PLANNING A PROGRAM OF STUDY

THE NATURAL RESOURCES MAJOR

The Natural Resources major offers students the solid base of knowledge needed to address scientific, policy, and management issues in natural resources and environment. It does so while maintaining a great deal of flexibility for students to pursue their particular interests and providing a broad liberal arts education within a first-class university. Graduates thus are prepared to undertake graduate degrees in related fields, pursue careers with resource management agencies at all levels of government, work with private industry and environmental consulting firms, or become staff members of non-governmental conservation organizations.

For all students, the major consists of:

a) 4 foundation courses in Natural Resources, typically taken in the first two years;

b) 11 or 12 courses that also meet many of the College's 39-credit distribution requirements; these include math (1 course), chemistry (1 or 2 courses depending on student's concentration), introductory biology (2 courses), social sciences (2 courses), humanities (2 courses), and written and oral expression (3 courses);

c) 3 additional courses: an economics course, an ethics course, and a statistics course; and

d) a 5- or 6-course sequence of upper-level courses depending on student's choice of a concentration (see descriptions below).

For students with concentrations in **Applied Ecology (AE)** and **Resource Policy and Management (RPM)**, the 5-course upper-level sequence consists of:

i) 3 upper-level core courses identified as essential to understanding the multi-dimensional nature of managing natural resources and solving environmental problems. Together with the four foundation courses, these three core courses introduce the critical environmental and natural resources issues confronting society, and they develop the conceptual and methodological tools that students will use in upper-division courses; and

ii) at least 2 additional upper-level courses in Natural Resources chosen to meet students' particular interests in applied ecology or resource policy and management.

For students with a concentration in **Environmental Studies (ES)**, the upper-level sequence consists of a self-designed cohesive set of six courses in the social sciences, natural sciences, or humanities related to environment; see description below. Students in the **Environmental Studies (ES)** concentration also must take Ecology and the Environment (BioEE 261), and two additional writing or oral communication courses.

All students are expected to take advantage of one or more opportunities for internships, semester abroad, independent research or honors thesis research, as appropriate.

AREAS OF CONCENTRATION WITHIN THE MAJOR

APPLIED ECOLOGY (AE) is designed as a foundation for those who wish to pursue careers or advanced study in science-based conservation or management of fish and wildlife populations and their habitats, conservation biology, control of invasive and overabundant species, watershed and landscape management, quantitative population dynamics, resource inventory and information management, global ecology, or applied ecology and biogeochemistry of forests and wetlands. This concentration also may interest students seeking a biologically-based approach to environmental science or global studies. Students who select this concentration typically focus their course work in the areas of species biology and applied ecosystem ecology,

including quantitative analysis of fish, wildlife, and plant populations, ecosystems, and landscapes. They complement their course work within the department with courses in other departments, such as Ecology and Evolutionary Biology, Microbiology, Geology, Crop and Soil Science, Atmospheric and Earth Sciences, Animal Sciences, and Plant Biology.

RESOURCE POLICY AND MANAGEMENT (RPM) provides a foundation for students who wish to pursue careers or advanced study in the human dimensions or policy aspects of natural resource conservation and management, natural resource and environmental law, environmental policy analysis, or environmental communication. Students who select this concentration typically focus on courses related to the development of environmental policy, management strategies for particular species or ecosystems, natural resource planning, resource economics, or programs in environmental communication and education. They complement their course work within the department with courses in other departments such as Government, Ecology and Evolutionary Biology, Development Sociology, Communications, Applied Economics and Management, City and Regional Planning, and Policy Analysis and Management.

ENVIRONMENTAL STUDIES (ES) is intended for those who wish to pursue a broad and synthetic approach to understanding and participating in (re)structuring the interactions between society and environment. The concentration's emphasis is on developing an ability to think critically about these interactions. Building on a foundation of courses required for the Natural Resources major, during years 3 and 4, each student will design a cohesive sequence of six upper-division courses with help from their departmental advisor. These six courses should include two courses from each of three categories: (1) natural science; (2) social science and analytic skills, e.g., economics, political economy, logic, computer programming, GIS, statistics; and (3) humanities, e.g., history, philosophy, literature, arts, foreign language. This self-defined environmental theme ensures development of specific competencies linked to personal and professional ambitions of the individual student. Example themes include environmental law, environmental education, "green" business, sustainable agriculture, and environmental communication.

