

# CONSERVATION BIOLOGY

FORESTRY 230 (3 credit hours)

COURSE SYLLABUS

FALL 2015



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**Class Date/Time:** Tuesday and Thursday, 9:30-10:45 AM, Room 113

**Instructor:** **Dr. John J. Cox**, Assistant Professor, Wildlife Ecology/Conservation Biology  
Office: 102 T.P. Cooper Bldg. Office Telephone: (859) 257-9507  
E-mail: [jjcox@uky.edu](mailto:jjcox@uky.edu); Webpage: <http://www.ca.uky.edu/forestry/cox.php>

**Dr. Cox's Office Hours:** Tuesdays and Thursdays 12:30-1:30 unless noted on the door or by email.

*Getting to know and interacting with instructors is a very important component of the college experience!* I'm just across the hall from where class is taught and am always eager to meet with students. I would love to hear your perspectives, thoughts, and experiences about the course, and also welcome conversations about career, job and research opportunities, and related issues. Please make an appointment if you want to ensure I'm there to meet you. Otherwise, please just come by and knock on the door. It's that easy!

**Teaching Assistant: Ms. Jennifer (Jenn) McKenzie**  
Office: 123 T.P. Cooper Bldg.  
E-mail [mckenziemjenn@gmail.com](mailto:mckenziemjenn@gmail.com)  
Office Hours: Mon 10-11am, Tue 11:30-12:30pm. Please contact her in advance if you would like to set up an appointment at other times.

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**Prerequisites:** Bio 150 & 152, or consent of instructor

**Reference Texts** Primack, R.B. 2014. Essentials of Conservation Biology. 6<sup>th</sup> Edition. Sinauer Associates Inc., Sunderland, MA. 601 pp.  
**I primarily use:**

Groom, M.J., G.K. Meffe, and C.R. Carroll. 2006. Principles of Conservation Biology. 3<sup>rd</sup> Edition. Sinauer and Associates, Sunderland, MA. 793 pp.

Sodhi, N., and P.R. Ehrlich. 2010. Conservation Biology For All. Oxford University Press. Oxford, England. Made generously available as a free pdf download at: <http://www.conbio.org/publications/consbioforall/> You must install Adobe Reader to view this text; the software can be downloaded for free at: <http://get.adobe.com/reader/>

Leopold, A. 1949. A Sand County Almanac. Oxford University Press, New York, NY. 228 pp. (Note: newer editions will work as well).

**Other Needs:** A basic scientific calculator for some in-class problem-solving and exams.

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**Course Description:**

This 3-hour credit course is designed to introduce students to conservation biology (con bio, for short) a relatively new, multidisciplinary field of study that focuses on the patterns of and the processes that contribute to biological diversity (biodiversity). Formed in response to the global loss in biodiversity, conservation biology is a value-laden, crisis discipline that not only studies biodiversity, but importantly identifies strategies to reduce or prevent further loss of it. In this course, we review the ethical foundations of conservation biology, discuss the scientific evidence that illustrates recent rapid loss of biological diversity at multiple spatial and temporal scales, identify and elaborate on the causative factors of biodiversity loss, and discuss various strategies for conserving biodiversity. Conservation biology is multidisciplinary in scope, and therefore we will discuss topics in fields of study that include wildlife management, restoration ecology, economics, ethics, geology, evolution, philosophy, phylogeny, taxonomy, genetics, behavioral ecology, population ecology, disease, sociology, sustainable living, and human dimensions. Although many conservation topics are global in scope, North America, Kentucky, my current research projects, and well-studied case examples elsewhere will be used to support class activities. The course material is taught at a similar introductory level as con bio courses offered elsewhere in the U.S. and internationally.

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**Learning Objectives:**

At the end of this course students should have a knowledge and conceptual-based understanding of the following:

1. Historical origins, ethics, and distinguishing characteristics of conservation biology.
2. Common terminology used by conservation biologists also shared by other fields such as forestry, ecology, economics, genetics, ethics, and wildlife management.
3. Definition, types, patterns, and processes that characterize and influence biological diversity.
4. Common methods to measure biodiversity at different scales.
5. Primary threats to biodiversity.
6. Common biodiversity valuation terminology and methods.
7. An introductory understanding of applied population biology, particularly as it relates to the conservation and management of small populations.
8. Common practical approaches for conserving biodiversity.
9. Key conservation laws and agreements.
10. Conservation implementation at various scales.
11. Current major conservation issues in Kentucky and beyond.

