Urban Biodiversity Activity

WORD VOMIT

URBAN

HOW DO WE MEASURE BIODIVERISTY?

Urban Biodiversity - PreLab

1. What can increase biodiversity?

More food resources, make more habitat, low pollution, less competition, stable climate, isolation (evolution), more ecotones, stratification (vertical layers), more niches, more rain.

2. What can decrease biodiversity?

Human development, Competition, less resources, people moving in, overpopulation, natural disaster, more pollution, change in temperature, invasive species, hunting, extinction,

Background Vocabulary

- **Species Richness**: A count of the number of different **SPECIES** in a given area.
- **Species Abundance:** The total number of **INDIVIDUALS** of a species in an area.
- **Species Evenness**: Is there an **EVEN DISTRIBUTION** of each species in an area?
- **Shannon-Weiner Index:** **HIGHER THE INDEX THE MORE BIODIVERSE**. Ranges from 1.5 to 3 in real world environments. Accounts for abundance, evenness, and richness of the species present.

Procedure – Round #1

- Materials: one initial community paper, 5 bird papers, 5 plant papers, a box of pennies.
- Jobs: botanist (plants), zoologist (animals), plant statistician (data), animal statistician (data), executive director (keeps all on task), materials manager (get/return proper amount of materials)
  - Materials Manager – get, ensure proper count, and return materials.
  - Executive Director – get the GROUP # paper with the initial community population – help everyone else.
  - Botanist/Zoologist – Get your 5 species papers. Place one penny per individual on each paper. Adjust each round.
  - Statisticians- record the number of individuals for each species in the table each round.
- Determine Your Species Richness and Abundance and record on the data table.

- Answer ***Round #1 Initial Community*** question.
- Event cards will be read.
  - Botanist/Zoologist add/remove the appropriate number of pennies on each bird and each plant paper.
  - Statistician -Record the event and results for each event in the table

After all 7 events

- Everyone get the data from the statistician.
- Determine the **Richness** and **Abundance** for plants and birds at the end of the activity.
- Send the executive director to me to get the Shannon Diversity index at the end.
- On your lined paper answer ***Round #1 Initial Community*** question #2

Procedure – Round #2

1. You have a maximum of 50 birds and 50 plants to populate and entirely new community with these same species.
2. Your community must follow this rule: Birds must have a food source and a nesting ground. For example, since crows nest in pine trees, you must have at least one pine tree if your community has crows.
3. Record your new community in the Round #2 Table
4. Record your **Abundance** and **Richness**
5. Executive Director to me for starting Shannon Index.
6. As a group come up with one event card for the activity. This event card must be realistic and can't be total annihilation. Give me a specific cause and a specific effect. When done bring to me.

After all 7 events

- Everyone get the data from the statistician.
- Determine the **Richness** and **Abundance** for plants and birds at the end of the activity.
- Send the executive director to me to get the Shannon Diversity index at the end.
- Answer ***Round #2 Initial Community*** question #2
- Clean up trays and return the front.
- Hwk: Answer Post Lab Questions – Due Next Class

After all 7 events

- Everyone get the data from the statistician.
- Determine the Species Richness and abundance for plants and birds at the beginning and the end of the activity.
- Send the executive director to me to get the Shannon Diversity index for the ending community.
- Clean up trays and return to West side of room.
- Answer questions 1,2,3.