

## Applied Wildlife Science (EFB 491/796)

### Course Instructors

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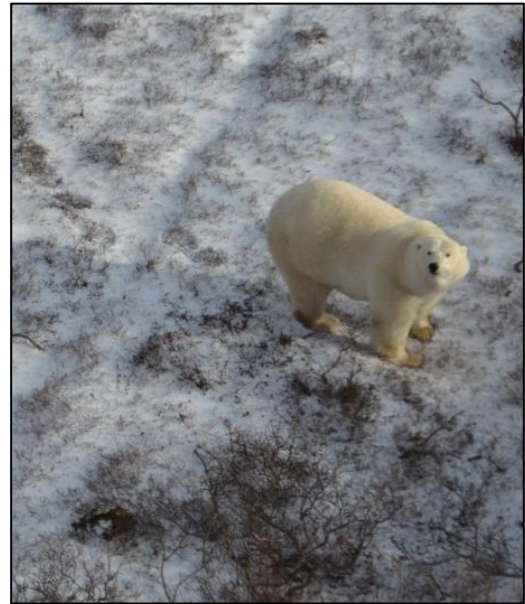
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### Meeting times

M, W (recitation): 10:35-11:30 am, 212 Marshall Hall

W (lab): 2:15-5:05 pm, 434 and 437 Baker Hall

### Course Intent and Organization

In this course students learn how wildlife populations are enumerated, affected by intrinsic and extrinsic forces, and managed in light of competing demands for natural resources. Students apply techniques and analytical tools that are routinely used by wildlife biologists, and increase their proficiency in information management, decision making and communication. The course extends **Wildlife Ecology and Management (EFB 390)** by providing applied, problem-solving experiences, develops skills needed that students will apply in the synthetic capstone course **Management of Wildlife Habitat and Populations (EFB 493)**, and provides marketable, 'hands on', experience applying the concepts and tools used by biologists in the conservation and management of wildlife populations. The class is restricted to EFB students with a declared major of Wildlife Science or by permission of the instructor. Pre-requisite: EFB 390, introductory statistics recommended.

Upon completion of this course, students should be able to:

- design statistically rigorous studies of wildlife populations – distribution, population size and growth, habitat relationships, and species interactions
- use field studies and models to guide effective management actions
- effectively communicate the results of field studies and modeling exercises, emphasizing evidence and uncertainty

- use computer software tools – Excel, Presence, Distance, Mark, and ArcGIS – to effectively manipulate, visualize, and analyze data on wildlife populations

## Course materials and expectations

The **required text** for this course is: *Conservation of Wildlife Populations: Demography, Genetics, and Management* (by Scott Mills, second edition © 2013). This book is an excellent resource, written in a format that makes the material very accessible and applicable for wildlife biologists. Previous students have regaled the quality of this book – so get it, read it, and hold on to it as a future resource. Copies of the book are available in the SU book store, on reserve in Moon Library, and on internet booksellers such as Amazon.com (~\$65). All other course materials such as supplementary readings, lab instructions, software, and datasets will be distributed via blackboard (accessible via blackboard.syr.edu) or handed out in class.

Although attendance will not be taken “80% of success is showing up” (Woody Allen) and performance on labs, exams, and the field project reflects how much effort you put into being present and participating in class. Moreover, you are expected to **come to class familiar with the readings assigned for that week** and ready to answer questions on the reading, and prepared to discuss the reading material in depth with your peers so as to take a more active role in the learning process.

Required readings are detailed in the schedule, but new readings may be assigned during the semester. **Quiz questions will come from the assigned readings, and quizzes will take place prior to discussion of the reading in class. Exam questions will come from the lab exercises, topics discussed in class, and the assigned readings (even topics not discussed in class).** The course is integrative and cumulative – later labs build on skills learned in earlier labs, and so do exams, so it is recommended that you purchase a 3-ring binder for the storage of your course materials and notes, and that you bring this binder with you to all classes.

## Additional course requirements

### (1) Field term project

“The things we have to learn before we do them, we learn by doing them.” -- *Aristotle*

In the second half of the semester you will work as part of a team to design and implement a field study on a wildlife population in the Syracuse region using distance-sampling (a technique covered in the first part of the term). Your team will design your study (within the constraints given to you by the professor), collect and analyze field data, and present your findings during class for feedback from your peers. In addition, each student must produce an individual abstract (250 words) of this research project in their own words. Some lab time will be dedicated to the design phase of this term project (see schedule), but field sampling must be undertaken on your own time outside of class, and requires a significant effort (so plan ahead!).

