

Encountering Forests

Tuesdays 2-6PM: Field labs departing from Steele Hall

Thursdays 2-3:50: Room 7 Steele Hall

Instructor: Dr. Nicholas J. Reo
Office Location: Sherman House and Steele Hall
Email: Nicholas.J.Reo@Dartmouth.edu
Office Phone: 603-646-1687
Office Hours: By Appointment

Teaching Assistant: Braden Elliott
Office Location: Room 8 Steele Hal
Email: Braden.T.Elliott.GR@Dartmouth.edu
Office Hours: (TO BE DETERMINED)

Adjunct Instructor: Scott Stokoe (Co-Instructor of field labs)

X-hours: *Wednesdays 4:15-5:05, used throughout the term as designated in our course calendar on Canvas. Check Canvas as some x-hours will not be used.*

ORC Description

Why do people care about forests? How do people become knowledgeable about a landscape and how do they use theoretical and practical knowledge about forests? In this course, we attempt to see forests from different cultural and professional lenses including those of American Indian resource practitioners and natural resource managers. We look at the ways different types of information and different cultural perspectives influence ecological restoration, conservation and land use decisions. We also build an introductory understanding of northern forest ecosystems.

Rationale or Course Description

People's perspectives and understanding of land and natural resources can differ widely depending on their particular socio-cultural group, how they make their living, or their academic background. For example, a ski resort owner's views about the function and value of her resort and the surrounding landscape may differ from those of a wildlife ecologist or member of an area tribal community. A recreation planner from the US Forest Service may view the forest where that ski resort is located very differently than the archeologist who sits in the very next cubicle at the office. Each of these individuals would have different views and sources of knowledge about a shared landscape, yet they may need to work together to make important land management decisions.

Land, natural resource and environmental management are complex endeavors that leverage a wide range of knowledge and practical skills about plants, animals, soils, water, people and the ecology of how all these things interact. When land managers take holistic approaches to their

work, such as in ecosystem-based management, their jobs become even more complex; they are required to integrate various types of information *and* they must have knowledge and skills about how to engage the public and coordinate with neighboring managers. Some of the biggest threats to land and resources, such as invasive species and climate change, occur at broad spatial scales requiring landowners and managers to cooperate with their neighbors. Therefore, interpersonal skillsets are pivotally important for working across cultural differences to reach agreement on forest management. For these and other reasons, students will benefit from understanding the value of different forms of knowledge and different perspectives about land.

Course Objectives

By the end of this course, students should be able to:

- give a basic explanation of how climate, soils, land use, disturbance and woody plant regeneration influence the development of northern forests
- recognize several common central New England ecosystem types and associated tree species
- explain how different types of information and forms of knowledge are crucial for addressing problems or implementing projects in environmental, natural resource and land management contexts
- discuss the opportunities and challenges of working with diverse teams of people on environmental, natural resource, and land management projects

Pre-Requisites

NAS 8 or NAS 10 or NAS 25 and ENVS 2; or permission of instructor

Required Text

Marchand, P.J. (2010) Nature guide to the northern forest: exploring ecology of the forest of New York, New Hampshire, Vermont and Maine. Appalachian Mountain Club Books. 192 Pages.

Course Format

On Thursdays, classroom sessions will include a combination of lecture, discussion and project work. This is a highly interactive course. While the bulk of your graded assignments are independent in nature, a significant portion of your grade rests on your active participation and engagement in classroom and field-based activities.

On Tuesdays, we will travel to one of our field sites to explore course concepts experientially. We will use this time to get to know a couple of natural areas close to Campus and to explore the various ways that people understand or come to know a piece of land, a species or natural resource. **We will meet at the circle drive in front of Steele Hall at 2PM sharp** and drive together in Dartmouth vehicles to either the Fullington Farm site (location of Dartmouth Organic Farm) or the “Landmark Complex” a mixed ownership forest in Lebanon (see weekly course schedule below for location of field trips).

