

**Introductory Wildlife
NRM 2301-001
Spring 2009**

Location: English Building LH001

Class meeting time: MWF 10-10:50

Instructor: Richard S. Phillips

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Office hours: 11 - 12 MWF; other times by appointment – email me

TEXT: Bolen, E. G., and W. L. Robinson. 2003. Wildlife Ecology and Management. 5th ed. Englewood Cliffs, NJ: Prentice Hall Inc. 634pp.

Course Website: www.rw.ttu.edu/2301_phillips

Course Overview

While a wildlife manager in Mississippi is trying to increase browse in a bottomland hardwood forest, a wildlife manager in suburban Chicago spends her night with a silencer trying to curb urban deer populations. Although the goals of wildlife management may be drastically different, they revolve around only three scenarios: we can increase, decrease or maintain wildlife populations. Our ability to meet our management goals is rooted in the strength of our science. Truly effective management applies ecological principles to wildlife issues while seeking a balance between the needs of humans and the needs of wildlife. Our goal this semester is to learn the basics of wildlife management, to begin building a toolbox that will serve you well as a wildlife ecologist, weekend naturalist, informed citizen, or future despot.

Course structure

Wildlife management is the application of ecological knowledge to achieve a balance between the need of humans and the needs of wildlife. Although wildlife management is a very broad field drawing from several disciplines, the course is divided into roughly four sections: (1) Wildlife Management: In this section, we will define what wildlife management is and how it differs from other sciences. We will examine the relatively young discipline's history and outline both successes and failures. (2) Science & Ecology: This section provides the foundation for the remainder of the course. We will examine what science is, how it progresses, and what it tells us about the natural world. We cannot discuss means of manipulating wildlife populations without first having a firm grasp of ecology. We will familiarize ourselves with the concept of a population model and its utility in forming questions about wildlife populations. (3) Interactions: Wildlife populations are not insular. In this section, we discuss important relationships to consider when managing wildlife populations. (4) Management: In this section, we will focus on the application of the ecological knowledge we have gained to manipulate wildlife populations. Although game species are often the focus of management, special management scenarios require novel skill sets drawing from emergent fields (e.g. conservation biology) in order to be effective. We will discuss special circumstances associated with the management of nonnative species, endangered and nongame species as well as the field of urban wildlife management.

Course objectives and learning outcomes by section:

Wildlife Management Overview - Provide the student with an operational definition of wildlife management, knowledge of its history as well as examine some of its successes and failures.

- A. Define wildlife management and discuss differences between the wildlife field and ecology.
- B. Examine trends in wild “successes” and “failures” to determine essential characteristics of effective management.
- C. Discuss differences in ownership of wildlife among nations and the possible impact it may have on the ability of effectively manage wildlife resources.
- D. Discuss Hardin’s “Tragedy of the commons” and its possible impact on wildlife management in the United States of America.

Science & Ecology – Provide students with an understanding of the progression of science and its contributions to our understanding of the natural world.

- A. Define and discuss science and how it progresses.
- B. Define the term “model” and discuss its role in science.
- C. Define evolution, natural selection and discuss evidence cited in support of it.
- D. Discuss the 10% rule and its impact on food webs.
- E. Define niche and discuss its relationship to other aspects of ecology.
- G. Define, draw, and discuss types of population growth addressing the impact of density-dependent and -independent factors.
- H. Discuss some emergent properties of populations and develop a model that approximates how these properties affect population numbers.
- I. Compare and contrast compensatory and additive mortality.
- I. Discuss the role of life tables and survivorship curves in comparing mortality among populations.
- J. Discuss methods of estimating population numbers and density and their role in management.
- K. Define limiting factor and describe a scenario where successful management substitutes one limiting factor for another.

Interactions Within & Among Species – Provide students with a working knowledge of Leopold’s idea “to keep every cog” by emphasizing the dynamic role of each species in its community.

- A. Discuss different types of species interaction and their possible impact on management scenarios.
- B. Discuss differences between territory and home range.
- C. Discuss migratory patterns of waterfowl and their impact on our management approach.
- C. Discuss three types of mating systems and their impacts on management.
- D. Compare, contrast, and explain reasons for differences in digestive systems among birds, “general” mammals, and ruminant mammals.
- E. Discuss various strategies for dealing with long-term versus short-term food shortages.

- F. Compare and contrast methods of analyzing wildlife diets addressing their relative strengths and weaknesses.
- G. Discuss the relative role of cover and food in defining where an animal is located.
- H. Compare and contrast functional and numerical responses.
- I. Discuss five factors to consider when addressing predator-prey interactions.
- J. Discuss reasons for studying wildlife disease.
- K. Compare and contrast sylvatic plague with West Nile virus. Allocate a proportion of finite budget to each respective disease and explain your rationale.

