |  |  |  |  |
| Black |  |  |  |  |  |
| Pinto |  |  |  |  |  |

**Ex.** (Northern beans were found in 4 out of 5 quadrats studied) **Do the math** = 4/5 x 100 = 80.0% Frequency)

*Data Calculations for section 1*:

**Section 2: Density**- Collect data and determine the density of each species (# organisms / 1 m2 area of your quadrat in your ecosystem.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Quadrat 1** | **Quadrat 2** | **Quadrat 3** | **Quadrat 4** | **Quadrat 5** | **Average** |
| Northern | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 |
| Black | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 |
| Pinto | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 | / 1 m2 |

**Ex.** (10 Northern beans were found in a 1 m2quadrat) **Do the math** = 10/ 1 m2

*Data Calculations for section 2:*

**Section 3: Percent Coverage** – Analyze your quadrat and **ESTIMATE** what percent of the quadrat is covered with each species (Do not have to add to 100%) .

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Quadrat 1** | **Quadrat 2** | **Quadrat 3** | **Quadrat 4** | **Quadrat 5** | **Average % Coverage** |
| Northern |  |  |  |  |  |  |
| Black |  |  |  |  |  |  |
| Pinto |  |  |  |  |  |  |

**Ex.** (Northern beans covered 2/3 of the quadrat) **Do the math** = 2/3 x 100 = 66.6% Coverage with Northern)

*Data Calculations for section 3*:

**Conclusion Questions**

1) Why was it necessary to close your eyes before dropping the quadrat?

2) Which was the dominant plant species within the site? What data tells you that?

3) How do your averages compare to the population densities of the individual quadrats? Were the populations spread out evenly over the site?