A Note About Weather

On Tuesdays, we will be in the field **rain, snow or shine** (unless Dartmouth College cancels classes for any reason.) In the case of thunderstorms or other hazardous weather, we will use an alternate meeting location or seek temporary shelter, but regardless of weather, we will meet at the circle drive in front of Steele Hall at 2PM on Tuesdays. Students should dress appropriately for being outdoors for 4 hours. Because this is a Spring term course in the Upper Valley, we may be out in the rain (rain coats and pants or poncho) or even snow early in the term (warm layers, as if you were going skiing or winter hiking). If you are not from a colder region and have any questions about how to dress for our field sessions, contact the instructor.

Electronic Devices

Our classes will be “liberated” (i.e., freed) of **laptops, cell phones and any similar e-devices**. While they can provide vast opportunities for learning in and out of the classroom, ultimately they are also very distracting. Therefore, in our classroom sessions, please act as though you are ascending or descending in a commercial airplane and the flight staff has not yet indicated that you can use approved electronic devices. (There will be exceptions to this policy and your instructors will let you know when they want you to bring laptops to class, etc.) In the field, use the GPS mapping and camera functions on your phones if you like, but please do not use phone, email, text, web or related features except in cases of emergency.

Assignments

I will provide handouts in class explaining each of your assignments in detail. The following are summary descriptions of the course assignments.

- 1. Oak Hill Recreation Policy** (2000 words or less)- In this assignment, you will draft policy and management recommendations to help accommodate the various winter recreation activities on Oak Hill.
- 2. Wildlife Camera Group Assignment-** Working in small teams, you will determine a location and place a remotely triggered wildlife camera in one of our sites for 1 week. You will then give a presentation explaining why you chose the location and what wildlife species you expected to encounter, and reviewing the images captured by the camera.
- 3. Lab Homework Assignments-** Field labs on 4/8, 4/22 and 5/13 have follow-up homework assignments due on the Monday following these specific labs.
- 4. Current Issues in Forest Governance-** Twice during the term (4/17 and 5/8), we will explore contemporary conflicts concerning divergent ideas about the use and management of forests. These issues engage multiple actors including tribes, non-tribal government agencies and non-governmental parties. **It is very important that you attend these sessions and prepare by doing the associated readings.** Your work on this in-class assignments will count toward your participation grade.
- 5. Ecosystem Management at the Landmark Complex- Group Project** (3000 words plus figures and tables)- In this assignment, we imagine that the City of Lebanon, Dartmouth College, and Dartmouth-Hitchcock Medical Center want to work together to initiate “ecosystem-based management” of the Landmark Complex. You will work in groups to make recommendations for

addressing issues and opportunities at this site by utilizing an ecosystem-based conceptual framework and team-based planning approach. This is your culminating assignment in the course.

Quizzes

There will be 4 quizzes conducted during x-hours throughout the term covering woody plant identification and key concepts from readings and lectures.

Participation

Your participation grade will be based on a combination of your attendance plus active engagement in our field and classroom sessions, including the Current Issues in Forest Governance activities.

Attendance is mandatory. Yet, I also respect the fact that students have busy schedules and that conflicts do occur. Therefore, you are allowed to miss up to two classroom sessions without question or penalizing your participation grade. If you know you will have to miss more than two of our classroom sessions or *any* of our field sessions, please contact your instructor as soon as possible.

All students need to **participate in class**, which includes *both* speaking and listening, but not doing just one or the other all the time.

An explanation of how I will compute your grades for each assignment, including specific evaluation criteria, will be handed out with the assignments *in class*. The **rubrics** will also be posted on Canvas by the time the assignments are handed out. **No Late work** will be accepted unless there are compelling reasons beyond the student’s control that justifies the late submission. In that case, I reserve the right to make grade deductions as may be appropriate.

Grading & Assignments

Due Dates

Quizzes	15%	4/2, 4/16, 4/30, 5/14
Lab Homework Assignments	15%	4/14, 4/28 and 5/19
Wildlife Camera Group Assignment	10%	(due dates arranged at start of term)
Oak Hill Rec Policy Assignment	20%	4/15
Landmark Complex Group Assignment	25%	5/23
Participation	15%	ongoing

Academic Honor Principle

As for all courses at Dartmouth, I expect you to familiarize yourself with the guidelines of the Academic Honor Principle concerning independent work, proper citation of other’s work and general codes of learning. Please consult the Green Pages of the Dartmouth Student Handbook for additional details about the Honor Principle. The full text is available on-line at www.dartmouth.edu/~upperde/acad-reg.shtml.

