

# Conservation Biology

## ESRM 313/Biology 313

Fall 2008

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Environmental Science & Resource Management Program

cell: (805) 732-2732

Lectures: M 9<sup>00</sup>-10<sup>15</sup> & W 12<sup>00</sup>-1<sup>15</sup> BT 1352 (GIS Lab)  
Lab: M 10<sup>15</sup>-1<sup>15</sup> BT 1352 (GIS Lab)

Office Hours: M 1<sup>15</sup>-2<sup>15</sup> Bell Tower West 1265  
W 11<sup>00</sup>-12<sup>00</sup> Bell Tower West 1265 or Islands Cafe  
or by appointment

Office: Bell Tower West 1265    (805) 437-8984

Final Due: Monday Dec 8 at 1<sup>00</sup>PM (note time in schedule of  
final is for lecture time of M&W 12<sup>00</sup>PM)

*Applied ecology is the acid test of ecology.*

—Anthony Bradshaw, 1983

*The sword of science is double-edged. Its awesome power forces on all of us, including politicians, but of course especially on scientists, a new responsibility — more attention to the long-term consequences of technology, a global and transgenerational perspective, an incentive to avoid easy appeals... Mistakes are becoming too expensive.*

—Carl Sagan, *The Demon-Haunted World*

*The Federal government owns half the land in California. Now if these little suckers can't live on half of the land and they need our land to survive, then maybe the good Lord didn't mean for them to be around.*

—Farmer referring to the desert tortoise in California

***Please note that this syllabus is subject to change.***



Neftziger

National Wildlife

"Maybe we'd better leave this one alone."

## **COURSE OBJECTIVES**

This is a survey course designed to give you the necessary background to begin to deal with the challenge of degraded ecological communities. We will be applying lessons and concepts from biology in order to stem this degradation with an eye to the realities of our time. While our discussions will take place primarily within a biological setting, I will endeavor to impart to you the importance of understanding the particular milieu (*e.g.* legal, bureaucratic, economic, *etc.*) within which a given management action needs be carried out. Conservation biologists are challenged to bring an effective, rigorous scientific approach into an often chaotic and charged arena. Even if you will not become a biologist or land manager, as a private citizen you will increasingly be called upon to evaluate such efforts and determine both public and private policy via ballot measures, membership in civic organizations, and which products and services you choose to support with your money.

## **LEARNING OUTCOMES-CONCEPTS**

By the end of this course, you should understand and be able to clearly articulate:

- the major developments in the history of biological conservation
- why conservation efforts are needed (identify problems)
- the pros and cons of potential conservation alternatives (what our options are)
- the biological rationale behind given conservation efforts (why actions were taken)
- common conservation methodologies (how we typically conserve)
- policy, legal, and public opinion issues surrounding conservation efforts

## **LEARNING OUTCOMES-SKILLS**

Conservation biology, like all foreign languages, has its own grammar, terminology, and rhetoric. To interpret the primary literature and engage in meaningful discussions, you will need to familiarize yourself with this language. As we learn about the theory and practice of conserving our biological riches, we will simultaneously be developing and refining a variety of skills not confined to the conservation arena.

At the conclusion of our course you will be able to:

- evaluate scientific papers and popular press accounts of technical issues
- interpret general experimental designs
- interpret quantitative data in tabular and graphical forms
- have confidence in our own interpretations

You should also be able to demonstrate a marked improvement in your:

- technical writing
- note taking
- observations of natural landscapes

## COURSE MATERIALS

- Groom, M.J., G.K. Meffe, C.R. Carroll, and Contributors. 2006. *Principles of Conservation Biology*. Sinauer Associates, Inc. Sunderland, MA. 3<sup>rd</sup> Edition. 779 pp.
- Blake, G. and R.W. Bly. 1993. *The Elements of Technical Writing*. Longman Publishers. New York, NY. 173 pp.
- Additional weekly readings are on Blackboard (in the eReserve section)
- Three-month subscription to the *Ventura County Star* (go to [www.venturacountystar.com](http://www.venturacountystar.com), select 13 weeks Thursday-Sunday \$26.78~may be less with EZ Pay), *Los Angeles Times* (go to [myaccount.latimes.com](http://myaccount.latimes.com), use offer code NBD to pay only \$1 per week), or other national newspaper of your choice (hard-copy NOT electronic version).

## COURSE STRUCTURE

Our course will alternate between field trips, discussions, and lectures. We will head out into the field as much as possible during the semester, with at least some field trips occurring on weekends. We will be actively discussing conservation-related issues, reading topics, *etc.* throughout the course. Much of this will happen when we are in the field or on our way to a field site. **This course will therefore emphasize participation and discussion.** Each day, you should be prepared to explore concepts and perspectives aggressively and not worry about saying the “wrong” thing. I expect each of you to maintain an attitude of respect and courtesy within the classroom to foster an atmosphere conducive to learning.

