

**ENR 5364.01 – Mammalian Wildlife Biology and Management
Autumn 2022**

Time and Place:

| | | |
|------------|----------------------|--------|
| Lecture | MW @ 15:00 -15:55 pm | KH 370 |
| Laboratory | Fr @ 15:00-17:00 pm | KH 370 |

Instructors:

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|-----------------------|--|----------|--------------------|
| Dr. Stan Gehrt | (gehrt.1@osu.edu) | 282-4812 | 375B, Kottman Hall |
| Dr. Charlotte Milling | (milling.5@osu.edu) | | |

Teaching Associate:

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| Ashlyn Halseth | (halseth.1@osu.edu) |
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Office Hours: By appointment. Phone, e-mail, or see us *after class* to schedule an appointment.

Course Description: This course covers classification, life history, identification, and management of North American terrestrial mammals that have special significance as components of wildlife management systems. Species covered include those that are recreationally significant (e.g. harvestable and watchable species), as well as those for which abundance is a concern in contemporary wildlife management (threatened, endangered, non-endemic, and overabundant species). The course is intended for undergraduate and graduate students in Wildlife Ecology and Management. ENR 3300 or equivalent is the prerequisite for this course.

Course Objectives:

1. Gain proficiency with visual identification and determination of sex and age for selected North American mammal species.
2. Acquire general and specialized knowledge of life histories, food habits, and habitat requirements of selected North American mammal species.
3. Gain knowledge and understanding of contemporary population management systems for North American mammals.
4. Research and communicate technical information about mammalian species in a written report.

Evaluation:

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| Quizzes (4 x 30 pts) | 120 pts |
| Mid-term Exam | 200 pts |
| Final Exam | 200 pts |
| Mammal observation records | 100 pts |
| Group Project Preliminary | 30 pts |
| Group Project Final Report | 100 pts |
| Field trips (2 of 3) | <u>50 pts</u> |
| Total | 800 pts. |

Grading Scale:

| | | | | | |
|----|----------|----|----------|----|----------|
| A | 93-100% | B- | 80-82.9% | D+ | 67-69.9% |
| A- | 90-92.9% | C+ | 77-79.9% | D | 60-66.9% |
| B+ | 87-89.9% | C | 73-76.9% | E | <60% |
| B | 83-86.9% | C- | 70-72.9% | | |

Academic misconduct (plagiarism, cheating, and other forms of misconduct as defined by the university) will not be tolerated in this course. According to Faculty Rule 3335-31-02 Academic Misconduct is defined as any activity that tends to compromise the academic integrity of the institution or subvert the educational process. Please see the Student Resource Guide or the instructor if you have questions about this policy.

Special Needs: If you need an accommodation based on the impact of a disability, you should contact us to arrange an appointment as soon as possible. At the appointment we can discuss the course format, anticipate your needs and explore potential accommodations. We rely on the Office for Disability Services for assistance in verifying the need for accommodations and developing accommodation strategies. If you have not previously contacted the Office for Disability Services, we encourage you to do so (E-mail: <http://www.ods.ohio-state.edu>, Phone: (614) 292-3307.

Safe and Healthy Buckeyes:

Health and safety requirements: All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (<https://safeandhealthy.osu.edu>), which includes wearing a face mask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will result in a warning first, and disciplinary actions will be taken for repeated offenses.”

Disability Accommodations:

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you

anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Counseling and Consultation Services/Mental Health: As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting ccs.osu.edu or calling (614) 292- 5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292- 5766 and 24 hour emergency help is also available through the 24/7 National Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org.

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

Creating an environment free from harassment, discrimination, and sexual misconduct:

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.

The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

Recommended Texts:

Feldhamer, G.A., J. F. Merritt, and C. Krajewski, J.L. Rachlow, and K.M. Stewart. 2019. Mammalogy: Adaptation, Diversity, Ecology. 5th edition. Johns Hopkins University Press.

