

University of Vermont
The Environmental Program

ENVS 174 (93932)

Natural Areas Conservation and Stewardship

Fall Semester 2017

Land conservation strikes an essential chord of meaning and fairness when it explicitly promotes diversity of all types: biological, cultural, racial, and socioeconomic. To live by a credo of diversity, conservationists must work in diverse geographies, serve diverse peoples, be sympathetic to diverse relationships with the land, seek to work beyond the boundaries of their mission, and be constituted of diverse peoples.

-Peter Forbes - The Great Remembering

Location and Time: Rowell #102
3:30-4:45pm, Mondays and Wednesdays, August 28 to December 6, 2017

Instructor: Rick Paradis, Environmental Program Faculty and
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I keep weekly office hours on Mondays from noon to 3:00pm. Contact the front desk at 802 656-4055 to schedule an appointment during those times. If those times don't work for you, contact me directly (by e-mail or phone) and we'll schedule a time that does. Feel free to call me at home in the early mornings and evenings or on weekends.

Course Description: Welcome to ENVS 174. Natural areas serve many functions from maintaining regional biological diversity and critical habitat to providing important open space for contemplative, educational, and recreational activities. Protecting and managing these areas in fragmented and human-influenced landscapes is an increasingly formidable challenge. This course examines the land protection and stewardship activities of conservation organizations, land trusts, and public natural resource agencies along with the principles of ecology, conservation biology, and landscape ecology in an effort to better understand the important issues, approaches, challenges, and concerns of conserving and managing natural areas in diverse and often fragile settings.

A premise of this course is that sound ecological thinking and information should fuel decision-making in land protection and management. We will explore these topics using a combination of readings, presentations, discussion sessions, guest speakers, take-home assignments, and problem-solving exercises. Perhaps we'll even hold a pie-eating contest!

Course Goals:

- To become familiar with the diversity of natural areas, natural area programs and systems, their assorted functions and values, and the tools and techniques used to protect and manage them.
- To develop a basic knowledge of the ecological principles that informs decision-making in natural areas conservation and stewardship.
- To be able to apply both ecological principles and conservation techniques to the protection and stewardship of natural areas in a diversity of landscape and cultural settings.

Expectations and Grading: As a course participant, you are expected to attend all classroom meetings, arrive when class begins and stay for the entire session, complete all readings and assignments on time, and regularly participate in discussions and other activities. I expect you to strive to do your best in this class, treat all other course participants and guests with courtesy and respect, feel free to express your opinions but be aware that others may have varying points of view, and avoid stereotyping and personal invectives. You should expect the same from me.

Grading will be based on your attendance and active involvement in the course and your efforts in completing several assignments. These assignments should be typed using a legible font style and size – Times Roman 12 point, for example. They should be printed clearly on wrinkle-free white paper with reasonable margins and with pages numbered and stapled together.

In an effort to encourage you to attend class on a regular basis, I am implementing the following policy regarding attendance. Each unexcused absence from class will result in the loss of four points towards the final grade. Realizing that illnesses and emergencies do occur, I will do my best to accommodate any unanticipated situations, but bear in mind that missing any substantial part of the course will result in a very poor grade or withdrawal from the course.

Grading Breakdown:	15 points	attendance and attentiveness
	10 points	classroom exercises and presentations
	15 points	first short assignment
	15 points	second short assignment
	15 points	third short assignment
	<u>30 points</u>	final assignment
	100 points	total

The Following Grading System Will Be Applied:

97-100 = A+	87-89 = B+	77-79 = C+	67-69 = D+
93-96 = A	83-86 = B	73-76 = C	63-66 = D
90-92 = A-	80-82 = B-	70-72 = C-	60-62 = D-

Stewardship is applied science at its finest - and most intimidating. It is a series of working hypotheses, which we formulate and pursue within very real limitations of incomplete information, insufficient financial and human resources, and the necessity to take action despite these constraints.

-Deb Jensen - Tools for Intelligent Tinkering

Course Readings: The readings for the course are drawn from journal articles, book chapters, and sections of reports and studies on topics related to natural areas conservation and stewardship. They will be posted on the course Blackboard site. It is extremely important that you keep up with the readings when they are assigned. They will serve as valuable background material for the course and for various assignments and other activities.

Assignments: There are four written assignments scheduled through the semester. They must all be typed, completed with care, clearly printed, and handed in on time. Assignments handed in after the due dates are subject to penalties towards the final course grade.