## LECTURE NOTES & ACTIVE LEARNING

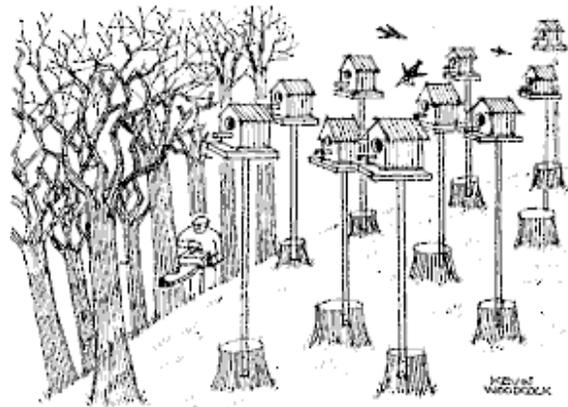
I will post abbreviated versions of *some* of my lectures on Blackboard (under the Lectures tab) just before or soon after a given lecture. I have ceased posting my complete lecture notes as this encouraged many students to not take their own notes. Active note taking greatly improves retention and comprehension of information. In a similar vein, I discourage you from reading with highlighters. Instead, please use a pencil, pen, or pdf markup tool to underline important sections of text and comment upon them. Reading with a pen, pencil, or markup tool encourages you to annotate any given section: “three key points here almost identical to Chapter 5” is much better and easier to review than a series of fluorescent lines in the middle of a page.

Note taking is an essential skill, but one that appears to be on the way out in our Internet Age. I strongly encourage you to be an active note taker throughout our class. Following a lecture or lab session, you should **copy over or (re)type up** those notes. This process amounts to a study session where you organize the information in a manner most helpful to you (not necessarily in the order in which I presented it). Lecture slides that are extremely definition-heavy or composed of complex graphs will often be included in my posted lecture notes. Please be advised that simply downloading posted lecture notes, *etc.* is in no way a substitute for coming to class.

## EVALUATION

You will be graded on your participation, reading summaries, field trip/lab write-ups, research paper, midterm, and final as follows:

- 5% Participation
- 10% Quizzes
- 10% Reading Summaries
- 10% Field Trips & Lab Write-Ups
- 15% Midterm Exam
- 20% Research Paper
- 5% Notes
- 5% Writing Portfolio
- 20% Final Exam



Grade break down:

- A 90-100 %
- B 80-89 %
- C 70-79 %
- D 60-69 %
- F 50-59 %

I use the “+” and “-” system (*e.g.* B- = 80-83%, B = 84–86%, B+ = 87-89%)

## QUIZZES

Quizzes are unannounced, but we typically will have one quiz per week. Quizzes function partly as a mini-review of concepts and partly as a motivator for you to not fall behind on readings and other class work. Each quiz should take no more than 5 to 10 minutes and will cover recent lecture, reading, and lab material with short answers, multiple choice, and fill-in-the-blank questions. Quizzes are usually given at the beginning of a lecture period and cannot be made up (even if you arrive in time for the lecture itself). Please arrive promptly for each class and do not run the risk of missing a quiz. To encourage group study and frequent review of course concepts, 75% of your overall quiz grade for the course will come from your own grade you receive on our quizzes and 25% will come from an average of you and your partner’s (I will randomly select your partner for you after our first class) quiz grades.

## READING SUMMARIES

Reading scientific papers, agency reports, and even articles in the popular press can be quite difficult. It is very easy to get bogged down in the many details or controversies of a particular paper and lose sight of the main points. Consequently, reading a paper front to back does not necessarily guarantee understanding. Often you just need to mull it over in your head for awhile. To make sure you have done so, each week you will turn in a one-paragraph summary of your impressions of a given week’s primary literature readings (*i.e.* the stuff on eReserve, not readings from our text book); these summaries are due each **Monday at the start of class** (*i.e.* Week 8 reading summary is due on the Monday of Week 8). You need not comment on every paper, but rather you will choose one mandatory eReserve reading that you find the most interesting from that week’s list (although you need to read all of them). Start your

summary off with a **clear, single sentence** set apart from the rest of your summary that describes the central theme or conclusion of the piece. When possible, state this as a hypothesis.

## FIELD TRIPS

We will make several field trips over the course of the semester. While the



exact number and locations are yet to be finalized, the purpose of these trips is to get you out into the field and show you as many biological communities as possible, running the gamut from relatively "healthy" to highly degraded. We will see the legacy of a variety of past conservation efforts and discuss what lessons may be applied to current and future activities.

