WILDLIFE ECOLOGY, BS

Students in the wildlife ecology program learn about species ecology, habitat management, monitoring techniques, and conservation through courses that are based in the natural sciences. Wildlife ecologists study wild animals and their interactions with people. Working largely outdoors, they manage and conserve wildlife populations and their habitats, aiming to meet the complex needs of wildlife in a human-dominated world.

The Department of Wildlife Ecology was the first wildlife program in an American university. Students learn through a mix of classroom, laboratory, and field instruction. They have flexibility to customize their learning experience within one of two tracks: natural sciences and natural resources. Students can work toward substantively completing requirements for being recognized as an Associate Wildlife Biologist by The Wildlife Society (https://wildlife.org/learn/professional-development-certification/certification-programs/), a professional organization, if they choose to.

Wildlife ecology graduates work in public resource management agencies, educational institutions, private industry, and non-governmental organizations such as the National Wildlife Federation and The Nature Conservancy. Students in the wildlife ecology major are also well prepared to pursue advanced degrees in wildlife and related fields or veterinary medicine.

LEARN THROUGH HANDS-ON, REAL-WORLD EXPERIENCES

Wildlife ecology students learn in many field and lab courses, including classes that focus on wildlife management, reptiles, amphibians, birds, and mammals. They can also take part in a summer field course in northern Wisconsin, numerous internships, and research opportunities.

BUILD COMMUNITY AND NETWORKS

Students can join the Student Chapter of the Wildlife Society and the Audubon Society, UW–Madison. Members of the Wildlife Society work with elementary school students, volunteer for numerous projects, and send a competitive team to the Quiz Bowl at the Wildlife Society annual meeting.

CUSTOMIZE A PATH OF STUDY

Students learn through a mix of classroom, laboratory, and field instruction. They have flexibility to customize their learning experience by selecting from a variety of courses in consultation with their advisor. Courses include options in the natural sciences, as well as coursework that meets educational requirements for certification as a wildlife biologist by The Wildlife Society.

MAKE A STRONG START

Students can take an introductory course that gives students an orientation to wildlife ecology and introduces them to the major and professions within the field of wildlife management and conservation.

GAIN GLOBAL PERSPECTIVE

Wildlife ecology students are encouraged to participate in a study abroad experience. The program also offers an international class focused on the extinction of species (meeting the CALS International Studies Requirement), as well as a study abroad experience in Mexico. Students can explore studying abroad as a Wildlife Ecology major utilizing the Wildlife Ecology Major Advising Page. Students work with their advisor and the CALS study abroad office to identify appropriate programs.

HOW TO GET IN

HOW TO GET IN

To declare this major, students must be admitted to UW–Madison and the College of Agricultural and Life Sciences (CALS). For information about becoming a CALS first-year or transfer student, see Entering the College (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#enteringthecollegetext).

Students who attend Student Orientation, Advising, and Registration (SOAR) with the College of Agricultural and Life Sciences have the option to declare this major at SOAR. Students may otherwise declare after they have begun their undergraduate studies. For more information, contact the advisor listed in the Contact Box for the major.

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (http://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext) section of the *Guide*.

General Education	• Breadth—Humanities/Literature/Arts: 6 credits • Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits • Breadth—Social Studies: 3 credits • Communication Part A & Part B * • Ethnic Studies * • Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF AGRICULTURAL AND LIFE SCIENCES REQUIREMENTS

In addition to the University General Education Requirements, all undergraduate students in CALS must satisfy a set of college and

major requirements. Courses may not double count within university requirements (General Education and Breadth) or within college requirements (First-Year Seminar, International Studies, Science, and Capstone), but courses counted toward university requirements may also be used to satisfy a college and/or a major requirement; similarly, courses counted toward college requirements may also be used to satisfy a university and/or a major requirement.