Student Needs

Students with disabilities enrolled in this course and who may need disability-related academic adjustments and services are encouraged to see me privately as early as possible in the term. Students requiring disability-related academic adjustments and services must consult the Student Accessibility Services office (301 Collis Student Center, 646-9900, Student.Accessibility.Services@Dartmouth.edu). Once SAS has authorized services, students must show the originally signed SAS Services and Consent Form and/or a letter on SAS letterhead to their professor. As a first step, if students have questions about whether they qualify to receive academic adjustments and services, they should contact the SAS office. All inquiries and discussions will remain confidential.

Course Schedule: Subject to Change- this outline provides you with an *initial* idea of our schedule and assigned readings. [PLEASE REFER TO CANVAS AS YOUR MAIN COURSE SCHEDULE REFERENCE!!](#)

1. **An Introduction to Northern Forests** (meeting in Room 7 Steele Hall, this Tues only)

Tuesday 3/25 Course overview and expectations; introduction to our field sites; introduction to forest ecosystems and cultural landscapes

Readings:

Marchand, P.J. (2010) Nature guide to the northern forest: exploring ecology of the forest of New York, New Hampshire, Vermont and Maine. Pages 1-25.

Davidson-Hunt, I. and Berkes, F. (2010) Journeying and remembering: Anishinaabe landscape ethnoecology from northwestern Ontario. Pages 222-240. In Johnson and Hunn (eds) Landscape ethnoecology: concepts of biotic and physical space. Berghahn Books, New York.

Additional Reading (Optional):

Barnes et al. (1998) Forest Ecology. 4th Edition. John Wiley and Sons. Chapter 1, Pages 1-17.

2. **Forests for Outdoor Recreation: through the eyes of a recreation manager**

Thurs 3/27 Forest ecosystems cont.; notions of ‘place’ and public lands recreation management; discussion with **Tim McNamara** from Dartmouth Real Estate Office

Readings:

Marchand, P.J. (2010) Nature guide to the northern forest: exploring ecology of the forest of New York, New Hampshire, Vermont and Maine. Pages 26-110 (not a full 85 pages; much of this reading is photos).

Kruger, L.E. and D.R. Williams (2007) Place and place-based planning. In L.E. Kruger (ed) “Proceedings from the National Workshop on Recreation Research and Management”. US Forest Service General Technical Report PNW-GTR-698.

Van de Poll, R. (2010) Natural Lebanon. Results of the Phase II Natural Resource Inventory, City of Lebanon, New Hampshire. *Quickly familiarize yourselves with pages 1-55 plus maps*

Tuesday 4/1

Field Lab: Recreation Management at Oak Hill with **Dan Nelson and Brian Kunz** from Dartmouth Outdoor Programs Office

Readings:

Oak Hill Draft Management Plan (2013). Dartmouth College Outdoor Programs Office.

Additional Reading (Optional):

Virginia, R. (2009) An ecosystem approach to mountain resort management. In Milne, LeMense and Virginia (eds) "Mountain Resorts: ecology and the law"

3. Forests for Timber: seeing the forest through the eyes of a forester

Thurs 4/3

New England forest types, silviculture, Indian Country forestry

Forest Governance assignment and readings handed out in classReadings:

Trosper, R.L. (2007) Indigenous influence on forest management on the Menominee Indian Reservation. *Forest Ecology and Management* 249: 134-139.

NEFA (2011) The economic importance of New Hampshire's forest-based economy. Report of the North East State Foresters Association.

www.nefainfo.org

VIDEO: NH Chronicle: managing your own woodlot (9:45)

<http://www.youtube.com/watch?v=vdkGFC3V33Y>

Tuesday 4/8

Field Lab: Forest management and timber harvest at Fullington Farm site with **Kevin Evans** of Dartmouth Forest Management Office

Readings:

Fullington Farm and Second College Grant Forest Management Plans, Dartmouth Woodland Management program.