Whenever we are in the field please be sure to bring or wear:

- field notebook, pen, clipboard, and large rubber band
- camera (not necessary, but may help you remember info for your write-up)
- hat and/or sunscreen
- water bottle
- hiking boots or other study shoes (NO FLIP FLOPS)
- a *huge* smile

## LAB WRITE-UPS

In addition to your weekly reading summaries, you will be turning in a field trip summary and/or lab assignments. Normally, I will give out a list of specific questions to be answered in your write-up, but occasionally you will simply do a brief summary of the field site and our visit. In general, you will need to present your observations and provide a one-page discussion of any results, summarizing the important findings and trying to interpret them in the context of the overall exercise. Lab write-ups are due at the start of class on the following Monday, one week after the lab.

## SPECIES PROFILE RESEARCH PAPER

Getting into conservation issues can be quite challenging, especially when you are not familiar with the details of the debate. You will choose a species found in California from the

list below that interests you and will allow you to get an in-depth feel for the challenges associated with protecting our biological heritage. You will develop a species overview and support it with two different writing samples, each targeted towards a different audience. Your first and core writing assignment is a traditional research paper directed at a professional scientific audience (*i.e.* me). For most of us, writing clear and concise prose does not come easily. Recognizing this, we will progress through several discrete phases wherein you will be focusing and revising your paper. You may choose to focus the entirety of your paper on the single most pressing conservation issue related to your species or to focus on the overall palette of issues surrounding your organism. Whatever you choose you must describe the historic (>200 years ago), recent past (1900-2000), current, and future (50-100 years) abundance, distribution, and management of your species in California. After finishing your research paper, you will switch audiences and produce a Letter to the Editor (750 words maximum) for a newspaper of your choice (with your audience being the readership of the *LA Times* or the *Ventura County Star*). Lastly, you have the option to revise your Letter to the Editor and to submit it to a newspaper for publication (with extra credit given if they decide to run it). During finals week you will turn in a portfolio containing all of your previously submitted research paper-related writing samples (*i.e.* material submitted for each phase that I have returned to you) to demonstrate your improvement over the semester. So you must **save each returned assignment with my comments on them.**

**Due Dates for Writing Assignments:**

- 1) Choose your topic: Week 2 (Wednesday, September 3)
- 2) References ( $\geq 10$  peer-reviewed): Week 3 (Wednesday, September 10)
- 3) Outline: Week 4 (Wednesday, September 17)
- 4) Introduction: Week 5 (Monday, September 22)
- 5) 1<sup>st</sup> Draft Research Paper (for student peer evaluation): Week 7 (Wednesday, October 8)
- 6) 2<sup>nd</sup> Draft Research Paper: Week 8 (Wednesday, October 15)
- 7) Abstract: Week 10 (Wednesday, October 29)
- 8) 3<sup>rd</sup> (Final) Draft Research Paper: Week 12 (Wednesday, November 12)
- 9) Draft Letter to Editor (for student peer evaluation): Week 13 (Wednesday, November 19)
- 10) Letter to Editor: Week 14 (Wednesday, November 26)
- 11) *Optional Revision* of Letter to Editor: Finals Week (Monday, December 8)
- 12) Portfolio of work due with Final Exam: Finals Week (Monday, December 8)

Your research paper may well touch on much of the controversy over management of your species, but the emphasis should be on the **biological issues involved**. Research Papers will be 5 pages (if done by yourself) or 8 pages (if done with a partner; Times 12-point font, 1-inch margins, double-spaced), follow citation examples to be distributed later, and draw from primary literature as much as possible (using a minimum of 10 peer-reviewed papers). Tables and Figures are welcome and may even be necessary in some contexts, but do not count towards your total page count (neither does your Literature Cited section).

### Research Paper Candidate Species:

white abalone	Louisiana crayfish	western diamondback rattlesnake
red abalone	desert tortoise	El Segundo blue butterfly
California lobster	Humbolt squid	gypsy moth
blue whale	red-tailed hawk	California sea lion
grizzly bear	Pacific tree frog	Pampas grass
black-tailed deer	northern pike	<i>Arundo donax</i>
Joshua tree	California gnatcatcher	blue gum (eucalyptus)
pronghorn	Chinese mitten crab	California redwood
Devil's Hole pupfish	raven	long-jawed mudsucker
blue heron	salt marsh bird's beak	Norway rat
brown pelican	Pismo clam	salt cedar
ring tailed cat	<i>Erodium cicutarium</i>	quagga mussel
coyote	common earthworm	vernal pool fairy shrimp
black oak	bighorn sheep	Garibaldi