*And*

You will have:

12. Improved your communication skills relevant to the field of conservation biology and natural resource management.
13. Gained insight into the diverse activities of conservation professionals and how they approach and solve problems.
14. Improved clarity about your interest in pursuing a career in conservation biology or a related field.

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**Classroom Activities:** In class activities include a combination of lectures, discussions, in-class writing, group exercises, demos, problem-solving, quizzes, video presentations, exams, and outside speaker presentations.

**Class Lectures/Course Website:** Class lectures will be directly e-mailed to students and will be posted on my official UK website (see page 1) as Powerpoints saved as pdfs. Please make sure to note that in addition to the required texts, I also incorporate a great deal of outside material synthesized from other texts, scientific papers, reports, etc. Also on my website I will post field trip, campus events, and other information pertaining to or related to this course.

**Course Evaluation (Grades):** Evaluation (your grade) in this course is based on the cumulative points (600 total possible) you receive for the listed assignments below:

<u>Activity</u>	<u>Points Each</u>	<u>Total Points</u>	<u>% Total Grade</u>
Class Participation/Short Writing	Variable	50	8.3
Quizzes and Assignments	Variable	100	16.7
Regular Exams (n = 3)	100	300	50.0
Comprehensive Final Exam	150	150	25.0
Total		600	100

**A = 540-600 pts. B = 480-539 pts. C = 420-479 pts. D = 360-419 pts. E = < 360 pts.**

**Exams:** Exams will consist of questions of various formats; multiple choice, fill in the blank, short answer, and essay are typical. Exam questions change yearly to reflect new material I incorporate into class lectures and activities. Each exam usually has one bonus question worth up to 5 points. I typically hold **review sessions** in Room 217 of Cooper after 5pm 1-2 days before exams if there is sufficient interest.

- Sharing notes, studying in small groups, & asking questions are important strategies to perform well on exams; studying the night before the exam usually is not.
- I do not curve exam or final grades. Therefore, your grade is based on *your* individual performance, not on how you do relative to the academic strength of the class.
- Missed exams cannot be made up without a valid excuse (see attendance). Not knowing when the final exam is scheduled is not a valid excuse.
- The final exam is comprehensive in that it will include questions about material covered during the final quarter of the course (typically ~ 20%), *plus* important facts, concepts and ideas from the entire course (typically ~80%).
- If you score  $\geq 75\%$  on the comprehensive final exam I will drop your lowest test grade score (including the final if it's the lowest) and recalculate your final grade accordingly. I would strongly advise you not to underprepare for an exam thinking you can drop it later by doing well on the final.

**Quizzes and Assignments:** During the course there will be a variable number of short-assignments and reading quizzes that represent ~17% of the total points. The nature of short assignments will vary but may consist of brief essays, quantitative activities, group discussions, class participation, or other forms of evaluative exercises designed to stimulate learning and comprehension of course material. These may be conducted in or out of class depending on the assignment. Quizzes may be unannounced and given at the beginning or end of class. Some of these will be open notes, while others may not. It therefore pays to read assigned material and pay attention and participate in class.

- Scientific Papers: We will investigate the primary scientific literature dealing with conservation topics through use of assigned readings of peer-reviewed publications. *Material from these readings are almost always incorporated into quizzes and exams.*

- Other assignments: will primarily be investigatory or problem-solving exercises where you will have to explore current scientific literature and databases to answer questions individually or as small teams.

