

# One Major – Six Concentrations



## Natural Resources Conservation

Undergraduate Major

Department of  
Environmental Conservation  
University of Massachusetts Amherst

Conserving Earth's biological diversity and safeguarding the benefits or "ecosystem services" that functioning ecosystems provide humans are two major objectives of natural resources conservation. As human populations increase and natural resources and habitats become more limited, there is a critical need for trained conservation professionals in natural resources conservation.

This major provides students with the academic background and professional training to pursue careers in the rapidly growing field of natural resources and environmental conservation.

Visit our website to learn more and see a list of courses, career opportunities, and contact information.

Visit [eco.umass.edu](http://eco.umass.edu)

Call 1(413)545-2665

# Natural Resources Conservation

## Degree Program Focus

The Natural Resources Conservation major provides students rigorous academic training in the natural, conservation, and social sciences with hands-on field skills and field experiences from summer jobs, internships, and cooperative education positions with conservation organizations and the green industry. Students learn about the ecology of terrestrial and aquatic ecosystems, and how these systems can be managed to conserve biodiversity and protect ecosystem functions while providing sustainable benefits to society.

**Natural Resources Conservation majors focus on one of the following six concentrations:**

- Environmental Conservation
- Fisheries Ecology & Conservation
- Forest Ecology & Conservation
- Urban Forestry & Arboriculture
- Water Resources
- Wildlife Ecology & Conservation

## Career Path

NRC concentrations prepare students for professional employment in state, federal, and non-profit conservation organizations; environmental consulting firms and the green industry; or, with graduate training, in positions such as:

- Foresters and plant ecologists
- Wildlife & Fisheries technicians / biologists
- Park managers and rangers
- Naturalists and environmental educators
- Outdoor recreation specialists
- Watershed scientists, Water and land use planners
- Arborists & Urban foresters
- Environmental lawyers and policy-makers
- Conservation law enforcement officers

## Contact Us

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# Environmental Conservation Concentration



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# Environmental Conservation

## Concentration Focus

Environmental Conservation is designed as an option for students interested in developing an educational focus in the broad area of Environmental Studies for one of the many areas of the environment and conservation not directly covered by other concentrations in the NRC major, including the social and physical sciences, and may be able to compliment them with courses in the arts, humanities, business, and education. You might focus on one of the following areas within the concentration:

- Biodiversity conservation
- Energy and the environment
- Environmental education / communication
- Environmental law enforcement / legal studies
- Land and water resources
- Natural resource and conservation policy
- Sustainable development
- Urban stewardship

Students are encouraged to take advantage of the Domestic Exchange and Education Abroad programs, as well as seasonal internship programs, to enhance their degree.

## Career Path

The Environmental Conservation concentration prepares students for positions such as:

- Conservation specialist / Technician
- Ecologist / Naturalist
- Conservation law enforcement
- Environmental educator / Writer / Journalist
- Land manager
- Natural resource manager / Technician
- Outdoor adventure guide
- Park naturalist / Ranger
- Zoo keeper

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# Fisheries Ecology & Conservation Concentration



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# Fisheries Ecology & Conservation

## Concentration Focus

Fisheries Ecology & Conservation provides students with the essential conservation science education in the biology and ecology of fish and other aquatic animals as well as the freshwater and marine ecosystems in which they reside. This involves learning about the structure and function of aquatic systems and their inhabitants; how to manage, conserve and restore fish and aquatic animal populations and their habitats; how to develop sustainable fisheries programs; effects of land use, water flow and contaminants on aquatic ecosystem health and fish community structure; and how to conserve and enhance biological diversity.

Becoming a fisheries professional requires talent, personal commitment, enthusiasm, sound technical training, and special skills. An essential component of the concentration involves obtaining hands-on field skills as part of the coursework, and field experiences from summer jobs, internships, and cooperative education positions with state, federal, and international conservation organizations.