THE ROLE OF YOUR ADVISOR

Each student in the Natural Resources major is assigned a faculty advisor. Your advisor plays several roles: guiding you through the requirements of the major and the College distribution requirements; helping you to clarify your educational and career goals; suggesting courses to help you meet your particular educational interests and career goals; and serving as a source of information on opportunities and services available to you through the College and University (e.g., study abroad, internships, career counseling, health and psychological services). If you make the effort to get to know your advisor, she or he also may serve as a reference for you for internships, jobs, or graduate school. Your advisor also can help you change majors if you learn that your interests lie elsewhere.

You may change advisor, or major, at any time. Do not worry about “hurt feelings.” An advisor-student relationship may not work for any number of reasons, e.g., meshing with your interests or personality type. See Marian Hovencamp (Fernow Room 12) if you want to change advisors within Natural Resources.

YOUR RESPONSIBILITY

Ultimately, you are responsible for your education. You will get out of it what you put into it. Having the opportunity to obtain a first-rate university education is a privilege few have. You owe it to yourself and the world to make the most of it. Students are responsible for making regular progress toward meeting the curriculum requirements of their specific concentration. That progress is to be verified in the fall of their junior year. Students wishing to graduate as "Natural Resources" majors must provide their advisors a sheet verifying completion of (or means of completing) these requirements by the start of the last semester in residence. **Blank Summary of Record sheets will be available in 12 Fernow Hall to keep track of your progress.** If a student does not complete the requirements for the Natural Resources major, students will graduate with a major in "Interdisciplinary Studies."

CURRICULUM REQUIREMENTS FOR NATURAL RESOURCES MAJORS

Except where otherwise indicated, students in all three concentrations **(AE, RPM or ES)** follow the same requirements in Groups A, B, C, and D below, which follow the format for CALS distribution requirements. ***Advanced placement credit and/or transfer credit from other institutions may be used to meet curriculum requirements in math, chemistry, writing, statistics, introductory biology and environmental science.***

COURSES REQUIRED WITHIN THE CALS DISTRIBUTION REQUIREMENTS	COURSES REQUIRED	CREDIT HOURS
PHYSICAL & LIFE SCIENCES		
Introductory Biology	2 courses	6-8
Ecology and the Environment (BIOEE 261)	1 course	4
Mathematics: calculus (AP calculus w/ score 4, 5; Math 106 or Math 111)	1 course	3-4
Statistics (NTRES 313 or AEM 210)	1 course	3-4
For AE and RPM: 2 Chemistry courses, one of which must be a lab course	2 courses	7-8
For ES: 1 Chemistry course with a lab	1 course	3-4
SOCIAL SCIENCES & HUMANITIES (see distribution requirement sheet for description of categories)		
For AE and RPM: two courses in category SBA or KCM, an Economics course (see choices below), and two courses from categories CA, HA or LA	4-5 courses	12-15
For ES: two courses in category SBA or KCM, one of which must be Environmental Governance (NTRES 331), and two courses from categories CA, HA or LA	4 courses	12
For AE, RPM and ES: one course in ethics (NTRES 332, B&SOC 206, PHIL 246 or PHIL 247)	1 course	3-4
WRITTEN & ORAL EXPRESSION		
Freshman Writing Seminars	2 courses	6
Oral Communications (Comm 201 or 203, ENTOM 335)	1 course	3
OTHER REQUIRED COURSES NOT WITHIN DNR		
Economics		
For AE and RPM: AEM 250 or ECON 101 or 102	1 course	3
For ES: AEM 250	1 course	3
Writing		
For ES: 2 additional writing or oral communication courses (e.g., COMM 260, 350, 352; ENG 288-289, 381, 388; ENTOM 335)	2 courses	6

APPLIED ECOLOGY (AE) AND *RESOURCE POLICY AND MANAGEMENT (RPM)* CONCENTRATIONS

Several courses in the Department of Natural Resources are required for those specializing in the Applied Ecology (AE) or Resource Policy and Management (RPM) concentrations. Courses total 29-31 hours, and are usually distributed across four years as noted below. Transfer students entering after their freshman year should discuss appropriate course sequences with their advisors.