COLLEGE REQUIREMENTS FOR ALL CALS BS DEGREE PROGRAMS

Code	Title	Credits
Quality of Work: Students must maintain a minimum cumulative grade point average of 2.000 to remain in good standing and be eligible for graduation.		
Residency: Students must complete 30 degree credits in residence at UW–Madison after earning 86 credits toward their undergraduate degree.		
First year seminar (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSFirstYearSeminarCourses)		1
International studies (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSInternationalStudiesCourses)		3
Physical science fundamentals		4-5
CHEM 103	General Chemistry I	
or CHEM 108	Chemistry in Our World	
or CHEM 109	Advanced General Chemistry	
Biological science		5
Additional science (biological, physical, or natural)		3
Science breadth (biological, physical, natural, or social)		3
CALS Capstone Learning Experience: included in the requirements for each CALS major (see "major requirements") (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSCapstoneRequirement)		

MAJOR REQUIREMENTS

Code	Title	Credits
Mathematics and Statistics		
Complete one of the following (or may be satisfied by placement exam):		5-6
MATH 112 & MATH 113	Algebra and Trigonometry	
MATH 114	Algebra and Trigonometry	
MATH 171	Calculus with Algebra and Trigonometry I	
Complete one of the following:		3
STAT 301	Introduction to Statistical Methods	
STAT 371	Introductory Applied Statistics for the Life Sciences	
Chemistry		
Complete one of the following:		4-5
CHEM 103	General Chemistry I	
CHEM 108	Chemistry in Our World	
CHEM 109	Advanced General Chemistry	
Biology		
Complete one of the following options:		10
Option 1 (recommended):		
BIOLOGY/BOTANY/ZOOLOGY 151 & BIOLOGY/BOTANY/ZOOLOGY 152	Introductory Biology and Introductory Biology	
Option 2:		
ZOOLOGY/BIOLOGY 101 & ZOOLOGY/BIOLOGY 102 & BOTANY/BIOLOGY 130	Animal Biology and Animal Biology Laboratory and General Botany	
Option 3:		
BIOCORE 383 & BIOCORE 384 & BIOCORE 485 & BIOCORE 486	Cellular Biology and Cellular Biology Laboratory and Principles of Physiology and Principles of Physiology Laboratory	
Core		
Wildlife Ecology and Management		
F&W ECOL 101	Orientation to Wildlife Ecology (Counts for CALS First Year Seminar)	1
F&W ECOL 306	Terrestrial Vertebrates: Life History and Ecology	4
F&W ECOL 318	Principles of Wildlife Ecology	3
or BOTANY/F&W ECOL/ZOOLOGY 460	General Ecology	
F&W ECOL 379	Principles of Wildlife Management	3
F&W ECOL 561	Wildlife Management Techniques	3
F&W ECOL 655	Animal Population Dynamics	3
Plant Taxonomy		
BOTANY 400	Plant Systematics	4
or BOTANY 401	Vascular Flora of Wisconsin	
Evolution/Genetics		
Complete one of the following:		3-5
ZOOLOGY/ANTHRO/BOTANY 410	Evolutionary Biology	
GENETICS 466	Principles of Genetics	
BIOCORE 381 & BIOCORE 382	Evolution, Ecology, and Genetics and Evolution, Ecology, and Genetics Laboratory [1]	
Vertebrate Taxonomy and Natural History		
Complete one of the following:		5-6
ZOOLOGY/AN SCI/F&W ECOL 520 & ZOOLOGY/AN SCI/F&W ECOL 521	Ornithology and Birds of Southern Wisconsin	

ZOOLOGY/ ENVIR ST 510 & ZOOLOGY/ ENVIR ST 511	Ecology of Fishes and Ecology of Fishes Lab	

Major Electives

Complete 15 credits from across at least 3 different categories (see course list below):	15
Physical Science	
Wildlife Resources and Technical Skills	
Anatomy/Physiology/Disease	
Conservation	
Forestry/Botany	
Ecosystem Ecology	
Policy, Administration, and Law	
Social Aspects of Natural Resources Management	

Capstone

Complete one of the following:		3
F&W ECOL 577	Complexity and Conservation of White-tailed Deer	
F&W ECOL 599	Wildlife Research Capstone	
Total Credits		**69-74**

[1] Only allowed for students who completed the rest of the Biocore curriculum listed under biology.

