Conservation Biology
07 December 2007
Suggested Review Topics for Third/Final Exam
(150 points, Thursday 13 December 2007, 2pm in normal lecture room).

Your final exam will be cumulative. The material since the second midterm will be worth more of your final exam than just one-third. Please review your readings, lecture notes, and previous exams. As usual, your exam will take place in two parts. The first will be a typical individual exam which should take you about 80 minutes. The second part will be about 30 minutes in groups of four students on a short set of additional questions. See your syllabus for grading details.

The following questions were generated as I looked through my lectures and lecture notes (There may be information about a topic in more than one lecture). If there is a topic we didn't discuss in lecture then I probably won't ask about it on the exam; unless it is a major concept or idea from your assigned readings.

**30 October 2007, Conservation Practice**

1. How are biosphere reserves typically set up spatially? What are the different areas and what is done in each of them?
2. What is a "paper park"?
3. Can you define and explain ecosystem management? Can you define ecosystem?
4. How does an ecosystem approach shift the focus from demand, to capacity for ecosystem services?
5. What happened in North America approx. 12K years ago?
6. What is Pleistocene Rewilding? Will it work? Will some of it work? Why?
7. What is the appropriate baseline for ecological restoration? Why?
8. Do you think we should protect rhinos by cutting off their horns?

**06 November 2007, Preparing for Loihi, Rob Robichaux**

9. What is adaptive radiation? Why does it occur rapidly on islands? What is the "founder effect"?
10. List 3 threats to the Hawaiian silverswords.
11. Explain "Preparing for Loihi."
    a. http://www.soest.hawaii.edu/GG/HCV/loihi.html
    b. http://hvo.wr.usgs.gov/volcanoes/loihi/
12. From what continent did the Hawaiian Silversword's relatives originate?
13. Robichaux studied regulatory gene evolution in the Silverswords. Why are these genes a good place to focus research attention?
14. What information can be inferred by studying the ratio of 1) mutations that alter the amino acid composition of a protein to 2) the mutations that are silent (same amino acid coded for by altered/different genes)?
15. What is monocarpic reproduction?
16. What do Robichaux and colleagues attempt to do with invasive ungulates in Silversword areas? What is a Judas goat/sheep?
17. What was the problem with the captive propagation program that was undertaken for the Silverswords in the 1970s, 80s, and 90s?
18. Why won't the silverswords recover without human intervention even if the invasive grazers are removed?
19. Robichaux listed three large groups of organisms that are not native to Hawaii. Can you name two of them?
20. Is the oldest Hawaiian island of Kauai about 500,000 years old, 5 million years old, or 5 billion years old?

21. Do you think that Hawaii having 40% of the listed ESA species (threatened or endangered) but only 0.2% of the land area reflects realistic ratios of what species are in trouble and where (in the U.S.)?

**08 November 2007, Guanacaste, Costa Rica, Cathy Hulshof**

22. What habitat types does the Area de Conservacion Guanacaste (ACG) include?
23. Why did Cathy focus on the tropical dry forest? Why do people use these areas?
24. What happened at the battle of Santa Rosa?
25. What were some of the problems faced by the new national park at Santa Rosa?
26. Are ecotourists a better kind of cattle?
27. What is bioprospecting? Should companies be able to patent gene sequences that they pull out of plants in the tropics?
28. How is the ACG funded? Is this unusual?
29. How are oranges and regeneration linked in the ACG?
30. Who is Dan Janzen?
31. Why did Cathy suggest that the ACG was successful? What was done differently as compared to other 'protected areas'?
32. What is a parataxonomist?
33. What is species barcoding?
34. What is significant about a Gentry plot?

