



ENR 5340 FOREST ECOSYSTEM MANAGEMENT U G 3

Fall Semester 2023

The concepts and methods of managing forests across broad landscape scales for biodiversity, multiple uses and products, and ecosystem integrity.

Au. Sem., 2 1.3-hr cl. Prereq: Sr. or grad standing; permission of instructor

Tuesday & Thursday, 9:35am – 10:55am

Kottman Hall room 245

COURSE DESCRIPTION:

This course covers the concepts and methods of managing forests across broad landscapes for biodiversity, multiple uses, and ecosystem integrity within the context of traditional forest management considerations. The focus of the course is upon the applied biological and ecological concepts in management of forests, both on private and public lands. Policy, although an important consideration which influences how forests are managed, is covered minimally toward the end of the course when discussions on synthesis into plans are held. It is not an objective of this course to discuss at length the policies that shape and influence management decisions, but rather examine the biological/ecological principles and subsequent application to management across broad scales to achieve multiple objectives. This course provides students with primers on basic concepts of silviculture and traditional forest management, and draws upon their basic knowledge of biology, ecology, and economic/management principles.

COURSE OBJECTIVES:

1. To introduce the student to the concepts, definitions, dynamics, and processes of forest ecosystems across landscapes.
2. To develop the understanding of biodiversity in forested landscapes and the ability to synthesize those concepts into resource management at stand and landscape levels.
3. To develop a working knowledge of concepts, methods, and tools to manage forests for biodiversity, habitat, riparian areas, and special areas within the framework of managing forests for traditional products

INSTRUCTORS:

Dr. Roger A. Williams, Ph.D.

Associate Professor, Forest Management and Wildland Fire Science
367-C Kottman Hall; Office hours by appointment
Contact: Email: williams.1577@osu.edu; phone: (614) 946 – 5698

Dr. Bishnu Chandra Poudel, Ph.D.

Visiting Scholar, Swedish Foundation (STINT) Teaching Sabbatical Program
Department of Forestry and Wood Technology, Linnaeus University, Växjö, Sweden
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TEACHING ASSISTANT

John Eshem

ESGP Graduate Student
eshem.1@osu.edu

TEXTBOOKS:

In lieu of a textbook, assigned readings will be posted on Carmen.

COURSE GRADING and EVALUATION:

Letter Grade Assignment	Letter Grade	Percent	Letter Grade	Percent	Letter Grade	Percent
	A	93-100 %	B -	79-82 %	D +	66-68 %
	A -	89-92 %	C +	76-78 %	D	60-65 %
	B +	86-88 %	C	73-75 %	E	<60 %
	B	83-85 %	C -	69-72 %		

Course Evaluation	Undergraduate Students		Graduate Students	
	Homework	20%	Homework	15%
	Midterm #1	25%	Midterm #1	20%
	Midterm #2	25%	Midterm #2	20%
	Final Exam	30%	Case Study	20%
	TOTAL	100%	Final Exam	25%
			TOTAL	100%

Homework

Homework assignments will be posted on the Carmen course webpage for downloading. Homework assignments will be completed by the due date and time and emailed to Dr. Williams (williams.1577@osu.edu) once completed or handed-in at the end of class. The total homework grade used to determine course grade (%) will be determined by the following method:

Homework			
No.	Homework Assignment	Points	
1	Disturbance and Succession	20	
2	Measuring Biodiversity	20	
3	Forest Age Class Management	20	
4	Fire Restoration	20	
5	Snag and Deadwood Management	20	
TOTAL HOMEWORK			100

(total homework points achieved ÷ 100 points) x 100

Midterm Exams

Midterm exams 1 and 2 consist of 50 multiple choice questions each and will be administered in person, in class. Each exam is worth 100 points.

Final Exam

The final exam is a “take home” exam that will be posted for downloading from the Carmen course website. The final exam will be completed by the due date and time and emailed to Dr. Williams (williams.1577@osu.edu) once completed. The exam consists of general management questions and role playing as a forest manager. The final exam will be assigned on December 5, and will be due by Thursday, December 14, 5pm.

Case Study Presentation (*Graduate Students Only*)

Graduate students will conduct classes at the end of the course covering the Northwest Management Plan that encompasses almost 25 million acres in Washington, Oregon, and northern California. The class presentations will be evaluated based on:

- Quality and Accuracy of Content
- Quality and Appearance of the Presentation
- Responses to Questions/Answers

Graduate students should refer to the “Graduate Student Case Study Project Presentations” near the end of this syllabus (page 5).