The term project is worth 15% of your final grade with points assigned as follows:

- **Data collection** (3 points, group grade)  
unambiguous field data sheet , organized and properly attributed spreadsheet
- **Sampling design and data analysis** (3 points, group grade)  
appropriate number and placement of sampling events, thorough data analysis and interpretation
- **Oral presentation** (3 points, group grade)  
complete, clear, organized
- **Written abstract** (3 points, individual grade)  
complete, organized, grammatically correct
- **Peer evaluation of individual contributions to team project** (3 points, individual grade)

## **(2) Attend a professional conference**

Interacting with professional biologists and managers is a crucial part of developing a career in wildlife ecology. Your best opportunity to routinely interact with professionals, keep abreast of the issues in your region (and indeed world-wide), and find job opportunities is to become actively involved in a professional society. The primary society serving the interests of wildlife professionals is The Wildlife Society (TWS; <http://www.wildlife.org>), a non-profit organization that runs a program of credential certification, peer review and publication of research, networking and conferences, policy statements, working groups, and job lists. **You should already be a member of The Wildlife Society**, either the student chapter or the national chapter. In this course you are required to go one step further and attend a professional society meeting. This is a step that will serve you well as you approach the end of your student career and embark on your professional career. Once you leave ESF, the Wildlife Society (not ESF) is the key to staying networked with other professionals as well as accessing training opportunities to stay technically proficient as a working professional. So invest the time to serve your society, and start building your professional network now.

**To receive credit you are required to spend at least 6 hours attending a professional conference or meeting this term.** Your options include:

- 1) The annual meeting of the NY State Chapter of The Wildlife Society (NY TWS) is a meeting of wildlife professionals in NY State that rotates to various locations around the state each year to highlight locally important wildlife issues. The conference generally includes presentations on wildlife issues and research in New York State, a banquet with invited speaker, social networking opportunities, and a student quiz bowl. Costs TBA (generally in the \$45 range for students), and may involve an overnight stay depending upon location. The meeting will take place 1-2 March, 2017 at the White Eagle Conference Center in Hamilton, NY.
- 2) The Northeast Natural History Conference is a meeting for researchers, field biologists, natural resource managers, faculty members and students, and naturalists to share information on all aspects of the natural history sciences of the northeastern United States and Canada. This

conference spans several days and includes multiple networking opportunities. See [https://www.eaglehill.us/NENHC\\_2017/NENHC2017.shtml](https://www.eaglehill.us/NENHC_2017/NENHC2017.shtml) for details. **This year the conference will occur 21-23 April in Cromwell, CT** (a 4-hr drive from campus). Student registration runs \$82 for a single day or \$134 for the entire conference. Communicate with the student chapter of TWS to connect with others likely to share travel and lodging.

- 2) The Northeast Fish & Wildlife Conference is the largest regional forum for researchers, natural resource managers, and students to discuss current information on varied aspects of fish and wildlife biology and management. This conference typically spans several days and includes multiple networking events. Conference venues rotate among the northeastern states. **This year the conference will occur 9-11 April in Norfolk, VA.** See <http://www.neafwa.org/> for details and communicate with the student chapter of TWS to arrange joint travel plans. Cost of registration for students is \$125 (one day) to \$150 (whole week), which a banquet dinner on Monday, if you register by February 12 (prices jump thereafter).
- 3) The Northeastern Student Conclave is organized by TWS students for TWS students and its location rotates throughout the northeastern states. Conclaves involve numerous workshops hosted by wildlife professionals, a student quiz bowl, field trips, and opportunities to network with peers from other academic institutions in the region. Space is limited and participation is organized by the ESF student chapter of TWS. For details contact the chapter officers at [twsatesf@gmail.com](mailto:twsatesf@gmail.com). For a list of current officers visit [www.esf.edu/org/tws/](http://www.esf.edu/org/tws/).
- 4) Other: meetings of related professional societies include the Ecological Society of America (ESA), American Fisheries Society (AFS), and the Society for Conservation Biology (SCB). All of these societies host national and regional meetings that rotate annually and occasionally occur within driving distance of ESF. Search their respective web sites for details.

**Registration, Transportation, and Housing:** All fees for registration, transportation, and any housing required for participation in any of these conferences are to be covered entirely by you (and are not included in tuition). You are also responsible for your own registration and organizing your own travel. That said, often we are able to arrange for car-pooling or ESF transportation to the NY TWS meeting, details TBA as the date approaches.