### Getting Help with your Writing

I endeavor to give you lots of feedback on your writing as you progress from outline to working draft to final draft. Nevertheless, it is always helpful to have multiple reviewers look over your work and give you their input. I strongly encourage you to have your roommate, sister, friend, or whomever look over your drafts. There is absolutely nothing wrong with this and indeed is the exact same thing I and other scientists do when we write our scientific papers. Another venue for getting feedback here on campus is the CSUCI Writing Center. You may drop in anytime to the Writing Center (Broom Library, 2<sup>nd</sup> Floor north) for feedback on one of your drafts. If possible, I suggest making an appointment ahead of time with the Writing Center switchboard (x8409) or via e-mail (Writing.Tutors@csuci.edu). At least one of your drafts needs

to be stamped with a Writing Center stamp to prove to me you made a visit there at least once during our semester.

## **EXAMS**

The most unusual aspect of our curriculum is our take-home test format. For both our midterm and our final, you will be given a series of essay questions. You always have a choice of which specific questions you answer. You are free to use any and all relevant sources (save your fellow students) to answer these test questions so long as you properly reference the source. The goal here is to demonstrate to me that you fully comprehend the general concepts, have a mastery of the details to support any and all assertions, *and* can make a well-reasoned, cogent argument. While a take-home test may sound easy compared to most natural science test formats such as in-class multiple choice or short answer, you should know many science majors struggle with this open-ended testing style. Please take these take-home tests seriously and budget ample time for them (at least twice much time as you think it should take). Give yourself plenty of time to reflect upon, compose, and re-read your answers. The purpose of such tests is to see whether or not you can synthesize information, apply concepts to new situations, and think for yourself.

## **CHEATING, PLAGIARISM, AND OTHER FORMS OF ACADEMIC DISHONESTY**

All work that you submit as your own work must, in fact, be your own work. For example, if your paper presents the ideas of others, you must clearly indicate this by citing the source. Word-for-word language taken from other sources – books, papers, web sites, people, *etc.* – must be placed in quotation marks and the source identified. Likewise, work on tests and exams must be your own work, not copied or taken from other students' work, and you must comply with instructions regarding use of books, notes, and other materials.

In accordance with the CSU Channel Islands policy on academic dishonesty, students in this course who submit the work of others as their own (plagiarize), cheat on examinations, help other students cheat or plagiarize, or commit other acts of academic dishonesty will receive appropriate academic penalties, up to and including failing the course and expulsion.

Papers with plagiarized ideas or language will be graded "F" and must be rewritten with proper use of quotations and referencing. The grade of "F" will remain the recorded grade on

that assignment. Plagiarism or cheating on exams will result in an “F” on that exam, very likely resulting in a lower or possibly a failing final grade in the course overall. In cases where I have reason to believe the cheating or plagiarism was premeditated or planned, students may receive an “F” for the course.

**Please consult with me on when and how to document sources if you have *any* possible questions about what might constitute an act of plagiarism or cheating.**

#### **DISABILITY STATEMENT:**

I am committed to equal educational opportunities for all of my students. Students with disabilities will receive reasonable accommodation for learning and evaluation. Students with disabilities should contact our Disability Accommodation Services in BT 1541 or phone them at x3331 anytime between 8<sup>30</sup> AM and 5<sup>30</sup> PM AM. Anyone interested in being a note taker for Disability Accommodation Services for this *or any other class* should feel free to contact them (they will pay you for your notes).

#### **HOW TO DO WELL IN THIS COURSE:**

Focus on learning, not on your grade. Make sure you **complete all of the assignments on time** and do a thorough job. If you interact with the material and complete the course assignments, a good grade should come naturally. If you focus on cramming for quizzes or exams, you will miss out on most of what you are here for. This course should be fun and rewarding. Although it needs to be taken seriously and responsibly, this course should not create undo stress and anxiety. If you are having trouble with the assignments, not doing well on the exams, or having any other problems, please talk to me after class or in my office hours.



***Please note that this syllabus is subject to change.***

Dr. Anderson's Conservation Biology Course  
ESRM/BIOL 313

I have read our syllabus and now know what to expect from this class, both in terms of the general layout of our course and desired learning outcomes. I am aware that it is my responsibility to keep up with all assigned reading and submit all my assignments by their deadlines. Missing deadlines or not keeping up with our readings will harm both my assignment grade and overall performance in our course. I also understand that studying in groups, frequently reviewing past material, and copying over/revising my notes is a great way to improve my grade and (more importantly) boost my comprehension of Conservation Biology topics.

Name (please print neatly): \_\_\_\_\_

Signature: \_\_\_\_\_

Today's Date: \_\_\_\_\_