Management scenarios – Provide the student with current information and sources on the application of our ecological knowledge in order to maintain a balance between the needs of human populations and those of wildlife populations.

- A. Compare and contrast natural predation patterns compared with human hunting patterns.
- B. Discuss the role of hunting in successes and failures of wildlife management.
- C. Discuss the role of trapping in managing furbearer (e.g. beaver) populations.
- C. Discuss the impact of water on populations of bobwhite quail, northern pintail and white-tailed deer in the Texas Panhandle.
- D. Discuss the role of water on species distribution compared with individual occurrence.
- E. Discuss the relationship among soil, farming, and wildlife.
- F. Discuss possible differences in ecological versus management oriented application of pesticides or fertilizers.
- G. Compare and contrast several public and private programs aimed at agricultural interests that attempt to mitigate impacts on wildlife.
- H. Discuss the three disturbances that historically maintained prairie and their relative frequency in the three types of prairie.
- I. Discuss the major differences between continuous, deferred, and short-duration grazing systems.
- J. Compare and contrast even- and uneven-aged forest and suggest species which may benefit from each practice.
- K. Discuss the role of management in national parks compared to national wildlife refuges.
- L. Compare and contrast methods of controlling pests in urban versus rural environments.
- M. Discuss the ecological implications of an exotic species released intentionally and an exotic species released accidentally.
- N. Discuss conditions to consider prior to introduction of exotics.
- O. Discuss the five factors responsible for the endangered status of species and assess their relative role in the United States.
- P. Discuss characteristics of species that predispose them to being listed as threatened or endangered.
- Q. Discuss the “God Squad” and its importance to the Endangered Species Act.
- R. Compare and contrast the three levels of biodiversity and assess their relative importance to wildlife management.
- S. Discuss island biogeography and metapopulation paradigms and how they are applied in management scenarios.

T. Discuss the positive and negatives aspects of treating wildlife as a commodity that can be bought or sold.

U. Discuss the relative roles of at least three federal agencies directly responsible for management of wildlife species.

V. Discuss in detail the following laws and court cases: CARA, NEPA, PR, DJ, Lacey Act, ESA, *Geer vs. Connecticut*, *Hughes vs. Oklahoma*

Assessment:

Learning outcomes will be assessed by various combinations of formal examinations, article reviews, class projects, discussion and informal quizzes.

Lecture schedule:

Although I will do my best to keep on track with the lecture schedule, the goal is to understand one topic prior to moving to the next. As such, we may move more quickly or more slowly than the schedule. IT IS VERY FLUID. Given the amount of material we will cover, you must keep current. Consequently, regular class attendance is strongly encouraged.

Course website: http://www.rw.ttu.edu/2301_phillips/ The information on the website is NOT INTENDED AS A SUBSTITUTE FOR ATTENDING CLASS, but rather is designed to complement information provided in class. To facilitate class discussion by decreasing the need to write, handouts of slides will be typically be available the evening before class. On the website, you will also find examples of previous exams, successful assignments, important documents related to assignments, class announcements, and useful links. Although every effort will be made to update the website as soon as possible, regular attendance in class is the only reliable means of keeping abreast of changes in the class schedule.

Grading Policy:

Exams will be composed of multiple-choice, compare and contrast, and short answer/discussion questions. Answer sheets will be provided – no blue books or scantrons are needed. The two hourly exams will each consist of two sections: (1) multiple choice and definitions and (2) short answer and an essay question(s) from the material covered prior to the exam (from lectures, readings and films). Hourly exams are cumulative but primarily focus on new material (e.g. to understand of the impact of exotics you need a firm grasp of the niche concept). Examples of previous exams will be posted to the web prior to your first exam to indicate exam structure – not content. Exams will require the entire class period to complete and must be completed within that time. The final examination is also comprehensive. The final will be optional for those students with ≥ 720 points (an “A” average out of 800 total points) at the end of the semester AND who have ≤ 3 unexcused absences during the semester. Those eligible for this exemption will be notified in writing the final day of class. For all exams, any question less than 25% of the class answers correctly will not be counted against you (i.e. points will be added to your exam grade) – SEE ATTENDANCE POLICY. Although Texas Tech does not assign different point values to a “B” compared with a “B+”, the upper three and lower three points within a letter designation will be assigned grades of pluses and minuses respectively (e.g. an 87.0 is a “B+”, while an 83.0 is a “B-.”)