First Short Assignment: The first assignment will be handed out to you on **Wednesday, September 27**. It will consist of several questions to be answered in short essay form. The questions will deal with certain concepts and points of view regarding natural areas and will require some analytical thinking and writing on your part. The course readings completed to date will undoubtedly prove important for this assignment so you should plan to keep up with them. This assignment will be due on **Wednesday, October 4**.

The only constant in ecology is change.
-John Kricher

Second Short Assignment: For this assignment, you are to compose a letter to and response from Aldo Leopold. Aldo is one of the preeminent historical thinkers and writers in the field of conservation. We will read excerpts from his book “Sand County Almanac” and view a video “Green Fire” that chronicles his life and contributions to the field. For the first part of this assignment, I would like you to compose a letter to Aldo presenting your specific reactions to his book, his thoughts and ideas in conservation and other life achievements. This letter should be written in the first person and offer both honest praise and critique. Include several questions that you would like to ask Aldo either about his work or how he would respond to some of our contemporary environmental challenges. The second part of this assignment is to put yourself in Aldo’s shoes and respond to your letter. Take on a “What Would Aldo Do?” point of view. This assignment is due on **Wednesday, November 1**. Come to class on that day prepared to share the highlights of your letters.

Third Short Assignment: For this assignment, select a natural area conservation project or organization involved in land conservation and stewardship. You have the choice of either composing a creative essay or writing a descriptive case study of your selected project or organization. A creative essay should attempt to capture the essence of land and the meaning of land conservation as it relates to your chosen project or organization and in our society in general today. The thoughts and ideas expressed in Peter Forbes’ *The Great Remembering* should offer ample insight and examples on how to approach the assignment from this literary perspective. A descriptive case study should attempt to objectively present the details of your selected conservation project or organization. What are the particular characteristics of the conservation project? How does the conservation organization operate and what does it accomplish? The emphasis here is more on descriptive details and less on personal opinion and interpretation, although you are encouraged to present your own critical analysis.

Your creative essay or descriptive case study should be 4-5 pages (1,200 -1,500 words) in length. This assignment is due on **Monday, November 27**. At that time, be prepared to give a brief 2-3 minute presentation to the class on your chosen topic.

You live and learn. Or you don't live long.
-Robert Heinlein

Final Assignment: The final take-home assignment will be handed out to you on **Monday, November 27** and will give you the opportunity to develop a comprehensive natural area conservation and stewardship strategy. You will be provided with a description of an imagined natural area. This description will include information on land ownership, landscape features,

natural diversity, and threats to the area. You will be asked to use this information and what you have learned and read about natural diversity inventory and land conservation techniques to develop a conservation and stewardship strategy for this area. This assignment will be due on **Wednesday, December 6** and should consist of 9-10 typed pages (2,800-3,000 words) outlining your recommended strategy. You are encouraged to use maps, charts, or other methods to help illustrate your work.

The last word in ignorance is the man who says of an animal or plant: "What good is it?" If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of eons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering.

-Aldo Leopold - A Sand County Almanac

Course Schedule.

Week #1

Monday, August 28

Course introductions, objectives, outline, and expectations

Wednesday, August 30

What are natural areas?

Functions and values of natural areas

Issues and challenges of natural areas conservation and stewardship

Week #2

Monday, September 4 No Class – Labor Day Holiday

Wednesday, September 6

Concepts and ideas in ecology and conservation biology

Biological diversity defined, defiled, and defended

Readings: *Nothing Endures But Change*, by John Kricher.

Where the Wild Things Were, By William Stolzenburg, Chapter 1

Week #3

Monday, September 11

Why conservation efforts to date have not adequately addressed our biological diversity crisis

Discussion Topic: Is natural areas management an oxymoron?