REQUIRED COURSES within the MAJOR for AE and RPM CONCENTRATIONS

YEAR 1: Both courses

NTRES 101	Introduction to Natural Resources [expected for freshmen]	Fall
NTRES 201	Environmental Conservation [expected for freshmen and most transfer students]	Spring

YEAR 2: Both courses

NTRES 210	Introductory Field Biology [expected for sophomores & most transfer students]	Fall
NTRES 220	People, Values, and Natural Resources [expected for sophomores & most transfer students]	Spring
	[NOTE: For Spring 2007: NTRES 232, Nature and Culture, will substitute for NTRES 220]	

YEARS 3 & 4:

All students in the AE and RPM concentrations are required to take the core course in each of the three subject areas (i.e., Populations, Ecosystems and Policy). Students then will be required to take at least two additional courses from the elective or advanced lists in any subject area (group), at least one of which must be an advanced course (400-level). Courses may be taken in other relevant departments (e.g., BIO units, especially BIOEE, AEM, CRP, EAS, PAM, DEV SOC, SES, STS, etc.) to complete requirements. Consult your advisor to determine appropriate courses.

Group I – Populations

Required core course:

NTRES 310	Applied Population Ecology	Fall

Electives:

NTRES 311	Fish Ecology, Conservation & Management	Spring
NTRES 313	Biological Statistics I	Fall

Advanced:

NTRES 410	Conservation Biology: Concepts & Techniques	Fall
NTRES 411	Quantitative Ecology & Mgmt of Fisheries Resources	Spring
NTRES 412	Wildlife Population Analysis: Techniques & Models	Spring (alt years)
NTRES 413	Biological Statistics II	Spring
NTRES 414	Darwinian Ecology	Spring (alt years)
NTRES 428	Principles and Practices of Applied Wildlife Science	Spring (alt years)

REQUIRED COURSES within the MAJOR for AE and RPM CONCENTRATIONS

Group II – Ecosystems

Required core course:

BIOEE 261	Ecology and the Environment	Fall

Electives:

NTRES 321	Introduction to Biogeochemistry	Fall
NTRES 322	Global Ecology and Management	Spring
NTRES 324	Ecological Management of Water Resources	Spring
NTRES 325	Forest Management and Maple Syrup Production	Spring (alt years)
NTRES 326	Applied Conservation Ecology	Spring

Advanced:

NTRES 420	Forest Ecology	Fall
NTRES 422	Wetland Ecology and Management	Fall
NTRES 424	Landscape Impact Analysis	Spring
NTRES 426	Practicum: Forest Farming Agroforestry	Fall (alt years)
NTRES 456	Stream Ecology	Fall (alt years)

Group III – Policy

Required core course:

NTRES 330	Natural Resources Planning & Management	Fall

Electives:

NTRES 331	Environmental Governance	Spring
NTRES 332	Introduction to Environmental Ethics	Fall
NTRES 333	Environmental Issues and Indigenous People	Spring

Advanced:

NTRES 430	Environmental & Natural Resources Policy Process	Spring
NTRES 431	Environmental Strategies	Spring
NTRES 432	Human Dimensions of Natural Resource Management	Spring
NTRES 433	Applied Environmental Philosophy	Spring
NTRES 434	International Conservation: Communities & Mgmt of World's Nat'l Res	Fall
NTRES 435	Tribal Governance and Environmental Policy	Fall
NTRES 444	Resource Management and Environmental Law	Spring
NTRES 480	Global Seminar: Building Sustainable Environments and Secure Food Systems for a Modern World	Spring

All students are expected to take advantage of one or more opportunities for internships, semester abroad, independent research or honors thesis research, as appropriate.

ENVIRONMENTAL STUDIES (ES) CONCENTRATION

Several courses in Natural Resources and other departments are required for those specializing in the Environmental Studies (ES) concentration. Courses total 37-39 hours, and are usually distributed across four years as noted below. Transfer students entering after their freshman year should discuss appropriate course sequences with their advisors.