Article assignments: There will be two assignments associated with articles appearing in the Journal of Wildlife Management. The purpose of these assignments will be to critically evaluate scientific articles that represent sciences attempt at deriving truth associated with wildlife issues. These reviews will have no right or wrong answer *per se* and must only show that you have critically thought about the article and its relationship to material covered during class. Furthermore, I would like you to critically evaluate the support provided in the article for the author's conclusion. An excellent overview of a scientific article outlining expectations in each section is posted to assist in your review. I have also posted an explanation of the system I use in grading reviews and a successful review submitted in a prior class. While lengths will vary, substantive reviews often require three double-spaced pages. All article assignments are to be turned in or emailed to the instructor (Richard.Phillips@ttu.edu) NO LATER THAN 5 pm (CST) on the date due. You should receive a confirmation from me soon after you have sent your email. Always print off a copy of your emailed review containing the date and time sent. NO LATE ASSIGNMENTS WILL BE ACCEPTED.

Modeling project: Students will conduct a sensitivity analysis of a basic wildlife model. By varying different parameters (variables associated with population growth or decline), we can decide which variables merit further study given the finite pool of research dollars. You may choose any wildlife species to model and will conduct a literature review on that species to define various population rates. You are required to submit a paper (electronic copy preferred) in the Journal of Wildlife Management format containing all sections commonly found in scientific articles. Included in this paper will be a bibliography listing all sources (e.g. articles, textbooks) used during your research (should be at least 5) - remember failure to cite sources constitutes academic dishonesty. You will be required to submit a rough draft mid-semester for 30% of your total grade for the assignment. The class website contains an example of what I expect as well as documents guiding the format of the article. I will offer extended office hours as necessary. The goal of the project is to help you understand the primary process involved in framing scientific questions – literature review coupled with a specific focus.

Quizzes: Sporadically, key concept quizzes will be given in lieu of a class role to determine attendance as well as gauge the class's knowledge of previously discussed topics.

Make up exams will usually not be given. Arrangements must be made with the instructor BEFORE the scheduled test date. Extenuating circumstances will be evaluated on a per case basis and will require a written, signed excuse (medical, court, etc) containing a contact telephone number.

Extra-credit: I don't know what this means. Translation: no opportunities for "extra" credit exist.

POINTS:

Assignment	Possible Points per assignment	Total points (total %)
Article Assignment	100 (10%)	200 (20%)
Model paper	200 (20%)	200 (20%)
Exam 1	200 (20%)	200 (20%)
Exam 2	200 (20%)	200 (20%)
Final Exam	200 (20%)	200 (20%)
TOTAL POSSIBLE POINTS		1000 (100%)

GRADING SCALE (including the final exam):

Points	Letter Grade
≥ 900	A
800 – 899.99	B
700 – 799.99	C
600 – 699.99	D
< 600	F

ON ATTENDANCE:

The course topic schedule is general guide; the speed with which we proceed may differ substantially. Regular attendance in class is the only reliable means of keeping abreast of changes in the class schedule. Although strongly correlated with success, attendance is not mandatory. However, roll will be taken each class. Only those students who miss ≤ 2 classes during the period covered by the test will receive the benefit of the curve. Further – exemption from the final is contingent upon missing no more than 3 classes during the entire semester. No tobacco in class. Drinks in spill proof containers are okay. Although I would rather you show up late than not at all, chronic tardiness (3 times) will result in an unexcused absence.

Academic integrity:

In every aspect, strict adherence to the highest standards of academic integrity will be expected throughout this course. Any student found violating academic integrity codes (e.g. cheating or plagiarizing) will receive a zero for the assignment AND fail the course, as well as be reported to the University. Although basic decency and mutual respect should dictate honesty, Texas Tech University requires it. You are encouraged to visit <http://www.depts.ttu.edu/studentaffairs/CampusCrime/documents/integritymatters.pdf> and http://www.depts.ttu.edu/studentjudicialprograms/academicinteg.php#Disciplinary_Outcomes_For_Academic_Dishonesty_Violations for more information regarding the TTU policy on academic integrity. For each exam you will be required to sign a statement insuring you understand and agree to adhere to regulations regarding academic integrity throughout

the exam. Although written assignments require no such signature, they are subject to the same standards as exams.

Students with Disabilities: The Department, College, and University endorse PL 101-336, The Americans with Disabilities Act 1990. Students with disabilities are encouraged to inform the faculty member so that any needed accommodations can be provided. All effort will be made to maintain confidentiality. Any student who requires special arrangements in order to meet the course requirements should contact the instructor to make necessary accommodations. Students should present appropriate verification from Disabled Student Services, Dean of Students Office.

Religious Holy Day Observance (OP 30.16) A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence IF, not later than the 15th day after the first day of the semester, the student had notified the instructor of each scheduled class that the student would be absent for a religious holy day.