Biology 101

**Succession Analysis**

Your task is to read two articles (found on the course website) from local news media on two separate ecological disturbances. The first set of questions (1 – 7) should be answered for both disturbances. The second problem set (8 – 10) should be answered after both articles are read and analysis of each disturbance is complete.

**Question set 1:** Disturbance Analysis

Disturbance: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Is this an example of primary or secondary succession? Explain why.
2. What was the climax community before the disturbance? Describe the availability of different habitats/niches for plant and animal species (i.e. what kinds of resources are available in each community and that types of interactions occur between the species that make up the community) in both the climax and pioneer communities.
3. When did the disturbance take place?
4. How long did it take for the first species to grow in the disturbed area?
5. What was the pioneer plant species (or one of them)?
6. How did the pioneer plant species get to the disturbed area?
7. What special adaptations did the plant have that allowed it to flourish?
8. After the disturbance, many people thought the area would be a barren, sterile wasteland on which nothing would grow, but this did not prove to be the case. In what ways did the progression the the successional event not follow the expected steps of ecological succession?
9. Describe the pattern of succession as best you can, using the information in the article (e.g. what species came first, second, etc. and how did they alter the environment to make it suitable for the species that came later). You may wish to make a diagram.
10. Although major disturbances kill many plants and animals, they can also be beneficial for some. For the **Yellowstone** example, explain how the fire benefited:
11. Animals (give 2 examples)
12. Plants (give 2 examples)
13. Lupines were surprisingly successful pioneers in the post-eruption landscape of **Mount St. Helens**. Within 4 years of the eruption there were 16,000 lupine plants and by 1991 there were millions of plants which attracted herbivores like caterpillars. Based on information in the article, draw a population growth curve for the lupine from eruption to 10 years later, taking into account the progression of species that move in as time passed. Explain why the curve looks the way it does.
14. What do you think the major life history strategies would be for a pioneer species?

Lifespan: short or long?

Growth rate: fast or slow?

First reproduction: early or late?

Reproductive effort: high or low?

Number of offspring: many, small or few, large?

Would pioneer species be late loss species or an early loss species? What about climax community species?