Our curriculum will provide the knowledge and skills necessary for entry-level employment in fisheries conservation professions, or to continue graduate training in fisheries ecology and conservation biology. This concentration also provides the training and coursework required to qualify for professional certification by the American Fisheries Society. In addition, an undergraduate can earn a certificate in marine sciences through the Five College Coastal and Marine Sciences Program.



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# Forest Ecology & Conservation Concentration

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# Forest Ecology & Conservation

## Concentration Focus

Forest Ecology & Conservation is concerned with all aspects of the conservation and management of the forest vegetation covering 40 percent of the earth's land surface.

Forest ecosystems are vital in providing wildlife habitat, protecting watersheds, preserving wilderness and other forms of outdoor recreation opportunities, maintaining biodiversity of both plants and animals, sustainably producing wood, paper, and fiber products to meet societal needs, and even controlling global climate.

The study of forestry at the university is based on an understanding of the ecological interactions of trees and other plants, animals, soils, water, and climate. The



concentration emphasis is on conservation challenges unique to the urbanized Northeast where high population densities of citizens depend on ecosystem services from forests, most of which are owned by a complex matrix of private families, individuals, non-profit conservation organizations, and state and local governments.

The goal of forestry, especially in this complex social environment, is to sustainably maintain the provision of the full suite of benefits into the future. This concentration is nationally accredited by the Society of American Foresters.

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# Urban Forestry & Arboriculture Concentration



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# Urban Forestry & Arboriculture

## Concentration Focus

Urban Forestry & Arboriculture involves the management of trees in cities and suburbs, where more than 80% of people in the United States live. Globally, 95% of people live on only 10% of the world's land. As this trend of urbanization continues, there will be greater pressure to make cities livable.

When land is developed, arborists and urban foresters strive to preserve trees. In cities, they plant trees to maximize the benefits such trees provide and minimize the costs associated with maintaining such trees.

Trees take on special importance in urban areas, where their greatest value is for aesthetics, climate modification, and habitat for urban wildlife. Urban,



residential, and park environments are especially challenging for trees due to compacted soils, pavement, utility lines, and buildings. Urban foresters and arborists work to ensure healthy populations of trees to provide sustained benefits to billions of people.

Students in the Urban Forestry and Arboriculture concentration are qualified for professional credentials through examination by both the Massachusetts Arborist Association and the International Society of Arboriculture. A two-year A.A.S. degree in Arboriculture is also available through the Stockbridge School of Agriculture (<http://stockbridge.cns.umass.edu/>)

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# Water Resources Concentration



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# Water Resources

## Concentration Focus

The Water Resources concentration engages students in coursework for developing ecologically sound and economically efficient water management policies and programs.

Water is essential to life and is a critical resource that needs careful management to sustain human populations and ecosystems. Students will develop skills in understanding and applying concepts to manage water resources with applications related to ecosystem impacts, water quality, climate change, storm water, and water supply.

A problem-solving approach will be used to develop a systems-based and multidisciplinary perspective. Students will gain in depth understanding and skills related water quantity and quality, hydrology, economics, and management. Water issues and approaches related to local, regional, and global scales are explored.



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# Wildlife Ecology & Conservation Concentration



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# Wildlife Ecology & Conservation

## Concentration Focus

Wildlife Ecology & Conservation provides students with the essential conservation science education to study, conserve and protect wildlife populations, and the land and water environments on which they and we depend. This involves learning about the biology and ecology of wildlife; how to manage, conserve and restore wildlife populations and their habitats; how to resolve human-wildlife conflict and wildlife disease problems; and how to conserve and enhance biological diversity.

Becoming a wildlife professional requires talent, personal commitment, enthusiasm, sound technical training, and special skills. An essential component of the concentration involves obtaining hands-on field skills as part of your coursework, and field experiences from summer jobs, internships, and cooperative education positions with state, federal and international conservation organizations.

Our curriculum will provide you with the knowledge and skills necessary for entry-level employment in wildlife conservation professions,



or to continue graduate training in wildlife ecology and conservation biology. This concentration also provides you with the training and coursework required to qualify for professional certification by The Wildlife Society.

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