Participation in professional societies is a personal investment in your own career development. Moreover, the wildlife conservation benefits enormously from a well-trained and well-connected base of practicing professionals. Employers encourage and are supportive of involvement with professional societies, but even so, quite often the cost of membership and participation in professional conferences may be borne solely by the employee. Some exceptions include employee-sponsored service as a chapter officer, grant-funded support to present research results, and travel grants sponsored by



**ESF students competing in the Quiz Bowl at the 2008 TWS Student Conclave.**

TWS working groups and other organizations (many of these are available specifically to students).

**Receiving Credit:** To receive credit for this professional experience, you need to provide:

- 1) **a receipt for your registration** (DO NOT LOSE THIS, when you are a professional you need to keep all receipts to be reimbursed for travel expenses, so this is good practice!).
- 2) **business cards or contact details for at least 2 professionals** that you interacted with.

To acquire business cards you will have to approach and speak with people – so come armed with a few opening questions. You might see someone give a presentation and approach them afterwards to ask a question about what they presented. Or you might attend a student-professional mixer, spot a professional over a coffee break, or simply approach someone to ask who they work for, what their job entails, and what advice they might have for students. That is a good way to open a discussion and make professional contacts. Recognize that most professionals expect to network with students at these professional events, and so generally will be quite open to speaking with you. More than one student has been offered a job after starting a conversation with professionals at a conference like this!

**Schedule conflicts:** Wildlife professionals (indeed all professionals) have multiple, competing, and often conflicting demands on their time. Professional meetings almost always occur during business days, and will therefore pose a course conflict for you. It is your responsibility to seek permission of instructors to miss class, reschedule quizzes/exams, and insure that you receive all course materials so as to be able to attend the conference. Do so as early in the semester as possible! It is completely up to you to negotiate the details of a missed class with your specific professor, and to decide which demand (the professional meeting or another course) is of greater priority to you. Involvement in your professional society is crucial to becoming a wildlife professional, and this requirement is in place for a reason. **Note that there are no “substitutions” for this requirement, and no extra credit options to make up for the points lost for failure to attend one of these professional events.**

## Graduate Student Expectations

Graduate students are held to the same expectations as undergraduate students. However, for the term project graduate students are expected to work together to design an analysis of a wildlife population using either distance sampling or occupancy analysis (or both), integrating all pertinent concepts learned in class (including power analysis, stratified sampling, etc.) and to produce a complete paper of their work prepared for submission to the Journal of Wildlife Management and following JWM submission standards in terms of length, section headings, representation of numbers and symbols, citations, etc. (author guidelines available here:

[http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1937-2817/homepage/ForAuthors.html](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1937-2817/homepage/ForAuthors.html)).

Graduate students will work in groups to conduct the field work, present the results, and write the paper to gain research collaboration experience. However, the contributions of each student to the research must be detailed in the cover letter accompanying the manuscript in its final transmission to the instructor.

## Team Work

Working effectively on teams is an important skill for the wildlife professional. Students are encouraged to work together and there are several lab assignments, and the term project, that will require working in small groups to complete. However, **all lab write-ups and exams must be completed individually and represent your personal understanding of the material.** Plagiarism is grounds for failure of the course and suspension from ESF (see <http://www.esf.edu/students/handbook/> for the ESF's policy on academic dishonesty). Plagiarism is also easily detected when assignments are turned in online, so make sure that you phrase things **in your own words.**

## Written Assignments

Summaries of laboratory work may take the form of short answers via an online quiz, a short write-up to be turned in, or a scientific abstract. Abstract assignments are designed to improve your ability to communicate science effectively in a written format. Scientific writing requires information-rich context and brevity, and being successful requires practice, peer review, much editing, and several revisions. Class time will be dedicated to methods to improve writing skills as well as to peer review. **Importantly, you will have the opportunity to revise abstracts and improve your grade** (this may take 1 to several revisions, meaning 1 to several weeks to complete). Abstracts will be graded based on depth of understanding of the material, grammatical and computational accuracy, logical organization, appropriateness of details included, and the level of support behind conclusions. **Students may consult with the TAs and their peers on their abstract revisions, but the submitted abstract must be in the student's own words.**

A written abstract must also be completed as part of the term project. There will be no formal feedback or opportunities to revise this final abstract – putting into practice the skills you developed earlier in the term.