Reading: *Must We Shoot Deer to Save Nature?* by Jared Diamond

Wednesday, September 13

Inventorying natural diversity and prioritizing conservation efforts

Conserving biological diversity at different levels of organization

The Vermont Biodiversity Project

Readings: *Saving Nature's Legacy*, by Reed Noss and Allan Cooperrider, Chapter 4

Vermont's Natural Heritage, by Elizabeth Thompson

Week #4

Monday, September 18

Habitat fragmentation

Discussion Topic: Protecting natural areas in increasingly fragmented landscapes

Reading: *Biological Consequences of Ecosystem Fragmentation*, by Denis Saunders

Wednesday, September 20

Landscape connectivity and movement corridors

Discussion Topic: The role of movement corridors in natural areas design

Reading: *Movement Corridors: Conservation Bargains or Poor Investments?* By D. Simberloff

Week #5

Monday, September 25

Natural areas selection and design

Classroom Exercise: Designing an ecological reserve system: Part I

Reading: *Saving Nature's Legacy*, by Reed Noss and Allan Cooperrider, Chapter 5

Wednesday, September 27

Natural areas protection tools and techniques

The role of land trusts in land conservation

Guest Speaker: Chris Boget, Executive Director, Lake Champlain Land Trust

Readings: *Conservation Options: A Landowner's Guide*, Land Trust Alliance.

First Short Assignment Handed Out

Week #6

Monday, October 2

Classroom Exercise: Designing an ecological reserve system: Part II

Wednesday, October 4

Local, regional, and state natural areas conservation efforts

First Short Assignment Due

Week #7

Monday, October 9

No Class – Fall Recess

Wednesday, October 11

Overview of Vermont state laws, policies, and programs that relate to natural areas

Protecting natural areas through regulatory and permitting programs

Guest Speaker: Jeff Parsons, Ecologist, Arrowwood Environmental Consultants

Readings: *Vermont Act 250 Handbook*, by Cindy Argentine

Twentieth Century New England Land Conservation: Unspoiled Vermont, by C. Foster

Week #8

Monday, October 16

National and international conservation efforts

Federal land management agencies and their programs

The parks versus people conundrum

Readings: *Rethinking Tropical Forest Conservation: Parks in Peril*, by Stephen Schwartzman

Conservation Refugees, by Mark Dowie

Wednesday, October 18 Stewardship and monitoring activities

Private conservation programs and organizations

Guest Speakers: Shelby Perry, Conservation Director, Northeast Wilderness Trust

Gus Goodwin, Conservation Specialist, The Nature Conservancy, Vermont Office

Readings: *The Nature Conservancy*, by Richard Brewer

Week #9

Monday, October 23

Land ownership as a right and responsibility

Discussion Topic: Considering land as something other than property

Reading: *Editorially Speaking: Property Rights or Wrongs?* by Gary Chilson

Wednesday, October 25

Public-private partnerships

The challenges of managing small natural areas

Readings: *Small Reserves Can Successfully Preserve Rare Plants . . .* by Sophie Parker

Week #10

Monday, October 30

Exploring the meaning of land and the value of the natural world

Readings: Selections from *The Great Remembering*, by Peter Forbes

Selections from *A Sand County Almanac*, by Aldo Leopold

Wednesday, November 1

Video: Green Fire: Aldo Leopold and a Land Ethic for Our Time.

Second Short Assignment Due

Week #11

Monday, November 6

Managing for rare and endangered species

In situ versus ex situ conservation activities

Reading: *Feasibility of the Northeastern US Supporting the Return of the Cougar*, by J. Laundre

Wednesday, November 8

Managing sensitive ecosystems and human impacts

Classroom Exercise: The bog boardwalk dilemma

Week #12

Monday, November 13

Ecological restoration and recovery of damaged natural areas

Discussion Topic: Ecological restoration as a new conservation paradigm

Readings: *Weeding Key Biscayne*, by Bill Jordan

Vegetation Restoration in Northeastern Alpine Zones, by Ed Ketchledge

Wednesday, November 15

Large-scale land conservation and rewilding strategies

Readings: *The Wildlands Project*, by Reed Noss

Pleistocene Rewilding, by C. Donlon et al.

Week #13 – November 20-24 – Thanksgiving Recess

Week #14

Monday, November 27

Examples of natural areas projects and organizations from around the world

Third Short Assignment Due

Final Assignment Handed Out

Wednesday, November 29

Bringing it all together: site conservation planning

Readings: *A Planning Discipline for an Ecosystem Approach to Conservation*, by Bill Weeks

Week #15

Monday, December 4

New challenges and future prospects in natural areas conservation and stewardship

Readings: *The Next Generation of Natural Areas Managers*, by Brian Rusart

A Review of Climate-Change Adaptation Strategies . . . by Jonathan Mawdsley, et al.

Wednesday, December 6

Summary remarks and course evaluation

Final Assignment Due