DRAFT

CONSERVATION BIOLOGY IN THE SOUTHERN APPALACHIANS
SUMMER 2025 (July 20 – August 1)
Highlands Biological Station

Instructor
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Course Description

The multidisciplinary science of conservation biology is about understanding and protecting Earth's biodiversity, and it can be both an exhilarating yet sobering journey. The fascinating array of species we share this planet with is awe-inspiring, but the alarming rate at which we are losing many of them can be discouraging. There is no better place to see this play out than in the southern Blue Ridge Mountains, recognized as a global biodiversity hotspot. Students will experience the high species richness of this area while getting a first-hand look at the complexities and competing interests that often occur in conservation biology. Lessons learned in the classroom will be applied in the nearby forests, coves, bogs, and bottomlands. Topics covered will include the distribution and measurement of biodiversity, population modeling, vulnerability to extinction, climate change, habitat loss and fragmentation, overexploitation and invasive species, endangered species management, as well as *in situ* and *ex situ* conservation efforts. Students will also be introduced to a number of local, national, and international conservation organizations and will gain valuable experience towards a career in conservation.

Purpose of the Course

This course is designed primarily for upper-level undergraduate biology and/or environmental science majors who have or seek a strong background in organismal/ecological biology. Ideally, students taking this course will already be well versed in basic ecological and evolutionary principles, but contact the instructor if you are currently earlier in your academic career.

Methods of Instruction

We will have lots to pack in over our two weeks together, so each day will be filled with both lecture topics and field/lab activities. Our daily schedule will be somewhat flexible based on weather and availability of guest speakers/collaborators, but you should plan on 7-8 hour days in class and/or the field. We will draw on the expertise of people who are affiliated with the sites we will visit and who have first-hand experience in the field of conservation biology. Lectures will be augmented with the use of visual aids such as PowerPoint presentations, web sites, news stories, and films. Laboratory and field activities will consist of site visits and case studies, computer modeling exercises, the compilation of a biodiversity journal, and a simulated legal case involving a potential endangered species. Written laboratory assignments will be turned in and graded. Exams (open-notes) will include a variety of question types (e.g., multiple choice, fill in the blank, short answer), and will consist of material covered in both lecture and the lab/field. All course materials will flow through the Canvas Learning Management System.

Attendance Policy

Students with disabilities who believe that they need accommodation should inform the instructor and HBS staff prior to the start of the course.

Academic Integrity
Cheating of any kind, including plagiarism and the use of artificial intelligence (AI), will not be tolerated and may result in failure of the course. If you are ever unsure about what constitutes a violation of academic integrity, ask me.

Evaluation Components and Grading Scale
Letter grades for the course will be determined by a combination of individual test performance, overall class test performance, and quality of lab exercises. Points and final grading percentages include:

Exams (2 @ 100 pts. each)	= 200
Lab Exercises (4 @ 20 pts. each)	= 80
Patrick's Marsh Wren Report	= 50
Biodiversity List	= 50

Total Points	= 380

A = 92.5-100%	A- = 89.5-92.49%	B+ = 87.5-89.49%	B = 82.5-87.49%
B- = 79.5-82.49%	C+ = 77.5-79.49%	C = 72.5-77.49%	C- = 69.5-72.49%
D+ = 67.5-69.49%	D = 60-67.49%	F = < 60%	

Texts
Ehrlich, P.R. and N.S. Sodhi (2010) Conservation Biology For All. Oxford University Press, 360 pp. (available for free download on Canvas)

Leopold, A. (1949) A Sand County Almanac: And Sketches Here and There. Oxford University Press.

Schultz et al. (1999) Conservation Biology with RAMAS EcoLab. Sinauer Assoc., Inc. Sunderland, MA. (available for purchase at https://webschoolofscience.com/store/consbio-online) (get the Online – Single User version. $50)

The following is a list of topics that will be covered in the course, although it is subject to change.

Lecture Topics
What is Conservation Biology?
The History of Conservation Biology
Economic Value of Biodiversity
Conservation Organizations
Biomes of the World
What is Biodiversity?
Biodiversity Hotspots
The Problems of Small Populations
Habitat Destruction, Fragmentation, and Degradation
Climate Change and Observed Impacts on Biodiversity
Overexploitation and Invasive Species
Wildlife Diseases and One Health
Extinction
Endangered Species Management
Wolf Conservation

Field/Lab Activities
Biodiversity Measurement
Estimating Population Characteristics/Applied Demography
Population Genetics
Ecosystem Fragmentation
Environmental Law (Southern Environmental Law Center)
Patrick's Marsh Wren: Making Decisions to Protect Species
Coweeta Hydrologic Laboratory (Climate Change)
Chattooga Conservancy (Brushy Mountain)
Highlands-Cashiers Land Trust (Brushy Face Preserve and Satulah Mountain)
Mainspring Conservation Trust (Tessentee Bottomland Preserve
Ela Dam Removal Project
Whiteside Mountain (Peregrine Falcon Conservation)
Little Tennessee River (Fish Surveys)
Great Smoky Mountains National Park
Dulany Bog
Bird Banding

Biodiversity List
Each student will compile a list of biodiversity encountered throughout the course. The date, location, and taxonomic classification of each species encountered should be catalogued and an image taken (photo or video) whenever possible. You can compile your species collection however you'd like (e.g., Excel, PowerPoint. PDF). Any species encountered needs to only be documented once. See Canvas (Assignments) for further details.