## Grading

Grades will be assigned based on 10 lab assignments (40 pts), 10 study sheets (10 pts) on the assigned readings, the term project (15 pts), 3 written examinations (30 pts), and attendance of a professional conference (5 pts). There will be two section exams and one comprehensive final exam (10 pts each). Letter grades will be assigned on the basis of grade-point accumulations, scaled to a percentage of the total according to the following:

92-100	A	86-88	B+	80-82	B-	74-76	C	68-70	D
89-91	A-	83-85	B	77-79	C+	71-73	C-	<68	F

*Diversity and inclusion:* Every member of the ESF community is expected to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events.

Dimensions of diversity can include sex, race, age, national origin, ethnicity, gender identity and expression, intellectual and physical ability, sexual orientation, income, faith and non-faith perspectives, socio-economic class, political ideology, education, primary language, family status,

military experience, cognitive style, and communication style. The individual intersection of these experiences and characteristics must be valued in our community. Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation (<http://www.esf.edu/administration/harassment/>). If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options through the Office of Student Affairs (110 Bray Hall; [www.esf.edu/students/support/](http://www.esf.edu/students/support/)), Dean Lombard ([aelombard@esf.edu](mailto:aelombard@esf.edu); 315-470-6660). If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement, please notify the instructor as soon as possible or contact the Office of Student Affairs.

*Policy on accommodations:* This class is intended to be an accessible and welcoming experience for all students, including those with disabilities that may impact learning in this class. If you need course adaptations or accommodations because of a documented disability or chronic illness, or if you need make special arrangements in case the building must be evacuated, please register with the Office of Disability Services (ODS) at Syracuse University. After registration, make arrangements with the instructor as soon as possible to discuss your accommodations, so they may be implemented in a timely fashion. ODS provides an online registration form ([disabilityservices.syr.edu](http://disabilityservices.syr.edu)). If you have questions, visit ODS at 804 University Avenue or phone them at (315) 443-4498.

*Policy on late assignments:* Any submitted work must be turned in by the due date and time indicated in the assignment. Except for write-ups in the form of an abstract, labs write-ups are always due by noon on the Thursday following each lab (turned in via Blackboard). For each submitted assignment 25% of the grade will be removed for each day late (including labs turned in after class on Thursday).

*Policy on missed labs:* Attendance in lab is not mandatory, but you are responsible for completing all lab assignments by the assigned deadline. Recognize that **most labs require substantial support to troubleshoot and thoroughly understand**, so attendance during lab is strongly encouraged (support by instructors beyond scheduled lab hours will be limited). **You are also responsible for acquiring any materials handed out or covered during the lab period** (it is not the responsibility of the instructors to track you down). If religious holidays, illness or family emergencies beyond your control impede your ability to complete a lab during the time allotted, then you may arrange an alternative deadline for a given lab assignment but **must do so on or before the day of the lab**, *ex post facto* excuses are unacceptable and will result in a grade of zero for the assignment.

*Policy on missed quizzes:* Quizzes based on reading assignments can be expected each week. If you will miss a quiz due to an excused absence (i.e., religious holiday, illness, or family emergency beyond your control AND you have notified the instructor of your absence *before* the quiz) then the missed quiz will be waived in the calculation of the final grade. For an excused absence you must discuss your circumstances with the professor before the quiz is administered in class, *ex post facto* excuses are unacceptable and will result in a grade of zero for that quiz. Only one quiz will be forgiven for approved absences during the semester except under the most extraordinary circumstances.

*Policy on missed exams:* Dates of exams are provided in the course syllabus, and you are expected to take these exams on the scheduled date. To miss an exam due to religious holiday, illness or an emergency beyond your control you must discuss the circumstances with the professor *before the exam* is administered in class. For excused absences an alternative examination time will be established. For unexcused absences, a grade of zero will be entered for that exam.

*Policy on plagiarism:* Plagiarism is grounds for failure of the course and suspension from ESF. See <http://www.esf.edu/students/handbook/> for the ESF's policy on academic dishonesty.