**13 November 2007, Restoration**

35. Distinguish between restoration ecology and ecological restoration. How useful is this distinction?
36. What situations are candidates for restoration?
37. What are the three elements of restoration?
38. What are ecological restoration goals and criteria for success?
39. Can you summarize the restoration challenges and efforts in the Everglades, FL?
40. How do beaver dams and gabions promote restoration, if at all?
41. What two goals are potentially in conflict in the Grand Canyon?
42. What is an EPA Superfund Site? Do we have one near us?
43. Who wrote a book called Win-Win Ecology? How is reconciliation ecology different from restoration ecology? Should the term be ecological reconciliation?
44. Why was Eglin Air Force Base used as an example?
45. Why is monitoring important? Have you heard of shifting baselines? http://www.shiftingbaselines.org/index.php What does the term mean?
46. What is the importance of considering the resilience of ecosystems?
47. How should a restoration ecologist deal with climate change?
48. Do you think we need to include people in restoration planning and implementation?
49. Explain how restoration of sky-island ecosystems is challenging in a time of rapid climate change?

**15 November 2007, Conservation and Economics**

50. What was the main point of the article entitled 'Science a la Joe Camel'. Why did the editor or author choose that title?
51. Explain what a nonrival good is. How is this different from a nonexclusive good? How do these kinds of goods highlight the difficulties of aligning conservation and economic interests in some situations?
52. Where do individual firms decide to set production levels? Does this seem to scale up from microeconomics to macroeconomics?
53. Explain Adam Smith's 'Invisible Hand' idea.
54. Define 'Market Failure'.
55. How do a) Tragedy of the Commons, b) Externalities, and c) Private Property play roles in some conservation issues? Can you give a specific example?
56. Do we have a 'free market' in the U.S.? Why or why not?

57. How are economic development and economic growth different?
58. What is an externality and why is the concept important?
59. Compare throughput to utility.
60. What is Net Zero? Is it achievable?
61. Explain the cost and benefits of the Clean Water Act. Given your answer, why is environmental legislation still difficult to pass and enact?
62. Explain how a positive discount rate makes many conservation efforts difficult.
63. What are four components of the Index of Sustainable Economic Welfare?
64. Describe two ideas put forth by Herman Daly that attempt to correct what he perceives are flaws in the neoclassical economic approach. What is ilth?
65. What effect do you think an environmental tax (as opposed to an income tax) would have on conservation efforts?
66. What role do government subsidies play in conservation?
67. T or F? Americans since 1950 have consumed more resources than all of humanity before 1950. The government and citizens of the US spend more on shoes, watches, and jewelry than on higher education.
68. Explain the feed-forward cycle fostered by the Highway Trust Fund.
69. Is privatization the answer to conservation woes? Sometimes? Why? When?
70. What did Warren Buffett say about estate taxes? What was his rationale?
71. How do we begin to think proactively about conservation instead of reactively?

**20 November 2007, Professional Panel, Margi Brooks, Dale Turner, Mima Falk**

72. What three groups were represented? How would you say each group differed in its importance or relevance to conservation biology?
73. What two pieces of information were most useful to you from this exercise?
74. Which of these groups would you most likely be willing to work for? Why?
75. For which of these three organizations do you think the ESA plays the biggest role? Why?
76. What is a conservation easement? How does it work? Is it effective?

**29 November 2006, Creativity Project Exhibit**

77. Some have argued that finger painting (aka creative projects like ours) has no place in Conservation Biology. Do you agree or disagree? Why?
78. Others have argued that finger painting is okay, but science and research need to come first. Do you agree or disagree? Why?
79. How can we improve education and awareness of conservation issues in the general population?
80. Which two projects had the biggest impact on you? Why?
81. What role does emotion and passion play in selling a concept or idea?

**4 December 2007, Wrap Up**

82. What is IPAT?
83. Was Malthus correct? Just not in his lifetime? Why or why not?
84. Where are most new humans born?
85. Give five examples of ecosystem services that rely on biodiversity
86. What are the elements that one should keep in mind when trying to give an effective oral presentation?
87. Please describe three realistic actions/things that we can do at each of three different scales, to protect and promote biodiversity.
88. Please have a great holiday break. Spend as much time as you can outside. Write poetry.

Suerte!