MAJOR ELECTIVES

Code	Title	Credits
Physical Science		
CHEM 104	General Chemistry II	5
CHEM 109	Advanced General Chemistry	5
PHYSICS 103	General Physics	4
PHYSICS 104	General Physics	4
PHYSICS 201	General Physics	5
PHYSICS 207	General Physics	5
PHYSICS 208	General Physics	5
GEOSCI 202	Introduction to Geologic Structures	4
GEOSCI 204	Geologic Evolution of the Earth	4
SOIL SCI 301	General Soil Science	3
Wildlife Resources and Technical Skills		
ENVIR ST/ SOIL SCI 575	Assessment of Environmental Impact	3
F&W ECOL 395	Data and GIS Tools for Ecology	3
F&W ECOL 404		3
F&W ECOL 424	Wildlife Ecology Summer Field Practicum	2
F&W ECOL 458	Environmental Data Science	3
F&W ECOL 658	Forest Resources Practicum	3
GEOG/ENVIR ST/ F&W ECOL/ G L E/GEOSCI/ LAND ARC 371	Introduction to Environmental Remote Sensing	3
GEOG/CIV ENGR/ ENVIR ST 377	An Introduction to Geographic Information Systems	4
LAND ARC/ ENVIR ST 581	Prescribed Fire: Ecology and Implementation	3
LAND ARC 668	Restoration Ecology	3
ZOOLOGY 405	Introduction to Museum Studies in the Natural Sciences	2-3
Anatomy/Physiology/Disease		
ANAT&PHY 335	Physiology	5
AN SCI/DY SCI 373	Animal Physiology	3
F&W ECOL/ SURG SCI 548	Diseases of Wildlife	3
ENTOM/M M & I/ PATH-BIO/ ZOOLOGY 350	Parasitology	3
ZOOLOGY 430	Comparative Anatomy of Vertebrates	5
ZOOLOGY 611	Comparative and Evolutionary Physiology	3
Conservation		
ANTHRO 668	Primate Conservation	3
F&W ECOL/ ENVIR ST/ ZOOLOGY 360	Extinction of Species (Meets CALS International Studies Requirement)	3
F&W ECOL/ BOTANY/ENVIR ST/ ZOOLOGY 651	Conservation Biology	3
F&W ECOL/ ZOOLOGY 660	Climate Change Ecology	3
GEOG/ ENVIR ST 339	Environmental Conservation	4
Forestry/Botany		
F&W ECOL/ ENVIR ST 100	Forests of the World (Meets CALS International Studies Requirement)	3
F&W ECOL 300	Forest Measurements	4
F&W ECOL 305	Forest Operations	2
F&W ECOL/ BOTANY 402	Dendrology: Woody Plant Identification and Ecology	3
F&W ECOL 410	Principles of Silviculture	3
F&W ECOL 411	Practices of Silviculture	1
F&W ECOL 448	Disturbance Ecology	3
F&W ECOL 449	Disturbance Ecology Lab (I): Herbivores and Fire	1
F&W ECOL 450	Disturbance Ecology Lab (II): Forest Pathogens	1
F&W ECOL/ BOTANY 455	The Vegetation of Wisconsin	4
F&W ECOL 550	Forest Ecology	3
Ecosystem Ecology		
AGRONOMY/ BOTANY/ SOIL SCI 370	Grassland Ecology	3
LAND ARC/ ENVIR ST 361	Wetlands Ecology	3
ZOOLOGY 304	Marine Biology	2
ZOOLOGY/ ENVIR ST 315	Limnology-Conservation of Aquatic Resources	2

ZOOLOGY 316	Laboratory for Limnology-Conservation of Aquatic Resources	2-3
Policy, Administration, and Law		
ENVIR ST/ GEOG 337	Nature, Power and Society	3
ENVIR ST/HISTORY/ LEGAL ST 430	Law and Environment: Historical and Contemporary Perspectives	3
ENVIR ST/ GEOG 439	US Environmental Policy and Regulation	3-4
ENVIR ST/ ECON/POLI SCI/ URB R PL 449	Government and Natural Resources	3-4
F&W ECOL/ ENVIR ST 515	Natural Resources Policy	3
Social Aspects of Natural Resource Management		
A A E/ENVIR ST 244	The Environment and the Global Economy	4
A A E/ECON/ ENVIR ST 343	Environmental Economics	3-4
AMER IND/ ENVIR ST 306	Indigenous Peoples and the Environment	3
AMER IND/ ENVIR ST/ GEOG 345	Caring for Nature in Native North America	3
AMER IND/ GEOG 410	Critical Indigenous Ecological Knowledges	3
AMER IND/ ENVIR ST 341	Indigenous Environmental Communicators	3
C&E SOC/ F&W ECOL/ SOC 248	Environment, Natural Resources, and Society	3
C&E SOC/SOC 541	Environmental Stewardship and Social Justice	3
F&W ECOL/ ZOOLOGY 335	Human/Animal Relationships: Biological and Philosophical Issues	3