## Schedule

### Section I: Gaining reliable knowledge on wildlife populations – design, interpretation, and communication of wildlife science

#### Week 1: 18 Jan

##### The big picture: applied population biology

Wednesday (class)	Introduction to applied wildlife science
Wednesday (lab)	LAB 1: Life tables and population vital rates (Excel)
Friday noon	Lab 1 write-up due, submit via blackboard
<b>Required reading for next Monday</b>	<b>Mills Chapter 2: Designing studies and interpreting population data (20 pp)</b>
Before next class	Turn in study sheet 1 on blackboard

#### Week 2: 23, 25 Jan

##### Designing studies and interpreting data: how do we know what we know?

Monday (class)	Introduction to gaining reliable knowledge in wildlife science
Wednesday (class)	Gaining reliable knowledge continued ...
Wednesday (lab)	LAB 2: Sampling and statistical power (simulation exercise in Excel)
Friday noon	Lab 2 write-up due, submit via blackboard
<b>Required reading for next Monday</b>	<b>Mills Chapter 4a: Estimating population vital rates</b> , pages 54 – 60 (through “sightability or observation probability models”)
Before next class	Turn in study sheet 2 on blackboard

#### Week 3: 30 Jan, 1 Feb

##### Estimating population vital rates – population size

Monday (class)	Distance sampling
<b>Supplemental reading for Wednesday</b>	<b>“Guidelines for effective scientific writing” (handout and on blackboard)</b>
Wednesday (class)	Sightability models <i>Exercise: scientific writing</i>
Wednesday (lab)	LAB 3: Estimating orangutan nest density (program Distance) <i>Exercises: Working through the math with distance sampling and stratified population estimates</i>



Friday noon	Draft your distance sampling abstract and bring it to class next Monday (nothing to turn in this week)
<b>Required reading for next Monday</b>	<b>Mills Chapter 4b: Estimating population vital rates</b> , pages 60 – 70 (“capture-mark-recapture” through “band return approaches”)
Before next class	Turn in study sheet 3 on blackboard

**Week 4: 6, 8 Feb**

**Estimating population vital rates – population size and survival**

Monday (class)	Bring your Distance Sampling abstract to class for peer editing
Wednesday (class)	Capture-mark-recapture
Wednesday (lab)	Hand in double-space printout of your distance sampling abstract. LAB 4: Estimating tiger density (Program MARK)
Friday noon	Lab 4 write-up due, submit via Blackboard
<b>Required reading for next Monday</b>	<b>Mills Chapter 4c: Estimating population vital rates, pages 70 – 75</b> (“other approaches” through end of chapter) <b>“Design of single-season occupancy studies”, Chapter 6 of Occupancy Estimation and Modeling</b> , pages 55-70 (stopping before “including survey cost”), available on blackboard
Before next class	Turn in study sheet 4 on blackboard

**Week 5: 13, 15 Feb**

**Estimating population vital rates – site occupancy**

Monday (class)	Review distance sampling abstracts, introduce site occupancy
<b>Supplemental reading for Wednesday</b>	<b>“Likelihood, MLE, and AIC” (available on blackboard)</b>
Wednesday (class)	Maximum likelihood estimation, site occupancy continued
Wednesday (lab)	LAB 5: Golden cat habitat occupancy (Program Presence)
Friday noon	Lab 5 write-up due, submit via blackboard Revised distance sampling abstract due, submit via blackboard
Before next class	Review readings, labs, class notes, and study sheets for section I exam

**Week 6: 20, 22 Feb**

**Estimating population vital rates – section conclusion**

Monday (class)	Review for exam
Wednesday (class)	Section exam
Wednesday (lab)	<b>Read: Hein (1997) Demonstration of line transect methodologies to estimate urban gray squirrel density</b> , available on blackboard Term project: study design planning session Distance sampling abstracts returned
Friday noon	Revised distance sampling abstract due, submit via blackboard Submit description of field sampling plan with field datasheet via blackboard
<b>Required reading for next Monday</b>	<b>Mills CH 5: Simplest way to describe and project population growth</b>
Before next class	Turn in study sheet 5 on blackboard

## Section II: Managing dynamic populations

### Week 7: 27 Feb, 1 Mar

#### Understanding dynamic populations

Monday (class)	Describing population change <i>Exercise: Conceptualizing <math>r</math></i>
Wednesday	No class or lab – attend NY TWS annual meeting
Friday noon	Revised distance and occupancy abstracts due
<b>Required reading for next Monday</b>	<b>Mills CH 6: Models of age and stage structured population growth</b>
Before next class	Turn in study sheet 6 on blackboard
<b>1-2 March, NY Chapter of TWS annual meeting</b>	