Course Grade

The Carmen grading system will not be used to determine final course grades (don't believe what Carmen tells you is your course grade). This system will only be used to post grades and track grades for your convenience. The final course grade will be determined using the following formulas:

Undergraduate Students:

$$\text{Final Grade} = [(\text{homework grade}) \times (0.2)] + [(\text{midterm \#1 grade}) \times (0.25)] \\ + [(\text{midterm \#2 grade}) \times (0.25)] + [(\text{final exam grade}) \times (0.30)]$$

Graduate Students:

$$\text{Final Grade} = [(\text{homework grade}) \times (0.15)] + [(\text{midterm \#1 grade}) \times (0.2)] \\ + [(\text{midterm \#2 grade}) \times (0.2)] + [(\text{case study grade}) \times (0.2)] \\ + [(\text{final exam grade}) \times (0.30)]$$

Course Outline

Date	Lecture	Topic	Instructor
Aug. 22	1	Introduction to course; Course administration and expectations	RW
Aug. 24	2	Current status of forest ecosystems in the United States	RW
Aug. 29	3	What is Forest Ecosystem Management?	BP
Aug. 31	4	The uniqueness of forest ecosystems- why they need managed	BP
Sept. 5	5	Forest development over time: concepts of forest succession and transitions	BP
Sept. 7	6	The role of forest disturbance and succession; ecosystem stability, resistance and resilience.	BP
Sept. 12	7	Natural disturbances and silvicultural systems	BP
Sept. 14	8	Managing for biodiversity; Invasive species; restoration	RW
Sept. 19	9	Importance of age structure of forests	RW
Sept. 21	10	Role and function of fire as a disturbance in ecosystems	RW
Sept. 26	11	Past fire suppression policy effect on forest ecosystem management	RW
Sept. 28	12	Integrating fire management with ecosystem management	RW
Oct. 3	----	EXAM 1; Lectures 1 – 12; Kottman Hall 245; 9:35am – 10:55am	-----
Oct. 5	13	Riparian ecosystems in the landscape- functions and management	BP

Oct. 10	14	Management of coarse woody debris, deadwood and snags	RW
Oct. 12	----	NO CLASS- Fall Break	
Oct. 17	15	The edge effect and associated ecosystem impacts	BP
Oct. 19	16	Forest fragmentation and effects on wildlife and management	RW
Oct. 24	17	Role of intensive silviculture in forest ecosystem management	RW
Oct. 26	18	Long and extended rotations and structural retention at harvest.	RW
Oct. 31	19	Forestland certification and ecosystem management	RW
Nov. 2	21	Managing forests for carbon in ecosystem management	BP
Nov. 7	21	Synthesis and Implementation: Management Planning-(goals and objectives; task planning; appropriate strategy development); developing cooperation	RW
Nov. 9	22	Coarse filter vs. fine filter approach to management; Adaptive management; Economic and policy considerations	RW
Nov. 14	23	Case Study Presentations- Northwest Management Plan	GS
Nov. 16	----	EXAM 2; Lectures 13 – 22; Kottman Hall 245; 9:35am – 10:55am	
Nov. 21	---	NO CLASS- Thanksgiving	
Nov. 23	----	NO CLASS- Thanksgiving	
Nov. 28	24	Case Study Presentations- Northwest Management Plan	GS
Nov. 30	25	Course wrap-up; Final Discussions; Final Exam Assigned	RW
Dec. 5	26	NO CLASS	

Instructor Legend:

RW = Dr. Roger Williams
 BP = Dr. Bishnu Poudel
 GS = Graduate Students

GRADUATE STUDENTS CASE STUDY PROJECT PRESENTATION

Northwest Forest Plan

Graduate students will work as a team to study, understand and present the history, goals, description, implementation, successes, failures, impacts, and current and future status of the Northwest Forest Plan (NWFP). This plan affects Federal lands in Washington, Oregon and northern California. However, since this plan alters and affects the flow of timber from these lands (Federal lands account for 53% of forest ownership in Washington and Oregon), it has impacts on private lands and local economies. The goals of the NWFP include aspects, such as (1) protect the long-term health of forests, wildlife, and waterways; (2) focus on scientifically sound, ecologically credible, and legally responsible strategies and implementation; (3) Produce a predictable and sustainable level of timber sales and non-timber resources; (4) ensure that federal agencies work together; and (5) always include the human and economic dimensions of the issues.

According to the U.S. Forest Service

(https://www.fs.usda.gov/detail/r6/landmanagement/planning/?cid=fsbdev2_026990):

"The mission of the Northwest Forest Plan (NWFP) is to adopt coordinated management direction for the lands administered by the USDA Forest Service and the USDI Bureau of Land Management and to adopt complimentary approaches by other Federal agencies within the range of the northern spotted owl. The management of these public lands must meet dual needs: the need for forest habitat and the need for forest products."