Harder, J.D., and G.N. Cameron. 2022. Mammals of Ohio. Ohio University Press. Athens, Ohio.

Reading Assignments

Selected topical essays identified in lecture.

Supplemental Texts

- Kurta, A. 2017. Mammals of the Great Lakes region, 3rd Ed. University of Michigan Press.
- Elbroch, MS. 2003. Mammal tracks and sign: a guide to North American species. Stackpole Books, Mechanicsburg, PA.
- Feldhamer, GA, BC Thompson, JA Chapman. 2003. Wild mammals of North America: Biology, management, and conservation. 2nd Edition. Johns Hopkins University Press, Baltimore, MD. 1216 pp.
- Elbroch, MS. 2006. Animal skulls: a guide to North American species. Stackpole Books, Mechanicsburg, PA.
- Ryan, J.M. 2018. Mammalogy techniques lab manual. Johns Hopkins University Press, Baltimore, MD.

Final Exam: Friday, Dec 9, 12:00pm-1:45pm

Field Trips:

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|--------------|--------------------------|
| October 1 | Gwynne Conservation Area |
| November 19 | Trap Museum/Fur Trapping |
| December 2-4 | Chicago |

Lecture and Laboratory Schedule:

| week of: | Monday | | Wednesday | | Fri (Lab) | |
|----------|--|--|-------------------------------------|--|------------------------------|--|
| 22-Aug | no class | | Intro to class; study of mammals | | Skull, dentition | |
| 29 | radiation; biogeography | | Integument/locomotion | | opossum/shrews | |
| 5-Sep | No class | | Feeding/digestion | | Rodentia (quiz 1) | |
| 12 | control systems | | Energetics | | Rodentia | |
| 19 | energetics | | Reproduction | | Carnivora (quiz 2) | |
| 26 | Orders/ marsupials vs Eutherians | | Communication | | Carnivora | |
| 3-Oct | Home range/dispersal/ migration | | Social systems | | MIDTERM | |
| 10 | mating systems; parental care | | population dynamics | | No lab | |
| 17 | community ecology | | Predator-prey | | Chiroptera | |
| 24 | Disease | | Disease | | Lagomorpha | |
| 31 | Furbearer mgmt | | Furbearer mgmt. | | Artiodactyla (quiz 3) | |
| 7-Nov | Carnivore mgmt | | Harvest | | No lab | |
| 14 | Deer mgmt | | Deer Mgmt | | Aging techniques (quiz 4) | |
| 21 | Climate change/mammals | | No class | | No lab | |
| 28 | Case studies | | Urban mammals | | Chicago (no lab) | |
| 5-Dec | mammal conservation | | Mammal conservation | | | |

Mammal Observation Records and Mammal Survey Report:

There are 2 ‘out of class’ assignments, a collection of mammal observation records and a group project that involves conducting and reporting on mammal surveys for a study site.

Group Project Preliminary Report: **DUE October 26**

Mammals Records/Final Group Reports: **DUE December 7**

Each student is required to individually collect species observations and associated natural history background with the goal of extending what we learn in class to the field.

Species Observation Record Requirements:

- Document ‘presence’ for any 10 species of wild mammals. You will need to go to the field on your own to complete the assignment. These must be native, free-ranging mammals. They may be alive or dead. You can only use sign recorded during the semester (e.g., vacations during the summer cannot be used).
- Presence can be determined through visual sighting or observation of sign (e.g., tracks, scat, den, body parts, etc.).
- Presence must be verified with photographic evidence, or temporary physical preservation of sign. Species identification is to be made by the student, and verified by an instructor.
- Documentation of an observation (i.e. record) includes recording the time, date, location, weather, behavior (directly observed or inferred) and relevant habitat characteristics that accompany the evidence.
- Submit evidence accompanied by a completed “Species Observation Record” form for each exhibit (see below).
- An instructor or teaching associate must verify images or sign used to document presence. More than one type of evidence may be used to document presence. Evidence must be verified by an instructor prior to the final due date for the project.