### **Assignment Grading Criteria:**

- Good writing is important! Grammar, spelling, sentence structure, organization, and clarity are important evaluative criteria on all written and presentation assignments. Sloppy work will be penalized accordingly.
- Do your own work on assignments unless it states in the instructions it is a group or team assignment.
- Cutting and pasting written material from the web into an assignment is unacceptable (e.g. Wikipedia, etc.), and in extreme cases will be considered plagiarism. Please use your own words when completing assignments. <http://www.cs.uky.edu/~paulp/Plagiarism.htm>
- Handwritten assignments *will not* be accepted.
- E-mailed assignments *will not* be accepted unless you have a very good reason and my prior approval due to computer viruses/file sharing.
- Please staple all assignments.
- Printing on both sides of paper is encouraged and preferred to reduce waste.

**Class Participation and Short Writing Assignments:** These will typically be short (10-15 minute) in-class writing periods to think and write about a particular question(s) or problem(s) presented in the reading or other assignment, and/or from that day's lecture and discussion material. These will be graded more on the quality (clarity, thoughtfulness, logic, etc.) of your response and overall effort than on other grammatical criteria given the short time limit. You may be called on some occasions to discuss and defend your answers in class.

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### **Classroom Policy, Expectations, and Professionalism:**

**Attendance:** In Fall 2013, the Department of Forestry adopted a Code of Conduct that mandated that all forestry courses implement an attendance policy that penalizes students a letter grade after missing ~≤ 10-15% of the regular meeting times of the course. In compliance with the new attendance policy in this course, *you will drop one letter grade for every 3 unexcused absences* (e.g. missing 3 classes = 1 letter grade drop, missing 6 classes = 2 letter grade drop, etc.). *No exceptions. However, if you have perfect attendance thru the semester 10 points will be added to your final grade.*

- Attendance is taken during every class using a paper sign-in sheet. It will be your responsibility to make sure you sign it if you're in class.
- Excused absences include illness, death of family member, and others officially listed in UK regulations.
- Please provide me with advanced notice if you are going to miss class and legitimate documentation to support your excused absence when you return.
- Repeatedly showing up more than 15 minutes late will result in a warning, and if continued, you will be counted absent each day it occurs afterwards.

### **Assignments and Exams Missed During an Absence:**

- You cannot make up assignments or exams without an excused absence.
- Quizzes and writing or other assignments performed in class cannot be made up, but won't count against you if you have an excused absence.
- Missed exam makeup scenarios for excused absences are considered on an individual basis. Please contact me in advance to let me know you won't be taking the exam. Then contact me as

soon as possible upon your return to campus to try and arrange a makeup exam date. Not taking an exam without penalty may be an option if the exam has already been returned to students.

- If you have an excused absence(s) that span an assignment date, whether you make up the assignment is up you, but you won't be penalized if you do not. For example, if you are a member of the UK Orchestra and a concert held out of state causes you to miss two consecutive classes and an assignment given out the first day of absence that is due the second day of absence, you are not responsible for making up that assignment. However, it may be to your advantage to make up the assignment to try and raise a poor grade or better insure a good grade.
- If you are absent for any reason it will be your responsibility to collect materials (e.g. handouts) and become aware of assignments missed during your absence.

**Punctuality/Due Dates:** Unless otherwise specified:

- We will leave at designated times for field trips.
- All assignments will be due at the end of the class period on the date assigned for completion.
- Printing and computer complications are not legitimate excuses for turning in late assignments.
- Assignments turned in after class and before 5pm of the due date ***will incur a 10% penalty per hour***. That means if you turn in an assignment 5 hours after it's due and before 5pm you can only receive a maximum of 50% of the total points.
- ***No assignments will be accepted after 5pm of the date due.***

**Integrity (Cheating, Plagiarism, and Code of Conduct):** In Fall 2013, the Department of Forestry adopted a Code of Conduct that mandated that all forestry faculty, staff, and students sign a pledge to uphold academic standards and conduct themselves with professional integrity. You are aspiring scholars, scientists and/or natural resource stewards, and hopefully, eager and motivated students and engaged citizens, and my expectations of you will be to conduct yourself in a professional manner. Therefore, engaging in conduct unbecoming a UK student (e.g. cheating, plagiarism, lying about your assignments or absences, signing in for someone else on the attendance sheet, using calculators or other electronic devices to store and retrieve answers) *are serious offenses that will result in an E for the course*. See university rules and regulations at: <http://www.uky.edu/StudentAffairs/Code/part1.html> for more details. If you have a question as to whether you may be violating these rules, particularly for plagiarism, *please* ask me for clarification.