REQUIRED COURSES within the MAJOR for the ES CONCENTRATION

YEAR 1: Both courses

NTRES 101	Introduction to Natural Resources [expected for freshmen]	Fall
NTRES 201	Environmental Conservation [expected for freshmen and most transfer students]	Spring

YEAR 2: both courses

NTRES 210	Introductory Field Biology [expected for sophomores and most transfer students]	Fall
NTRES 220	People, Values, and Natural Resources [expected for sophomores most transfer students]	Spring
	[NOTE: For Spring 2007, NTRES 232, Nature and Culture, will substitute for NTRES 220]	

YEAR 3 and 4:

Students must take a minimum of six courses: six upper-division courses comprising a self-defined theme related to conservation (details below). The theme should speak to a general intellectual interest or social problem and be developed, in writing, with the guidance of the student's faculty advisor. In addition to articulating their academic interests, students are required to identify, in writing, potential courses at the time their theme goes on file with their advisor. Courses count toward student's theme if they relate to this overarching question or interest. Definition and rationale of student's theme can and should be updated over time. College distribution requirements may be double-counted within the theme.

Further description of ES upper-division theme.

The six-course theme should be comprised of at least two 300-level or above courses in each of the following categories:

a) natural science: biological and physical sciences
b) social science and analytical skills: economics, political economy, policy sciences, logic, computer programming, GIS, statistics
c) humanities: history, literature, philosophy, ethics, arts, foreign languages

Examples of areas within which themes might be developed include environmental law, environmental education, environmental journalism/communication, environmental advocacy, and "green" business. Appropriate courses for themes can be drawn from a wide variety of departments, including Natural Resources, Ecology and Evolutionary Biology, Crop and Soil Sciences, Applied Economics and Management, Development Sociology, Education, Communications, Philosophy, History, Psychology, Government, and City and Regional Planning.

Students should work with their advisors to develop a theme that intrigues them and to identify potential courses that will stimulate and challenge them while addressing an overarching question or issue. This process itself will open students' minds to the many perspectives from which problems in environment and conservation can be approached.

All students are expected to take advantage of one or more opportunities for internships, semester abroad, independent research or honors thesis research, as appropriate.

Advising Faculty and Academic Staff
in the Department of Natural Resources
2006 - 2007

Name	***Contact Info Office/Email/Phone***	***Research Interests and Courses Taught***
Mark Bain *Associate Professor* *Director, Center for the Environment*	200 Rice Hall mbb1@cornell.edu 254-4750	Fish and aquatic ecology, ecosystem analysis, environmental policy, complex systems
Barbara Bedford *Sr. Research Associate* *Chair, DNR Teaching & Curriculum Committee*	121 Fernow Hall blb4@cornell.edu 255-2014	Wetland ecosystems: plant ecology, biogeo-chemistry, hydrology, conservation of plant diversity NTRES 422/423: Wetland Ecology & Management NTRES 424: Landscape Impact Analysis
Bernd Blossey *Associate Professor*	202 Fernow Hall bb22@cornell.edu 255-5314	Impact of invasive plants on native species and food webs, biological control of nonindigenous plants in natural areas, conservation biology, plant-insect interactions, invasion biology
Tommy Brown *Sr. Research Associate*	122F Fernow Hall tlb4@cornell.edu 255-7695	Human dimensions of natural resource management and policy, outdoor recreation, survey research methods
Louise Buck Sr. Extension Associate	103 Rice Hall **leb3@cornell.edu** 255-5994	Social dimensions of integrated resource management (agroforestry, protected areas), international conservation, participatory research NTRES/HORT/CSS 426: Practicum in Forest Farming as an Agroforestry System NTRES/IARD/CSS 696: Agroecological Perspectives for Sustainable Development
Evan Cooch *Associate Professor*	206B Fernow Hall **egc7@cornell.edu** 255-1368	Wildlife ecology and management, population dynamics, population modeling, quantitative methods, theoretical ecology NTRES 310: Applied Population Ecology NTRES 410: Conservation Biology: Concepts and Techniques NTRES 412/612: Wildlife Population Analysis: Techniques and Models
Paul Curtis *Associate Professor*	114 Fernow Hall pdc1@cornell.edu 255-2835	Population biology of birds and mammals, public policy education, management of human-wildlife conflicts NTRES 428/628: Principles and Practices of Applied Wildlife Science

