

## ENSC 201 - RESTORATION ECOLOGY

### Possible Essay Questions for the Final Exam (Thursday, May 8, 8:00 am, Aiken 116)

Two of the following questions will be on your exam. On final day, you will have the front and back of one page **only** to respond to each question. Present your answer in whatever way you think is most compelling (tables and diagrams as well as prose are fine), but your essay must be organized and as specific as possible.

1. A stream remains stable when  $Q_s(d)$  is directly proportional and in equilibrium with  $Q_w(s)$ . First, define the terms in this relationship. Then discuss how changes in stream geomorphology can occur when any term in this balance is altered. What conditions favor erosion? Deposition? Change in planform? How can you use your knowledge of these general relationships to understand the pattern that you see on a stream restoration site?

2. In restoration we typically start with an understanding of ecological pattern and process, then develop restoration techniques based on that knowledge for a particular ecosystem. Explain how this works for riparian restoration. What have we learned about riparian ecology, such as forest-stream interactions, and how can this inform specific restoration objectives and techniques? Be sure to explain at least three specific forest-stream interactions. Then you might explain, for example, how these inform our objectives for riparian buffer width and management.

3. The USFWS Partners for Fish and Wildlife Program was created to support the restoration of riparian buffers in order to provide habitat for fish and wildlife. However, as we discussed in class, they have never really collected data to evaluate how well their restoration efforts have performed. One long term goal is to improve in-stream habitat enough that fish will return to the sites where restoration has been done. Propose three indicators that you could use to determine if habitat characteristics important to fish, and ultimately fish diversity and abundance, are improving at Partners for Fish and Wildlife restoration sites. Enter your indicators in the following monitoring table and then discuss your rationale and how you would use them.

Indicator	Measurement Schedule	Acceptable Level
1.		
2.		
3.		

4. At the beginning of the semester, we talked a lot about harnessing succession and enhancing the natural recovery potential of ecosystems as means of restoration on land and in the water. Now at the end of the course, you have a fuller appreciation of what this might mean. Discuss examples from terrestrial and/or aquatic ecosystems that illustrate how the choices you make as a restorationist can enhance or retard the natural recovery of ecosystems.