Module 2 Lab: Biodiversity Assessment

Objective

To measure and compare biodiversity in different habitats.

Background

Biodiversity can be quantified using various indices. This lab involves sampling different habitats and calculating biodiversity measures.

Materials

- Quadrat frame (1m x 1m)
- Field notebook
- Plant identification guide
- Calculator
- Measuring tape

Safety

- Be aware of surroundings
- Watch for hazards
- Do not disturb wildlife
- Work in groups

Procedure

Part 1: Site Selection

1. Choose two different habitats (e.g., forest and grassland)
2. Mark study areas
3. Note habitat characteristics

Part 2: Sampling

1. Place quadrat randomly in each habitat
2. Identify all plant species within quadrat
3. Count individuals of each species
4. Repeat sampling 5 times per habitat
5. Record all data

Part 3: Data Analysis

1. Calculate species richness for each habitat
2. Calculate species evenness
3. Calculate Shannon Diversity Index
4. Compare habitats

Data Collection

Create tables showing: - Species found in each habitat - Abundance of each species - Total species counts - Diversity calculations

Calculations

Shannon Index

$H = -\Sigma(pi \times \ln(pi))$

Where: - pi = proportion of species i - ln = natural logarithm

Analysis Questions

1. Which habitat has higher biodiversity?
2. What factors might explain differences?
3. How do richness and evenness differ?
4. What are limitations of this method?

Conclusion

Summarize findings and explain what they tell us about biodiversity.