Name	***Contact Info Office/Email/Phone***	***Research Interests and Courses Taught***
Daniel Decker *Professor*	106 Fernow Hall djd6@cornell.edu 255-2559	Human dimensions of wildlife management and policy
Janis Dickinson *Associate Professor*	252B Johnson Center Cornell Lab of Ornithology jld84@cornell.edu 254-2194	Behavioral ecology and conservation biology of birds BIOEE 758: Ornithology Seminar
Jody Enck *Research Associate*	119 Fernow Hall **jwe4@cornell.edu** 255-8192	Understanding human attitudes and behaviors in the context of restoration management, adaptive management, and management of overabundant natural resources. NTRES 432: Human Dimensions of Natural Resource Management
Timothy Fahey *Liberty Hyde Bailey Professor* *Undergraduate Advising Coordinator*	12 Fernow Hall tjf5@cornell.edu 255-5470	Dynamics of forest ecosystems NTRES 201: Environmental Conservation NTRES 420/421: Forest Ecology
Thomas Gavin *Associate Professor*	209 Fernow Hall tag1@cornell.edu 255-2841	Population biology of birds and mammals, conservation biology, ecoagriculture NTRES 210: Introductory Field Biology NTRES 410: Conservation Biology: Concepts and Techniques NTRES 414: A Darwinian Perspective on Human Behavior and Natural Resources
Marian Hovencamp *Undergraduate Program Assistant*	12 Fernow Hall **mth6@cornell.edu** 255-2809	Oversees Department undergraduate activities, course registration, provides advising assistance and serves as a general information resource for all Natural Resources undergraduates. Provides information on courses, department events, internships, jobs, and other timely information disseminated electronically via e-mail to all students.
Randy Jackson *Senior Research Associate*	Cornell Biological Field Station **jrj26@cornell.edu** 315-633-9243	NTRES 311/312: Fish Ecology Conservation and Management
Barbara Knuth *Professor* *Department Chair*	118 Fernow Hall bak3@cornell.edu 255-2822	Natural Resource and environmental policy; human dimensions of natural resource management NTRES 430: Environmental and Natural Resources Policy Processes

Name	***Contact Info Office/Email/Phone***	***Research Interests and Courses Taught***
Clifford Kraft *Associate Professor*	206D Fernow Hall cek7@cornell.edu 255-2775	Fish and aquatic ecology, aquatic ecosystem management NTRES/BIOEE 456: Stream Ecology
Marianne Krasny *Professor* *Director of Graduate Studies*	16A Fernow Hall mek2@cornell.edu 255-2827	Environmental outreach, environmental education NTRES 600: Introduction to Graduate Study in Natural Resources
James Lassoie *Professor*	10 Fernow Hall jpl4@cornell.edu 255-2810	Agroforestry, international conservation, community-based natural resource management NTRES/SNES 101: Introduction to the Science and Management of Environmental and Natural Resources NTRES 434: International Conservation: Communities and the Management of the World's Natural Resources NTRES 480: Global Seminar: Building Sustainable Environments and Secure Food Systems for a Modern World NTRES 615: Case Studies and Special Topics in Agroforestry NTRES 634: Seminar in International Conservation & Sustainable Development
Bruce Lauber *Senior Research Associate*	126 Fernow Hall **TBL3@cornell.edu** 254-2892	Citizen participation and collaboration in natural resource management NTRES 330: Natural Resource Planning and Management
Edward Mills *Professor*	Cornell Biological Field Station **elm5@cornell.edu** 315-633-9243	Aquatic ecology and fish biology, ecology of exotic invaders NTRES 311/312: Fish Ecology Conservation and Management
Stephen Morreale *Senior Research Associate*	122A Fernow Hall sjm11@cornell.edu 254-4912	Vertebrate ecology, amphibians and reptiles, wildlife conservation ecology, wildlife conservation ecology, marine conservation, zoology NTRES 326: Applied Conservation Ecology

