NRM/BIO 277: INTRODUCTION TO CONSERVATION BIOLOGY  
Spring Semester 2002

Meeting Time:  Tuesday Thursday 10:30-12:00 noon

Classroom:  Arctic Health Research Building (AHRB) Room 183

Instructor  Dr. Glenn Patrick Juday, Professor of Forest Ecology, School of Agriculture and Land Resources Management, Forest Sciences Department

Office:  Room 232, Arctic Health Research Building (West Ridge), 474-6717 (W); 474-7188 (department) 474-7439 FAX; 479-3765 (H).  e-mail = g.juday@uaf.edu
Office Hours  - (arrange in advance to confirm) Tuesday & Thursday 1:00-3:00 pm

Course Text


Supplemental Readings  (Available in Rasmussen Library or supplied by Instructor)


Articles from Conservation Biology, Natural Areas Journal, Science, and Nature Conservancy Magazine.


Web Sites report  Students will be assigned the responsibility of searching, examining, the Internet on a conservation biology topic approved by the Instructor and will report to the class on the subject. As of Jan 17, 2002 all U.S. Department of the Interior (USDI) websites are off-line for an indefinite period of time as the result of a lawsuit. If the USDI sites become available at an appropriate point in the spring semester, members of the class will choose an Endangered Species Recovery Plan for and will present the essential elements of the plan. If USDI remains off-line members of the class will choose from state natural area programs, U.S. Forest Service, and Marine Sanctuary and other sites.

Other Available Readings


Course Description
This course will provide an overview of:

(1) the principles of the science of conservation biology and the contributions of several different integrative levels (molecular, physiology, genetic, population, ecology, earth system science) of biology to problems in conservation biology.
(2) the framework of organizations, laws, programs, and land management systems that are specifically focused on identifying, protecting, and maintaining natural diversity in the U.S., in selected other nations, and in international programs.

(3) case studies of specific threatened, endangered, or declining plants and animals, including the ecology and biology of the organisms, factors leading to their decline, and management and recovery methods and strategies.

(4) an overview of the conservation status of some major habitat regions of the world with an emphasis on northern hemisphere and high latitude areas but including ecosystems of particular interest from the tropics, oceans and elsewhere.

TOPIC OUTLINE (Spring Semester 2002)

**Section I  Principles**
A. Concepts of natural diversity  
B. The practical significance of natural diversity  
C. Fragmentation and edge effects  
D. Genetics – heterozygosity, inbreeding depression, genetic bottleneck  
E. Minimum Viable Population (MVP); population biology of small populations  
F. Patterns of diversity and landscape ecology  
G. Environmental variability and natural diversity  
H. Island biogeography  
I. Factors reducing natural diversity and approaches to sustainability

**Section II  Programs, Policies, and Laws**  
A. The focused search for diversity: State Natural Heritage Programs and The Nature Conservancy,  
B. Landscape-scale preservation: The National Park System and the National Wilderness Preservation System  
D. International organizations & natural diversity: UNCED, Agenda 21, CITES

**Section III  Conservation Biology Threatened or Endangered Species across Taxonomic Groups**  
A. The U.S. Endangered Species Act  
B. Case studies of endangered animals (Whooping Crane, Black-footed ferrets, large cats, primates)  
B. Case studies of endangered plants  
C. Ecosystem Level Projects  
   1. Conservation biology of old-growth forest ecosystem of the Pacific Northwest

**Section IV  Conservation Biology at the Ecosystem Level**  
A. The Wildlands Project  
B. Landscape connectivity and viability  
C. Marine conservation
Section IV  Conservation Biology in Northern Regions
A. Swedish and Canadian boreal forest diversity and conservation
B. Conservation Biology of the greater Prince William Sound ecosystem and the Exxon Valdez Oil Spill
C. Conservation biology challenges from global warming, especially in northern regions
Grading Policy

I. Quizzes, Midterm, and Final Exam - 60% of Course Grade
Students will be examined on material from lecture handouts, the text, assigned documents downloaded from the Internet, and copies of articles distributed in class. There will be regular short quizzes on the basic factual content of the material assign for the course. Quizzes will total 20% of the overall grade. A midterm exam will include both short answer questions and short explanation or problem type questions. The midterm exam will total 20% of the overall grade. The final exam will total 20% of the overall grade.

