

Community Structure Lab

Objectives

To examine the diversity of organisms within an existing community structure.

To research and be able to support your findings of specific species in a community.

To illustrate and summarize species' niches and interspecific activity within a specific community.

Assignment

Between now and the **last lab** meeting listed on the syllabus, each lab group (1 student minimum; 3 students **maximum**) will be tasked to research and diagram a particular community of living organisms. You will be given a list of species; you must identify and research the community they are found in. Your community will become apparent as you answer questions posed about the list of species given to you. Once you have determined the community consider the dynamics of the species that make it up. Continue on to answer hypothetical questions posed in the final two parts of the lab exercise. Each group has a different community and a different list of species.

Your group will be given a list of names. You must list what you can find of the taxonomic background (domain, kingdom, phylum...), the life style and habitat of each. With that information you can determine from the list below which community is the one your species are part of. You will then diagram the dynamics of those particular species within the community by identifying the roles and niches typical of that community of organisms.

Answer the following questions for each of your species. The information you find as you answer the questions posed will guide you in diagramming their community and the dynamics between organisms of that community.

Part I. Identify the following for all species of your list:

1. Taxonomic background: Domain, Kingdom, Phylum ... Genus, Species
2. Habitat
3. Life style
4. Common name

Part II. Using the above results, identify at least one of the species within your community list as an example of each of the following:

1. Keystone species: (keystone predator, foundation species, or a facilitator?)
2. Dominant species:
3. Primary producer:
4. Primary consumer:
5. Secondary consumer:
6. Tertiary or quaternary consumer:
7. Predator:
8. Decomposer:

Do you have an example of a/an?

Host

Parasite

Invasive species?

Endoparasite?

Ectoparasite?

Part III. Which of the following communities did you determine to be the one you are researching?

Rocky intertidal

Kelp forest

Benthic Deep Sea

Pelagic Antarctic

Estuary

Hardwood forest

Arctic Boreal forest

Temperate rainforest

Tropical rainforest

Desert

Plains/Prairie

Part IV Community Dynamics

Which if any of the species interact with others in ways that are harmful?

Which if any of the species interact with others in ways that are helpful?

Which if any of the species interact with others in ways that have no effect?

1. **Create one or more diagrams of your community dynamics by representing each species on your list in a diagrammatic image of the entire community which should indicate some geographic features in a very simple way.** Arrows or lines to emphasize relationships between organisms are commonly used. Point out what type of dynamics exist between them and label it:

- Competition- for space or food
- Predation
- Herbivory
- Parasitism
- Mutualism
- Commensalism

Part V. Community Structure Disturbance

Each community associated with the exercise has been extensively researched within the scientific literature and some element of it is most likely found in your text book as well.

Using your textbook and other scientific sources, not Wikipedia, explain what has been documented as far as disturbance, what species were directly affected, and how that has affected the community structure.

Lab write up and presentation

Your group will present to the class a description of the community which you researched and diagrammed. During the final lab session each group will briefly present an overview of their community and the driving dynamics of it as well as documented current effects. This should be done with a power point presentation of no more than 6 slides. There will be one coordinated presentation per group. The

researched work will be handed in by each group member in the form of an individual write-up of answered questions. Within the write up indicate your specific species researched and cite the other students' work within your group. Cite all references used in the research.

Your Community Structure write-up should include:

- Description of the community: geography and habitat.
- At least one diagram of the community dynamics of the 12 species researched.
- The community diagram, include a written summary, this should be done individually by each student.
- Descriptive answers to questions about each of the twelve species. Individuals should indicate which piece they wrote and can share their descriptions with other group members, but cite who wrote each piece.
- **You must cite your references in the written work and your group members.**

You are responsible for defending your work. If you have any doubt, check with your TA **in advance**. Bring any necessary supporting materials.

Presentation: You must create a power point presentation and turn a copy in to your TA through Blackboard.

Be sure to properly cite references used: such as your text book, additional books, the internet, and so on.