Name	***Contact Info Office/Email/Phone***	***Research Interests and Courses Taught***
Milford Muskett *Visiting Assistant Professor*	122E Fernow Hall **mm454@cornell.edu** 255-3133	Environmental History, Native American Environmental History, History of Science, Medical History, Natural Resource and Environmental Policy, and Conservation Biology NTRES/AIP 333: Environmental Issues and Indigenous People NTRES 336: History of Environmental Sciences NTRES/AIP 435: Tribal Governance and Environmental Policy
Milo Richmond *Associate Professor (Courtesy)*	206E Fernow Hall mer6@cornell.edu 255-2151	Reproduction and population biology of mammals and birds, terrestrial ecology NTRES 428/628: Principles and Practices of Applied Wildlife Science NTRES 630: Writing for the Biological Sciences
Lars Rudstam *Associate Professor*	Cornell Biological Field Station **lgr1@cornell.edu** 315-633-9243	Fish and aquatic ecology, fisheries management NTRES 311/312: Fish Ecology Conservation and Management
Rebecca Schneider *Associate Professor*	112 Fernow Hall rls11@cornell.edu 255-2110	Ecology and management of landscapes NTRES 324: Ecological Management of Water Resources
Ruth Sherman *Research Associate Lecturer*	8F Fernow Hall **res6@cornell.edu** 255-1067	Ecosystems ecology, forest ecology, biogeochemistry
Peter Smallidge *Sr. Extension Associate*	116 Fernow Hall pjs23@cornell.edu 255-4696	Forest management, forest regeneration, sugarbush productivity, and forest stewardship NTRES 325: Forest Management and Maple Syrup Production
Charles Smith *Sr. Research Associate*	206C Fernow Hall crs6@cornell.edu 255-3219	Conservation and management of birds and butterflies NTRES 210: Introductory Field Biology NTRES 314/315: Conservation of Birds NTRES 427: Ecoregions: Ecology and Conservation

Name	***Contact Info Office/Email/Phone***	***Research Interests and Courses Taught***
Patrick Sullivan *Associate Professor* *Career Development Faculty Representative* *on sabbatic leave Spring 2007*	214 Fernow Hall pjs31@cornell.edu 255-8213	Quantitative population and community dynamics, natural resource assessment and modeling, biological statistics, spatial statistics, marine and freshwater fisheries NTRES 313: Biological Statistics I NTRES 413: Biological Statistics II NTRES 411/611: Quantitative Ecology & Management of Fisheries Resources NTRES 670: Spatial Statistics
James Tantillo *Lecturer* Research Associate	8A Fernow Hall **jat4@cornell.edu** 255-0704	Environmental philosophy, environmental history, science policy, and animal ethics NTRES 232: Nature and Culture NTRES 332: Introduction to Ethics and the Environment NTRES 433: Applied Environmental Philosophy
Steven Wolf *Assistant Professor*	124 Fernow Hall **saw44@cornell.edu** 255-7778	Environmental governance, multifunctional landscapes, forestry and agriculture innovation systems NTRES/S&TS/B&SOC 331and NTRES 631: Environmental Governance NTRES 431: Environmental Strategies
Joseph Yavitt *Associate Professor* *Undergraduate Events Coordinator;* *Chair, Honors Program*	16B Fernow Hall jby1@cornell.edu 255-6601	Dynamics of forest and wetland ecosystems, causes and consequences of global climate change NTRES/EAS 303: Introduction to Biogeochemistry NTRES 322: Global Ecology and Management NTRES 616: Forest Science & Management Seminar

FOR MORE INFORMATION

If you need more information, please feel free to contact one of the appropriate offices below.

Natural Resources major:

Tim Fahey, Natural Resources Advising Coordinator
tjf5@cornell.edu; 607-255-5470

Marian Hovencamp, Undergrad Program Assistant
mth6@cornell.edu; 607-255-2809

Admissions:

College of Agriculture and Life Sciences
Website: www.cals.cornell.edu/oap/admissions
607-255-2036

University Admissions
Website: www.admissions.cornell.edu
607-255-5241

Financial Aid:

Website: www.admissions.cornell.edu/finaid/
607-255-5145

Cornell Abroad:

Website: www.einaudi.cornell.edu/cuabroad
607-255-6224; e-mail: cuabroad@cornell.edu

CALS Career Development Office:

Website: www.cals.cornell.edu/oap/careers/

607-255-2215

CALS Counseling and Advising:

Website: www.cals.cornell.edu/oap/advising
607-254-5386

CALS Minority Program:

Website: www.cals.cornell.edu/oap/minority

607-254-5385 or calsminpro@cornell.edu