UNIVERSITY DEGREE REQUIREMENTS

Total Degree	To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.
Residency	Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.
Quality of Work	Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

LEARNING OUTCOMES

LEARNING OUTCOMES

1. Define and explain basic principles in biological sciences and major concepts in wildlife ecology including, population ecology, organismal biology, plant ecology/taxonomy, and genetics/evolution.
2. Explain and discuss principles of wildlife management including natural resource legislation, policy, and applications.
3. Explain and apply the scientific methods including designing and conducting experiments and testing hypotheses.
4. Explain and demonstrate techniques for collection of data in laboratory and field settings, keep accurate records, and analyze data to address hypotheses.
5. Demonstrate a style appropriate for communicating scientific results in written and oral form. Provide opportunity to develop these communication skills.

FOUR-YEAR PLAN

FOUR-YEAR PLAN

The four-year plan is a tool to assist you and your advisor in planning your academic career. Use it along with your DARS report and Course Search & Enroll to determine your program of study. Your program of study will likely look different from this sample four-year plan. Consult with your advisor to determine the best path for you. Students must complete at least 120 total credits to be eligible for graduation.

SAMPLE WILDLIFE ECOLOGY FOUR-YEAR PLAN

First Year

Fall	Credits	Spring	Credits
F&W ECOL 101 (Counts for CALS First Year Seminar)	1	F&W ECOL 379	3
F&W ECOL 318	3	MATH 113[1]	3
MATH 112[1]	3	Humanities	3
Communication Part A	3	CHEM 103	4
Humanities	3	Elective	2
	13		**15**

Second Year

Fall	Credits	Spring	Credits
F&W ECOL 561	3	ZOOLOGY/BIOLOGY/ BOTANY 152[2]	5
ZOOLOGY/BIOLOGY/ BOTANY 151[2]	5	BOTANY 401	4
Social Science	3	STAT 301 or 371	3
Electives	5	Ethnic Studies	3
	16		**15**

Third Year

Fall	Credits	Spring	Credits
CALS International Study Requirement	3	F&W ECOL 306	4

Evolution/Genetics Requirement	3 F&W ECOL/AN SCI/ ZOOLOGY 520 & F&W ECOL/AN SCI/ ZOOLOGY 521	6
Major Electives	6 Electives	6
Elective	4	
	16	**16**

Fourth Year

Fall	**Credits**	**Spring**	**Credits**
Major Electives	6	F&W ECOL 655	3
Electives	6	Major Elective	3
F&W ECOL 577 or 599	3	Electives	9
	15		**15**

Total Credits 121

1 MATH course dependent on placement score and transfer credit evaluation.

2 BIOLOGY/BOTANY/ZOOLOGY 151 & BIOLOGY/BOTANY/ ZOOLOGY 152 are recommended, but students may complete BIOLOGY/ZOOLOGY 101, BIOLOGY/ZOOLOGY 102, & BIOLOGY/ BOTANY 130 to satisfy the introductory biology requirement.

ADVISING AND CAREERS

ADVISING AND CAREERS

ADVISING

Students are assigned an academic advisor and a faculty advisor in the department. Professional academic advisors help students plan their coursework and identify opportunities to get involved in department and campus activities. Faculty advise students on career planning and challenge students to think critically.

CAREER OPPORTUNITIES

Undergraduates in wildlife ecology prepare for a variety of careers. They can become wildlife biologists, habitat restoration technicians, attorneys, wildlife enforcement officers, researchers, and more. Students are also well prepared to pursue advanced degrees in wildlife and related fields, including veterinary medicine. Graduates of the program work for many organizations, such as state departments of natural resources, the U.S. Fish and Wildlife Service, the Chicago Zoological Society, and The Nature Conservancy.