4. Forests for Animals and People: through the eyes of a tribal wildlife manager

Thurs 4/10

Hunting cultures and their ethics, attitudes and purposes

Readings:

McCorquodale, S.M. (1997) Cultural contexts of recreational hunting and Native subsistence and ceremonial hunting: their significance for wildlife management. *Wildlife Society Bulletin* 25(2): 568-573.

UNH Extension web resources on ecology and management of northern hardwood-conifer habitat

<http://extension.unh.edu/FWT/NorthernHardwood.htm>

Tuesday 4/15

Field Lab: Wildlife management at the Landmark Complex**Fullington Farm Recreation Policy Assignment Due**Readings:

DeGraaf, Yamasaki et al., (2005) Landowners guide to wildlife habitat: forest management for the New England Region. Chapter 2: "Understanding wildlife habitats", pages 14-27.

5. Forests as Habitat: through the eyes of wildlife and wildlife ecologists

Thurs 4/17

Introduction to wildlife ecology and management; **current issues in forest governance in-class activity**Readings:

Tuesday 4/22

Field Lab: Wildlife ecology and the Landmark Complex with **Craig Layne** of Dartmouth College Biology Dept (tentative).

6. Forests Through Time: land use, environmental and geological history

Thurs 4/24 Intro to Geological History, Glacial Geomorphology, Historical Ecology
Current Issues in Forest Governance Assignment Due
Readings:
 Van Diver, B.B. (1987) Roadside Geology of Vermont and New Hampshire.
 Pages 1-50 and 70-82.

Tuesday 4/29 **Field Lab:** Land use history and historical ecology of the Fullington Farm and woods.
Readings:
 Wessels, T. (1997) Reading the forested landscape. Introduction and Chapter 1, Pages 13-39.

7. Forests as Sacred Lands: a tribal perspective

Thurs 5/1 Sacred sites; tribal perspectives of land

Readings:

Watson, A. et al., (2011) Traditional wisdom: Protecting relationships with wilderness as a cultural landscape. *Ecology and Society* 16(1): 36. Online: <http://www.ecologyandsociety.org/vol16/iss1/art36/>.

Tuesday 5/6 **Field Lab:** Pero Hill woodlot with Art Hanchett of the Koasek Traditional Band of the Sovereign Abenaki Nation
Readings:
 Kimmerer, R.K. (2010) The giveaway. In Moore and Nelson (eds) Moral ground: ethical action for a planet in peril. Trinity University Press. 141-145.

8. Forests as Ecosystems: ecosystem management and eco-centrism

Thurs 5/8 Ecological forestry; ecosystem management; Current Issues in Forest Governance activity

Readings:

Rowe, J.S. (1990) Arks can't save aardvarks. In Home place: essays on ecology. NeWest Press, Edmonton.

Franklin, J.F. et al., (2007) Natural disturbance and stand development principles for ecological forestry. Gen. Tech. Rep. NRS-19. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 44 p.

Tuesday 5/13 **Field Lab:** Ecosystem concepts; landscape ecosystems of the Fullington Farm site
Readings:

9. Forests for Food, Medicine and Material Culture: tribal perspectives on gathering

Thurs 5/15 Contemporary tribal land management; harvest/gathering practices; black ash basketry
Current Issues in Forest Governance Assignment Due

Readings:

Spangler, G.R. (2009) Closing the circle: restoring the seasonal round to ceded territories. Conference paper published by the Great Lakes Indian Fish and Wildlife Commission.

- Tuesday 5/20 **Field Lab:** Black Ash Basketry and the Fullington Farm basket ash stand with **George Neptune** from the Abbe Museum (tentative)
Readings:
Diamond, A.K. and Emory, M.L. (2011) Black ash (*Fraxinus nigra* Marsh.):
Local Ecological Knowledge of site characteristics and morphology associated
with basket-grade specimens in New England (USA). *Economic Botany* 65:4:
422-426.
VIDEO (on reserve- watch prior to class): Black ash basketry: a story of cultural
resilience. 60 mins.
- Thurs 5/22 Final project work session
- Tuesday 5/27 Course Wrap-up; Ecosystem management presentations
with **Tim McNamara**
Landmark Complex Ecosystem Management Assignment Due