- Individual assignments are defined as those activities you are to complete by yourself. This does not mean you can't occasionally provide or request guidance from classmates as you complete assignments, but it does mean that you should not be copying answers or providing answers to someone that has not or is not willing to complete the assignment on their own. Please do your own work.
- Team assignments are defined as those where a group of individuals work together and produce a team-influenced product(s), whether that be one or multiple items.

**Mindfulness:** In this course, I ask that you avoid the "tyranny of the immediate", temporarily disconnect yourself from your personal electronic media, and connect yourself to the *present* moment.

- Text messaging, net surfing, playing electronic games, using social media sites, Ebay, stock trading, etc. are all activities that can be very distracting and disrespectful to your classmates, and are therefore prohibited activities in this class (I have peer-evaluated other instructors courses & frequently seen these attention-sapping effects). As such, unless you have my prior approval, you may not use cell phones, tablets, and personal laptops in this class and during activities on field trips unless they are incorporated into an official class activity. If you meet the disability requirements you may be able to use a laptop in class.

- Excessive sleeping in class that consistently distracts others (e.g. snoring) may result in you being counted absent for the day, and if repeatedly offensive dismissed from the class

**Civility/In Class Discussion and Participation:** Although conservation biology is a *value-laden* field of science, my goal is to try and convey the scientific facts and important concepts to you within the current political and sociological contexts of our society and others. Whatever your political, religious, philosophical, or other beliefs, my hope is this course will provide you with an introductory foundation in conservation biology and make you a better prepared scientist and written and oral communicator. As such, in classroom discussions and activities please treat everyone with respect and as you would want to be treated. That doesn't mean discussions won't become lively, but we can debate and respectfully disagree with each other in a civilized manner during our discourse.

**Preparation and Dedication:**

*Will you be ready to effectively compete with thousands of others for jobs in the natural resource professions?* Loving the outdoors alone seldom produces an ideal natural resources career path without the knowledge, skills, experience, and industriousness (work ethic) to make things happen. This course contains important foundational material, particularly for those of you on a natural resource profession career track. Forestry, wildlife, conservation, and even biological science jobs are extremely competitive. Take advantage of every opportunity to increase your knowledge, learn new and hone existing skills, and meet and interact with leaders in your field.

With that said, natural resource management and conservation professionals are, compared to other professions, a relatively small and closely connected collective. Agencies, NGOs, academicians, consulting agencies, etc. are always searching for high quality candidates for entry-level positions into the workplace or for graduate studies. Choice positions and projects are *highly* competitive. I'm always pleased and willing to write letters of recommendation for those who excel in any of my courses. Your letter will reflect your performance in my class if that's the only means I have to evaluate you.

**Field Trips:** Field trips are designed to provide you with opportunities to visit places, people, and interact with organisms usually where biodiversity conservation and/or wildlife or natural areas are a focus of management, research, and education, but also some sites may represent a glaring lack of consideration for biodiversity. Because the class enrollment is at max enrollment, only 2 Saturday field trips will be offered, with a maximum of 36 students per trip. A sign-up sheet will be distributed when trip dates are established. Unless the weather is unusually bad we will go rain or shine. Young natural resource/conservation professionals would be wise to take advantage of these kinds of opportunities.

- You can earn 10 Bonus points for attendance on one field trip and successful completion of the short accompanying written assignment. You will not earn bonus points for going on a second trip, but may attend regardless if enrollment is < 36 students.
- You must adhere to the UK drug and tobacco policy on all field trips.
- PDAs can be used during transit times to our destinations but not during activities.
- Transportation will be provided for long distance trips, but you are free to drive yourself and classmates if you wish. Exact dates to be determined depending on weather and other factors.
- You must be 23 or older to drive a university 11-passenger van AND successfully complete the online 20 minute training.

**Trip 1:** ~ late Sept thru mid- October: Pine and Black Mountains, Blanton Forest, Griffith Woods, and/or Robinson Forest southeastern Kentucky. Potential topics: Landscape-scale conservation, large mammal ecology and management, amphibian diversity, invasive species (All day Sat trip).