Species observation records will be evaluated based on the required number of species, accuracy of the identification, *quality of the evidence*, and following directions given above.

Use the following page to record and submit required information for each observation.

Species Observation Record for ENR 5364.01

Student Name: _____ Exhibit No. _____ Verified by: _____

Common name: _____

Scientific name: _____

Date, time, and location of the observation:

Date: _____ Time: _____ Weather Conditions _____

Location: _____

Type and disposition of evidence: _____

Behavior Description (inferred or directly observed): _____

Habitat description, other comments: _____

Group Project: Mammal Survey Report

- This is a group project, with typically 4-5 students per group.
- Each group will select a study site for surveys. This must be approved by the instructor. It may be private property (such as a family farm), on campus (such as Waterman farm), or certain public properties such as a wildlife area or park. It must be large enough to allow for a variety of survey techniques.
- During the semester, students will conduct a variety of surveys outside of class to inventory the mammal species on their study sites. The types of surveys and amount of effort will be determined by the group.
- At the end of the semester, each group will produce a final report on their survey project. The report should include a description of the study site, the methods used to detect mammals, the results of the surveys, and a discussion of the results.
- Each section of the report must be supported by literature citations, including no fewer than 6 citations of primary literature (these will be scientific journals in most cases) with publication year after 1999.

Report Style and Format:

Interpretive reports should be *at least* 6 pages long (double-spaced). Style, format, and citations must closely follow the Council of Biology Editors style manual and the publication guidelines for the Journal of Wildlife Management or the Journal of Mammalogy.

You may cite online information sources (web-sites), field guides, etc., *but only when reporting information on habitat preferences, current classification, physical descriptions, and sex/age characteristics*. However, these sources do **not** count as one of the 6 required citations or primary literature sources.

The recommended texts for this course will **not** count towards a required citation. Journal articles assigned during the course can be used as a citation.

You are expected to cite sources of information included in the survey report, for example:

Drought conditions have a negative effect on reproduction by muskrats (Perry 1982).

Clay and Clark (1985) reported that litters size averaged 7 muskrats near the Mississippi river in northeastern Iowa.

To cite a web-site, follow this example:

Gough, G.A., Sauer, J.R., Iliff, M. Patuxent Bird Identification InfoCenter. 1998. Version 97.1. Patuxent Wildlife Research Center, Laurel, MD, [Online]. Available: (User provide universal resource locator, e.g. <http://www.....>)/ [User, supply access date here].

**** Use the following organizational outline for your survey reports ****

COVER PAGE

Title, list of authors, and date.

INTRODUCTION

Briefly describe the purpose, content, and objectives of the report.

STUDY AREA

Provide a description of the study area, including location, size, predominant vegetative communities, etc. Also include descriptions of climate for the area, or during the time the area was surveyed. Often a figure is provided consisting of a map of the study area. For this report, it might be worth noting what potential mammal species may potentially occur at the site.

METHODS

The types of survey techniques are described in this section. A rule of thumb for methods sections is that the methods should be described in such a way that a reader could replicate the procedures should they want to do so. This is always important, but particularly so for inventorying. A map outlining the survey design might be helpful.

RESULTS

Results of the surveys are provided. This should include the total number and type of species recorded, the method of survey that produced the observations, and the relative abundance or activity of each species. Common names and scientific names should be provided.

DISCUSSION

The results should be interpreted in the discussion. This means that the group should provide some assessment of what they found. Did you record the species you expected to? Were they relatively more or less abundant than expected? Are there reasons for deviations from your expectations, such as weather complicating the surveys, equipment issues, or changes in habitat during the semester? There should be some attempt to include some natural history of the more common, or rare species in this section, with citations.

LITERATURE CITED

For specific directions on style and format, consult Manuscript Guidelines for The Journal of Wildlife Management, a pdf file which can be downloaded at:

http://joomla.wildlife.org/documents/Manuscript_Guidelines_2008.pdf