PEOPLE

PEOPLE

PROFESSORS

Bowe, Scott
Burivalova, Zuzana
Chen, Min
Drake, David
Karasov, William
Hua, Jessica
Kruger, Eric (chair)
Ozdogan, Mutlu
Pauli, Jonathan
Peery, M. Zach
Pidgeon, Anna
Radeloff, Volker
Raynor, Jennifer
Rickenbach, Mark
Rissman, Adena
Townsend, Philip
Van Deelen, Timothy
Zuckerberg, Benjamin

AFFILIATED FACULTY

Balster, Nick (Soil Science)
Marin-Spiotta, Erika (Geography)

INSTRUCTORS AND TEACHING FACULTY

Berkelman, James
Nack, Jamie
Meindl, George

STUDENT SERVICES

Hochmuth, Allee
Laabs, Emily

For faculty and staff profiles, visit https://forestandwildlifeecology.wisc.edu/people/faculty-and-staff/

WISCONSIN EXPERIENCE

WISCONSIN EXPERIENCE

INTERNSHIPS

Many wildlife ecology students include internships and professional work experiences in their studies. Students are encouraged to talk to their advisor about internship possibilities. See the Internship & Job Resources (https://forestandwildlifeecology.wisc.edu/academics/undergraduate-programs/internship-job-resources/) page for more information.

RESEARCH EXPERIENCE

Wildlife ecology undergraduates are encouraged to get involved in field- or lab-based research with a professor. In their research experiences, students gain skills in a variety of areas including measuring habitats, reviewing literature, identifying species, deploying wildlife cameras, and more.

STUDENT ORGANIZATIONS

Students can join the Student Chapter of the Wildlife Society and the Audubon Society, UW–Madison. Members of the Wildlife Society can work with elementary school students and volunteer for numerous projects.

COMPETITIVE TEAMS

Wildlife ecology undergraduates can join a team that competes at the Quiz Bowl at the Wildlife Society annual meeting.

GLOBAL ENGAGEMENT

Wildlife ecology students are encouraged to participate in a study abroad experience. The program offers an experience in Mexico focused on wildlife ecology, as well as an international course focused on the extinction of species that meets the CALS International Studies requirement. Students can find more information about study abroad on the CALS study abroad advising page (https://cals.wisc.edu/academics/

undergraduate-students/international-programs/study-abroad-advising/).

COMMUNITY ENGAGEMENT AND VOLUNTEERING

The Student Chapter of the Wildlife Society organizes several volunteer activities, including spring and summer frog surveys, summer fawn searches, and roadside clean-up. Students also have opportunities to work with elementary school students and give presentations about wildlife.

On campus, the Morgridge Center for Public Service (https://morgridge.wisc.edu/) provides resources to help students connect with volunteer opportunities based on their interests and goals.

CERTIFICATION/LICENSURE

CERTIFICATION/LICENSURE

WILDLIFE BIOLOGIST CERTIFICATION

Work with your advisor to ensure you select courses that will meet the requirements of the Wildlife Biologist Certification through The Wildlife Society (TWS) (https://wildlife.org/learn/professional-development-certification/certification-programs/). Membership in TWS is required for certification. Certification is for 5 years and may be renewed upon demonstration of adequate continual learning and professional development.

Curriculum

1. Wildlife management and wildlife biology (12 hours)
2. Ecology (3 hours)
3. Zoology (9 hours)
4. Botany (9 hours)
5. Physical sciences (9 hours)
6. Basic statistics (3 hours)
7. Quantitative sciences (6 hours)
8. Humanities and social sciences (9 hours)
9. Communications (12 hours)
10. Policy, administration, and law (6 hours)

Experience

1. A minimum 60 work months of full-time professional biologist experience gained within the ten (10) years prior to applying for certification (or up to 13 years if granted an extension).

Renewal

1. To renew certification, applicants must log a minimum of 80 contact hours related to participation in organized activities and mentorship within the five years prior to submission.

RESOURCES AND SCHOLARSHIPS

RESOURCES AND SCHOLARSHIPS

Department scholarships are available to wildlife ecology students and fellowships are available to support research work with a professor. Students across the College of Agricultural and Life Sciences receive more than $1.25 million in scholarships annually. Learn more about college scholarships here (https://cals.wisc.edu/academics/undergraduate-students/financing-your-education/cals-scholarships/).