Trip 2: ~ mid-November: Griffith Woods, Harrison County, KY, and/or Cincinnati Zoo Center for Reproduction of Endangered Wildlife: Topics: restoration ecology, protected areas, invasive species, ex-situ conservation. (All day Sat trip).

**Field Trip Alternative:**

If you have legitimate scheduling conflicts with field trip days (e.g. you work on weekends), then please see me for an opportunity to complete a written assignment for the 10 bonus points. Generally, the bonus written assignment will take up as much or more time than actually attending a field trip.

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**Students with Disabilities:** Students with disabilities that desire special testing or in-class accommodations must provide me with an official Letter of Accommodation from the Disability Resource Center during the first 2 weeks of the course. If you think you may have special needs you should go to the website: <http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/testAcc.html> for more information.

**FOR 230 General Topic Schedule Fall 2015 (Subject to change)**

<b>Date</b>	<b>Course Topic(s)</b>	<b>Optional Reading(s)</b>
27-Aug	Course Overview; Historical Survey of Human-Nature Relationship and Historical Foundations of Conservation Biology	Primack Chpts. 1 and 6 Leopold (Part 1 of Sand County Almanac)
1-Sep	Historical Survey of Human-Nature Relationship and Historical Foundations of Conservation Biology; Primer on Conservation Values and Ethics	Primack Chpts. 1 and 6 Leopold (Part 1 of Sand County Almanac)
3-Sep	Primer on Conservation Values and Ethics	Primack Chpts. 1 and 6 Leopold (Part 1: Sand County Almanac)
8-Sep	Biodiversity Valuation: Ethics; Aldo Leopold and the Land Ethic	Primack Chpts. 1 and 6 Leopold Parts 2-3: Sand County Almanac)
10-Sep	Aldo Leopold and the Land Ethic	Primack Chpts. 1 and 6 Leopold (Parts 2-3: Sand County Almanac)
15-Sep	Biodiversity Valuation: Ecological Economics	Primack Chpts. 4-5
17-Sep	Biodiversity Patterns and Measurement	Primack Chpts. 2-3
22-Sep	Biodiversity Patterns and Measurement	Primack Chpts. 2-3
24-Sep	<b>EXAM 1</b>	
29-Sep	Threats to Biodiversity: Extinction and Species Vulnerability to Extinction	Primack Chpts. 7-8
1-Oct	Threats to Biodiversity: Extinction and Species Vulnerability to Extinction	Primack Chpts. 7-8
6-Oct	Habitat Loss and Degradation	Primack Chpt. 9
8-Oct	Habitat Fragmentation	Primack Chpt. 9
13-Oct	Overexploitation	Primack Chpt. 10
15-Oct.	Invasive Species	Primack Chpt. 10
20-Oct.	Invasive Species/Climate Change	Primack Chpts. 9-10
22-Oct.	Climate Change	Primack Chpts. 9
27-Oct	Disease	Primack Chpts. 10
29-Oct.	<b>EXAM 2</b>	
3-Nov.	Conservation Genetics and Small Populations	Primack Chpt. 11
5-Nov.	Conservation Genetics and Small Populations/Applied Population Biology	Primack Chpts. 11-12
10-Nov.	Applied Population Biology/ Species and Landscape Approaches to Conservation	Primack Chpts. 11-13
12-Nov.	Applied Population Biology/ Species and Landscape Approaches to Conservation	Primack Chpts. 11-13
17-Nov.	Ex-Situ Conservation Strategies	Primack Chpt. 14
19-Nov.	Protected Area Design and Management	Primack Chpts. 15-17
24-Nov.	Protected Area Design and Management; Role of Unprotected Lands in Conservation	Primack Chpts. 15-18
1-Dec.	<b>EXAM 3</b>	
3-Dec.	Restoration Ecology	Primack Chpts. 13,19
8-Dec.	Restoration Ecology	Primack Chpts. 13,19
10-Dec.	Conservation in Human Landscapes	Primack Chpts. 20-21
14-Dec.	<b>FINAL EXAM MON 10:30 AM</b>	