

Forests and Fires in the Colorado Front Range

Biology 100 (BY100)

Block 2, 2003

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Office Hours: Tues/Thurs 2-3:30 PM & by arrangement

Classroom: Barnes 413

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Course Description: In this course we will explore the role of fire in the forest landscapes of the Colorado Front Range. Topics for class discussion and field investigation include the adaptations of plants and animals to fire, fire history and forest structure, the human use and control of fire in natural landscapes, the role of fire in conserving biological diversity, and social and economic implications of wildfires. We will learn some fundamental principles of ecology and some ecological research methods through this introduction to fire ecology. The course includes several all-day field trips, and one two-night overnight trip. Modest extra cost. (Meets the field/laboratory requirement for natural sciences.)

Textbook: *Flames in Our Forest: Disaster or Renewal?* by Stephen F. Arno and Steven Allison-Bunnell. Island Press: Washington, D.C. & Covelo, CA. 2002.

Course Objectives:

1. To develop a global, evolutionary context in which to understand fire ecology and the human ecology of fire
2. To learn some fundamentals and details of the fire ecology of forests in the Colorado Front Range
3. To learn and practice some field and laboratory methods used by fire ecologists
4. To visit sites of several recent Colorado fires and see their effects first-hand
5. To understand some of the management options for restoring Colorado forests to a more natural, less fire-prone condition
6. To develop an appreciation for the challenges faced by the managers of public forest lands
7. To individualize each student's learning through an *optional* individual research project on a topic of special interest that relates in some way to the themes of the course

Tentative Schedule

<u>Date</u>	<u>Topic/Activity</u>	<u>Reading</u>
<u>Week One</u>		
29 Sept., Mon	Course Introduction and Orientation	Preface & Ch. 1
30 Sept., Tue	Physics and chemistry of fire; fire ecology around the world	Ch. 4
1 Oct., Wed	Fire adaptations; fire regimes; Soil seed bank lab	Ch. 5 & 6
2 Oct., Thu	Fire and biodiversity; Discussion #1 Soil seed bank lab -- continued	Ch. 7
3 Oct., Fri	Understanding fire history; Q & A review	Ch. 8
<u>Week Two</u>		
6 Oct., Mon	Exam I	
7 Oct., Tue	Depart on 3-day field trip to Estes Park, 8 AM	
8 Oct., Wed	Field work -- Estes Park and vicinity	
9 Oct., Thu	Field work -- return to CC by 5 PM	
10 Oct., Fri	The history of fire in America & Colorado Discussion #2	Ch. 2 & 3
<u>Week Three</u>		
13 Oct., Mon	Forest management options; individual project prospectus due	Ch. 9, 10
14 Oct., Tue	Fire and the wildland-urban interface	Ch. 11
15 Oct., Wed	Field Trip to Manitou Experimental Forest (all day)	
16 Oct., Thu	Field Trip to South Platte Watershed and Trumbull Forest Restoration Area (all day)	
17 Oct., Fri	The future of our forests; Discussion #3; Q & A review for exam	Ch. 12
<u>Final Week</u>		
20 Oct., Mon	Exam II	
21 Oct., Tue	Individual project oral reports presented in class	
23 Oct., Wed	Individual project written reports due by noon	

Evaluation & Grading

Exam I	30%
Exam II	30%
Discussions	15%
Participation	10%
Optional Individual Project (written & oral reports)	<u>15%</u>
Total	100%

Evaluation Comments and Details

Exams: Exams will cover material from reading, lectures, guest lectures, discussions, and field presentations. Before each of the two exams we will have a question-and-answer review session. Together the two exams make up 60% of your grade, and are therefore very important.

Discussions: We will have at least three more-or-less “formal” discussions during the course, in which each student will be expected to participate. Generally these are listed in the schedule. I will be keeping a record of your participation these discussions, and evaluating both the frequency and quality of your contributions. Regarding the quality of the contribution, I will be impressed when you demonstrate that you can bring in relevant information from the reading or class presentations; contribute creative ideas and insights; bring in relevant personal experiences and observations; and link your contribution to the flow of the discussion.

Participation: I expect you to:

- Keep up with the reading assignments on a daily basis, and have read the chapter listed *before* class that day
- Read critically and actively, carrying out a dialogue with the authors of the text, as indicated by marginal notes in the book and/or reading notes kept separately
- Ask intelligent questions in class
- Contribute ideas, answers, and comments when called on, and voluntarily, in class
- Communicate interest, eagerness to learn, curiosity, and enthusiasm to me and to other students in the class
- Show respect for other students by listening when they are talking, giving everyone a chance to talk, and not interrupting when someone is talking
- Turn in all assignments on time
- Visit me during office hours if you need help or want to do extra work
- Let me know in advance when possible if you will miss class and make up/catch up on what you missed if you do miss class

Optional Individual Project (written & oral reports): In order to individualize your learning in this class, an individual research project on a topic of your choice is an option. This will allow you both to individualize your effort (and thus your potential grade) AND to individualize part of the content of the course. It is optional because some of you may not want/need to earn an A or B in the course, and will choose to do less work knowing that you cannot earn as high a grade. If you choose not to do an individual research project, the highest grade you could earn is a B; to do so, it would be necessary to get nearly all of the points possible on the exams, discussions, and for participation.

If you choose the extra effort in order to potentially earn a higher grade (or to improve your grade if you do not do so well on the other evaluated components of the course) you should:

- 1) Choose a topic of special interest to you;
- 2) Prepare a research proposal/prospectus to turn in by Monday, October 13, at the latest;
- 3) This research should be presented in the form of a paper (approx. 10-12 pages, including illustrations and references), and a very brief oral report (approx. 10 min. maximum) to the class.

More details and guidelines for content and format of both written and oral reports will be provided later.

Illustrative Individual Research Project Topics (to give a feeling for the range of possibilities)

What Do College Students Think About Forests and Fires?
Defensible Space and Mountain Homes: Effective, or a Waste of Time?
Smoke from Prescribed Burns: How Come Everyone Hates Smoke?
The Bush Administration's "Healthy Forests Initiative?"
Forest Thinning: Is It Only Logging in Disguise?
How Much Does Fighting Fires Cost Society?
Should Insurance Companies Insure Mountain Homes Against Wildfires?
The Hayman Fire: Lessons for Colorado
Restoring Habitat for Prebles Meadow Jumping Mouse
Economic Impact of the Buffalo Creek Fire on Denver's Water System
Is the Colorado Springs Water System Prepared for a Fire on Pikes Peak?
Native American Use of Fire
Fire History of My Dad's Cabin Site at Woodland Park