### Week 8: 6, 8 Mar

#### Accounting for age- or stage-specific effects on population change

Monday (class)	Introduction: Anatomy of a population projection matrix
Wednesday (class)	Matrix models continued ...
Wednesday (lab)	LAB 6: Matrix population models (Excel)
Friday noon	Lab 6 write-up due, submit via blackboard
<b>Required reading for next first class after spring break</b>	<b>Mills CH 7: Density-dependent population change (15 pp)</b> <b>Mills CH 8: Predation and wildlife populations (11 pp)</b>
Before next class	Turn in study sheet 7 on blackboard

### Week 9: 13, 15 Mar – *spring break!*

### Week 10: 20, 22 Mar

#### Internal and external forces influencing populations – density and predation

Monday (class)	Density-dependent population change
Wednesday (class)	Predation and wildlife populations
Wednesday (lab)	Term project consultation time
<b>Required reading for next Monday</b>	<b>CH 10: Dynamics of multiple populations</b>
Before next class	Turn in study sheet 8 on blackboard

### Week 11: 27, 29 Mar

#### Dynamics of multiple populations

Monday (class)	Dynamics of multiple populations
Wednesday (class)	Introduction to radio-telemetry
Wednesday (lab)	LAB 7: radio-telemetry (field), meet on ESF quad in front of library (if raining heavily, meet in regular lab room)
Friday noon	Lab 7 write-up due, submit via blackboard

<b>Required reading for next Monday</b>	<b>CH 11: Deterministic factors affecting populations (19 pp)</b>
Before next class	
<b>Tuesday, 28 March, 7:30 pm: "Top dog? Ecological role of the coyote in northeastern forests", Gateway Center</b>	

**Week 12: 3, 5 Apr**

**Conservation of small and declining populations**

Monday (class)	Dynamics of multiple populations
<b>Supplemental reading for Wednesday</b>	<b>Mills CH 12: Predicting the dynamics of small and declining populations (19 pp)</b>
Wednesday (class)	Assessing population viability
Wednesday (lab)	LAB 8: Population viability analysis (Excel)
Friday noon	Lab 8 write-up due, submit via blackboard
<b>Required reading for next Monday</b>	<b>CH 14: Population biology to guide sustainable harvest (16 pp)</b>
Before next class	Turn in study sheet 9 on blackboard

**Week 13: 10, 12 Apr**

**Models to guide sustainable harvest**

Monday (class)	Sustainable harvest
<b>Supplemental reading for Wednesday</b>	<b>"Born in the hands of hunters, The North American Model of Wildlife Conservation", pp 22-27 in The Wildlife Professional, Fall 2010. Check out all the other interesting articles in this issue as well.</b>
Wednesday (class)	The North American Model of Wildlife Management
Wednesday (lab)	LAB 9: Sustainable harvest exercise – balancing shrimp harvest with turtle conservation (Excel)
Friday noon	Lab 9 write-up due, submit via blackboard
Before next class	Review quizzes, readings, class notes and labs for section II exam
<b>9-11 April, Northeast Fish and Wildlife Conference, Norfolk, VA</b>	

**Section III: How we manage**

**Week 14: 17, 19 Apr**

**Assessing wildlife habitat**

Monday (class)	Section II exam
<b>Required reading for Wednesday</b>	<b>"Managing forests for wildlife", pp 55-73 in The Wildlife Techniques manual. Available on blackboard.</b>
Wednesday (class)	Managing wildlife habitat, introduction to HSI models
Wednesday (lab)	Lab 10: Habitat Suitability Index for gray squirrels (field), meet on ESF quad in front of the library <b>By end of the day, complete pre-quiz 10 on blackboard</b>
Friday noon	Lab 10 write-up due, submit via blackboard
Before next class	Turn in study sheet 10 on blackboard
<b>21-23 April: Northeast Natural History Conference, Cromwell, CT</b>	

**Week 15: 24, 26 Apr**

**Managing wildlife habitat**

Monday (class)	Managing forests for wildlife
Wednesday (class)	Term project presentations
Wednesday (lab)	Term project presentations
<b>Required reading for next Monday</b>	<b>The Wildlife Professional, special issue on State Wildlife Action Plans.</b> May/June 2016. Available on blackboard.

**Week 16: 1 May**

**State Wildlife Action Plans**

Monday (class)	State Wildlife Action Plans, class wrap-up
Friday noon	Term project abstracts (undergraduates) due, submit via blackboard.
Before next week	Review study sheets, labs, lecture notes and readings for comprehensive final exam.

**Week 17: 4-8 May**

Final Exam TBA
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