The goals are to:
1. Give the students an incentive to complete their reading assignments in pace with the presentation of lecture material, and to review in greater depth the topics that are introduced in lectures.
2. Highlight common knowledge that all student completing the course can be expected to know.
3. Provide the opportunity to review and retain factual information in a written form.
4. Provide a forum for responses that demonstrate integrative thinking, deductive reasoning, and well developed and more extended responses.

II. Student Presentations - 30% of Course Grade
Students will be called upon to give 1 or 2 (depends on enrollment numbers) time-limited oral report on the conservation biology of a species or ecosystem. If students select a topic the subjects must be approved in advance by the instructor. Students are encouraged to select a topic for which they have some special background because of work or life experience, special interest, or curriculum background. The first (midterm) report will total 15% of the overall grade, and the second (final) report will total 15%. Reports will be in the form of briefings, such as an employee of a private or public resource agency might be called upon to give to explain a recommended conservation policy. Students will be evaluated by the instructor on both content and effectiveness of presentation, including responses to critical questions following the presentation.

The goals are to:
1. Make students aware of a substantial body of conservation biology literature, some of it quite recent, that includes popular, semi-technical, and technical information, and to promote good reading habits.
2. Give students experience in summarizing a specific topic within a strictly limited time for presentation, making sense of it and identifying the most relevant points to reach conclusions.
3. Give students experience in speaking before their peers, with special emphasis on speaking cogently and fluently.

III. Class Response - 10% of Course Grade
Students will be asked questions in class concerning the content of assigned readings and handouts. Familiarity with this material will be expected. Students will also be asked to make critical inferences in class once basic definitions and lectures have been delivered.

Rationale:
1. Higher concepts cannot be developed if students are not familiar with basic assigned readings.
2. Interaction between the instructor and the students (questions from and to students, ability of students to respond when challenged) is an important aspect of education within the course.
3. Attendance is a tangible demonstration of the seriousness of the student toward the course, and the instructor is not organizing and presenting the course just for kicks.
Evaluation of Student Presentations
N SciM/BIO 277 Introduction to Conservation Biology

Presenter

Assigned Paper/Topic

Evaluation of:
Format

EVALUATION CRITERIA (positive and negative)

ability to gain and hold audience attention
effectiveness of introduction
tone of voice verbal non-fluencies
eye contact mannerisms in delivery
smoothness in topic transition
clarity and directness of expression

Content

EVALUATION CRITERIA (positive and negative)

organization within available time
focus on the most relevant information
effectiveness of examples or illustrations
review of relevant background concepts

adherence to time limits
use of gestures
run-on sentences
grammar
comprehension of material
effectiveness of summarization
appropriateness of facts

Grade - __/20 (times expansion factor)
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<tr>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
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<tr>
<td>Class 1</td>
<td>Thurs. Jan 17</td>
<td>Introduction to course, grading policy, background, scope of conservation biology; definitions and concepts of biological diversity.</td>
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<td>Class 2</td>
<td>Tue. Jan 22</td>
<td>Definitions and concepts of biological diversity; categories of reasons for conserving; integrative levels of biology as a factor in conservation; speciation (reading assignment, text Meffe Chapters 1 and 3)*.</td>
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<td>Class 3</td>
<td>Thurs. Jan 24</td>
<td>Functional importance of natural diversity in ecosystems; importance of natural diversity from perspective of science; (Meffe Chapter 2)</td>
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<td>Class 4</td>
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<td>Conservation and values/religion; quiz</td>
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Class 21.  Thurs.  April 4
Class 22.  Tue.  April 9
Class 23.  Thurs.  April 11
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**Final Exam Period Thurs. May 9, 10:15 am-12:15 pm**

(Final Exam Week May 8 - May 11)