According to the Regional Ecosystem Office (REO) - Northwest Forest Plan

(<https://www.fs.usda.gov/r6/reo/riec/>):

"In 1994, the comprehensive Northwest Forest Plan ('the Plan') was initiated to end the impasse over management of federal forest land in the Pacific Northwest within the range of the northern spotted owl. The Plan Record of Decision and Standards and Guidelines used an innovative approach based on ecosystem and watershed management. The Plan transcended traditional administrative boundaries while addressing resource management, economic and social issues. Implementation of the Plan has required cooperation, coordination, and collaboration among the participating federal agencies and with the states, tribes, and local governments."

Impacted Lands

Area covered by the NFP is shown in green in the figure to the right. The NWFP covers 24.5 million acres in Oregon, Washington, and northern California that are managed by a variety of Federal agencies. The green area in the figure illustrates the general area affected by the plan.



This land is Federally managed by:

Agency	Area (acres)	% of Area
19 National Forests	19,400,000	79
7 BLM Districts	2,700,000	11
6 National Parks	2,200,000	9
National Wildlife Refuges & Department of Defense Lands	165,000	<1%
TOTALS	24,465,000	100

Federal Partners

Federal partners include various land management, regulatory, research, and other relevant agencies located in Northern California, Western Oregon, and Western Washington. These agencies are part of the Regional Interagency Executive Committee (RIEC). RIEC agencies include:

- ◆ Army Corps of Engineers
- ◆ Bureau of Land Management (USDI)
- ◆ Bureau of Indian Affairs (USDI)
- ◆ Environmental Protection Agency
- ◆ Environmental Protection Agency, Western Ecology Research Division
- ◆ Fish & Wildlife Service (USDI)
- ◆ Forest Service (USDA)
- ◆ Forest Service, Pacific Northwest Research Station (USDA)
- ◆ Forest Service, Pacific Southwest Research Station (USDA)
- ◆ Geological Survey, Western Research Region (USDI)
- ◆ National Marine Fisheries Service (NOAA), Northwest Region
- ◆ National Park Service (USDI)
- ◆ Natural Resources Conservation Service (USDA)"

The Task

The graduate student team will develop a series of three lectures over three days regarding the Northwest Forest Plan as a case example of forest ecosystem management. Each lecture should allow time for Q and A.

The following are only suggestions and to provide some guidance as to what the group might include in their presentations, but it will be up to the group to determine what and how the information is presented:

- The history as to why the NWFP was created
- The goals of the NWFP and why those goals are considered important
- What are the details of the NWFP; how is it implemented; what is implemented
- What are the agencies/organizations involved; how are they involved
- What are the current problems implementing the plan?

- What are the impacts of implementing the plan?
- How are human dimensions incorporated into the plan?
- How are the public able to provide input to the plan?
- What are the economic impacts of the plan?
- What are the primary biological/ecological drivers of the plan?
- What are the policy/legal implications of the plan?
- What are the objections to the plan and why?

Course POLICIES AND RESOURCES

General Class Policies

This class is delivered in a face-to-face venue, and class attendance is required. All recorded lectures, PowerPoint slides and class materials will be available online through the Carmen website. Due to the nature of the course delivery, there will be no opportunities for make-up assignments. The only exceptions will be in extreme cases, as determined by the instructors, and the instructors must be contacted ahead of time regarding the nature of the problem if at all possible. All personal information/situations will be kept extremely confidential. If you experience any problems or have any questions you should contact Dr. Williams at the contact information listed on the first page of this syllabus.

Attendance Policy

As stated in the General Class Policies, attendance is required. Even though attendance is not a part of the course grade, it is expected that all students will attend and participate. Many studies have demonstrated that performance in a course is correlated with class attendance and participation. One exception will occur regarding recording class attendance: class attendance will be recorded during the lectures on the Northwest Management Plan. The Northwest Management plan provides a real-world example of forest ecosystem management, and it is extremely important for students to learn about the real-world ecosystem management processes, their failures and successes. There is much one can learn by witnessing how things taught in the classroom are put into practice.

Attendance is an indicator of a student's commitment to not only the course, but also to learning. While attendance is not directly a part of the student's grade, the attendance recorded during the Northwest Management Plan lectures may prove influential and beneficial to the evaluation of a student's final course grade.

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). If any academic conduct is suspected, the student will be contact initially in confidentiality and presented evidence of said misconduct. The student will have the opportunity to rebut any evidence brought forward. If the case cannot be resolved, the information and evidence will be brought forward to the Committee on Academic Misconduct for appropriate resolution. For additional information, see the Code of Student Conduct at <http://studentconduct.osu.edu>.

As it pertains to this particular course, if it is discovered that there is cheating taking place in regard to exams, any remaining exams will be conducted in class and proper disciplinary action will take place pertaining to the individual(s).

Disabilities Statement

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.

Grievances

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college dean or associate dean, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-7-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

Counseling 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 Younkun 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>.

