Name:

Points:

Grade:

Final Exam – December 5, 2012

CSS 560 Placed-based Ecology for Environmental Educators

1. What statistical test would you use to answer the questions below (Important: please try to be as specific as you can e.g., paired t-test, independent sample t-test, etc.) (6 Points).

Scenario 1. Does an increase in soil compaction lead to decreasing soil respiration?

Statistical test you would use:

Scenario 2**.** A fish biologist tells you that the water pH has to be beyond 4.5 to be a suitable brook trout habitat. Based on 10 random water pH samples you collected along a 1 km stretch of the Lakefork, you are trying to determine if the water pH levels of the Lakefork are suitable for brook trout.

Statistical test you would use:

Scenario 3. There are distinct differences in the geology between the Eastern- and Western side of Long Valley. Based on this geologic fact, you are interest to find out if soil iron levels differ between the Eastern- and the Western side of Long Valley. To answer your question, you collected 100 randomly distributed soil samples from the Eastern and Western part of the valley.

Statistical test you would use:

2. Approximately 48% of the energy leaving the sun reaches the earth surface. What is the solar energy used for and why do we care? (10 Points)

3. How do you think increased CO_2 concentration will affect plan growth and soil moisture? Please discuss. (15 Points)

4. The mineral composition of rocks may differ between different rock types (e.g., Basalt vs. Granite). Why is this important from an ecological perspective? (15 Points)

5. You dig a soil pit near the Meadow Marsh in Ponderosa State Park. The B-Horizon has a grayish appearance. What could be the reason for the grayish appearance of the B-Horizon? (5 Points)

6. What soil properties are affected by soil texture? (10 Points)

7. What tree species would you expect to find at higher elevations around the McCall area (> 6000 ft)? (5 Points)

8. What is the difference between lichen and moss? (10 Points)

9. You hear that a logging company plans to do some clear-cutting in the Lakefork watershed. How do you think the logging might affect the discharge rate at the Lakefork and why? (10 Points)

10. Some climate models predict that summers will be hotter and drier in the greater McCall area. List one plant species in the McCall area that might be very well adapted to these changes and list the main adaptation that allows that plant species to deal with dry and hot conditions. (10 Points)

List another species that might be threatened by drier and hotter summers and why.

11. Bonus question: Please provide at least one suggestion of how to improve the ecology class e.g., more hands on activities, more outdoor class time etc. (5 Bonus Points)