**CSS 496 -- MONITORING IMPACTS IN PROTECTED AREAS & WILDERNESS**
**SPRING 2013 Final Study Guide**

1.  Many people suggest that we should use wildlife to monitor wilderness conditions. One indicator that is often suggested is to monitor species diversity. (a.) What is species diversity? and (b.) What is a major problem with using species diversity as an indicator?

2.  In the U.S., backcountry visitors are typically <u>not</u> bothered by most physical environmental impacts. Discuss at least 3 physical environmental impacts the are unlikely to notice, AND 3 types of impacts they <u>are</u> most likely to notice and explain why?

3.  Why are social trails used as an indicator of campsite impacts?

4.  A monitoring program often requires some kind of sampling of indicators throughout the park or wilderness. What is the purpose of simple random sampling? When is it probably NOT appropriate to use simple random sampling in monitoring (give some examples)? If simple random sampling is not appropriate, what other approach to sampling might be better? (give examples)

5.  Baseline studies attempt to provide inventory information about ecosystem conditions against which assessments done in later years can be compared. Why have baseline studies been criticized and their usefulness been questioned as a basis for designing a monitoring program? What is an alternative approach?

6.  According to your readings, if you want to measure water quality for possible contamination by human waste you need to measure both fecal coliform and fecal streptococci. Please explain why you need both.

7.  What are four things that need to be considered when monitoring the impacts caused by <u>aircraft</u> <u>overflights</u> in parks and protected areas or Wilderness?

8.  Phytoplankton lives in all surface water bodies and absorbs nutrients directly from the water, which would make it a logical indicator to monitor air and water pollution. What are three difficulties or problems with using phytoplankton as an indicator?

9.  Contrasting approaches have been proposed for designing a monitoring program. -- (1) to monitor areas where human use tends to concentrate, (2) to focus on areas of high sensitivity, (3) to concentrate where management effectiveness is questionable, or (4) to randomly sample so as to characterize the condition across an entire area. Please give an example of a different indicator that you might monitor for each of these approaches.

10. You are worried that every year in your protected area there is less natural sound and more and more anthropogenic noise. Describe how you would monitor to document whether or not this is actually occurring.

11. Lichens are slow-growing, often perceived as ugly, and the public doesn't care about them. Why would they be good indicator species to monitor wilderness conditions?

12. After you have monitored your indicators for one season you find that the standards are exceeded for some of them. What should your next step be?

13. After analyzing the results of three trail transects done on the Mucky-muck trail, you discover that the average cross-sectional area of soil <u>loss</u> is 1500 cm$^2$. What additional information would you need to know to determine whether this change was worth doing anything about?

14. This is a question about a specific piece of land in a cool cedar stand on Moscow Mountain called Idlers Rest. The Palouse Land Trust's long-term purpose is to maintain Idlers Rest as a naturally appearing, naturally functioning site to be used primarily for education and secondarily for passive day-use recreation, accessible for foot traffic only. Please suggest <u>five</u> indicators that you think they should monitor and briefly explain <u>why</u>.

15. Discuss the <u>advantages</u> and <u>limitations</u> of using photographs as a basis of collecting data for a monitoring program.