

BIOL 4020/6020 Special Topics in Conservation Biology: “Endangered Species Conservation”

Spring 2014, Dr. Brad Bergstrom, bergstrm@valdosta.edu

Lecture 3:30-4:20 MW Recitation 2:00-3:50 T

Office Hrs 10:30-11:20 MW; other times by appt., BSC 1107, 333-5770

Purpose and Goals: Biology majors who have completed Genetics, and Ecology and Evolution, will have the necessary background to study the modern science of Conservation Biology as applied to the goal of understanding the factors leading to endangerment of species and to the strategies and tactics for conserving biodiversity and especially rare, endangered, and otherwise important species. We will also explore laws, policy and societal factors. Two lectures per week plus a recitation period for group discussion of the current literature and special projects.

Recommended References for Background Reading and Research (see lecture topics below; other book chapters and articles TBA) can be accessed free through Odum Library-Galileo-ebrary; e.g., “C&F” is: Carroll, S.P. and C.W. Fox (eds). 2008. [Conservation Biology : Evolution in Action](#). Oxford University Press. 393 pp. [<http://site.ebrary.com/lib/valdosta/docDetail.action?docID=10254515>]

Software: Lacy, R.C., and J.P. Pollak. 2013. Vortex: A stochastic simulation of the extinction process. Version 10.0. Chicago Zoological Society, Brookfield, Illinois, USA. Download Vortex 9.99c (free) at: <http://vortex10.org/Vortex10.aspx>

<u>Tentative Weekly Lecture Topics</u>	Chapters in C&F (Chapters in R&M) [Chapters in Caro] {Chapters in McD&W} ¹
1. Domain, history of ConsBiol; types, values of biodiversity; ecosystem services	1,6 (2,8)
2. Extinction history and risks; causes of endangerment	2 (3)
3. Habitat loss and fragmentation	4
4. Endemism; biodiversity hotspots; keystone, umbrella, and indicator species	(6) [4,6]
*5. Conservation Genetics (homework)	3,5
6. Landscape Ecology and Metapopulation dynamics	4
7. Population viability analysis (homework)	2 (6)
8. Legislation, Policy and the Endangered Species Act	Readings #7
9. Taxonomy and the ESA	7
*10. Trophic Cascades and Ecosystem Restoration	14,16 [5]
11. Conservation Planning, Management and Species Restoration	(7,8,12)
12. Conservation under a changing climate	10,13
13. Societal challenges	(9,10)
14. Ex situ preservation (captive breeding and re-introduction)	{22}
*15. Case Studies and Conclusions	{10-17 TBA,25}

*Approximate time of 3 hour-exams, 3rd given during scheduled Final Exam period.

¹References (other than C&F, listed above) are as follows, from ebrary:

R&M = Raphael, M.G., and R. Molina. 2007. Conservation of Rare or Little-Known Species : Biological, Social, and Economic Considerations. Island Press, Washington DC.

Caro = Caro, T. 2010. Conservation by Proxy : Indicator, Umbrella, Keystone, Flagship, and Other Surrogate Species. Island Press, Washington DC.

McD&W = Macdonald, D.W., and K.J. Willis. 2013. Key Topics in Conservation Biology 2. Wiley Publishers, Somerset, NJ.

Recitation Sessions—tentative weekly schedule:

<u>Week</u>	<u>Topic</u>	<u>Activity</u>
1	Introduction to Vortex (PVA)	computer simulation program
2	Extinctions: past, present, future	readings
3	Biodiversity I: values, ecosystem services	readings
4	Biodiversity II: important species types	readings
5	Conservation genetics	readings
6	Metapopulations & landscape ecology	readings
7	Extinction Risk and Population Viability Analysis	readings
8	ESA listing, delisting	readings, presentations
9	Taxonomic considerations of ESA	readings, presentations
10	Trophic cascades	readings, presentations
11	Ecosystem restoration	readings, presentations
12	Species Recovery under ESA	readings, presentations
13	Climate Change and Conservation	readings, presentations
14	Societal Challenges	readings, presentations
15	Ex Situ Preservation, captive breeding, reintroduction	readings, presentations

Readings will be posted to BlazeView and/or VSU Network (V) Drive under your classes.

Grading: 3 100-pt exams (300); presentation (60), discussion (100); homeworks (30), attendance/attitude (10); TOTAL 500. Letter grades: 440-500 A, 375-439 B, 310-374 C, 245-310 D, 0-244 F. NOTE: each student will be in charge of presenting one topic and set of papers for a discussion during recitation; graduate students (BIOL 6020) will, in addition, prepare and present a 30-min lecture on a topic to be chosen in consultation with instructor; the latter will be equally weighted to the paper presentation, within that 60-pt assignment.

Endangered Species Conservation (BIOL 4020/6020) – Spring 2014 Expectations of Students

1. The text chapters will serve as your introduction and background to the lecture topics. Assigned readings from the literature will delve into issues in detail. Read them both carefully, the latter necessarily before recitation and the former preferably before the lecture; otherwise, you may find that:

1) you are lost in lecture, and 2) that you will not contribute meaningfully to discussion and thus will be graded down. Success in this course demands that you attend every day and come to class prepared.

2. If you should have any kind of question, problem, comment, complaint, crisis, etc., involving this course, I'm the appropriate person for you to talk to. Please come by and see me about it immediately; that's what I'm here for. Feel free to stop by anytime (but try office hours first).

3. **STUDENTS WITH DISABILITIES:** Students requiring classroom or testing accommodations because of documented disabilities should discuss their needs with the instructor at the beginning of the quarter. To register with the Access Office, go to Farber Hall or call 245-2498 (voice) or 219-1348 (tty).

BIOL 4020-6020, Spring 2014, COURSE GOALS AND LEARNING OUTCOMES:

With reference to the Educational Outcomes for the B.S. or B.A. Degrees in Biology (see p. 117 of 2013-2014 VSU Undergraduate Catalog) and as explained above, BIOL 4020 is particularly designed to give the student extensive background in Outcome #5 and partial background in Outcome #1.

With reference to the VSU General Education Outcomes¹, BIOL 4020 will significantly address the following: #3) Students will use computer and information technology when appropriate; #4) Students will express themselves clearly, logically, and precisely in writing and in speaking, and they will demonstrate competence in reading and listening; #7) Students will demonstrate the ability to analyze, to evaluate, and to make inferences from oral, written, and visual materials.

¹<http://www.valdosta.edu/academic/VSUGeneralEducationOutcomes.shtml>