

# NATURAL RESOURCE ECOLOGY AND MANAGEMENT

Faculty in the Department of Natural Resource Ecology and Management (NREM) have expertise in conducting interdisciplinary instruction, research and extension education that focuses on the natural resources of fisheries, forests, rangeland, and wildlife within and beyond the boundaries of Oklahoma. An important goal of the NREM faculty is to increase public understanding of the ecology and management of these natural resources as they relate to agriculture, forest and livestock production, hunting and fishing, wildlife habitat, ecotourism, other ecosystem services and the conservation of natural ecosystems.

The NREM faculty supports undergraduate and graduate programs in the general areas of fisheries, forestry, rangeland, and wildlife. The NREM curriculum prepares students to plan, implement and research the management, protection, and sustainable use of natural resources within Oklahoma and throughout the world. The department provides an integrated education in renewable natural resource management, conservation and utilization, land use policy and ethics, as well as a valuable perspective for understanding and solving critical contemporary environmental problems at local, regional, and global scales.

Courses in NREM undergraduate degree options fulfill the requirements for many applied and professional careers in the natural resource disciplines, including preparation for graduate programs, veterinary school, and certification with the Society of American Foresters. NREM also maintains strong ties to The Wildlife Society, The American Fisheries Society and The Society for Range Management. Graduates may be employed by governmental agencies, non-profit organizations, private industry, or individuals. Federal agencies hiring NREM graduates include U.S. Department of Agriculture, U.S. Forest Service, USDA-Natural Resources Conservation Service, U.S. Bureau of Land Management, U.S. Geological Survey, U.S. Fish and Wildlife Service, USDA-Agricultural Research Service, Bureau of Indian Affairs, National Park Service, Animal and Plant Health Inspection Service, and the U.S. Environmental Protection Agency. In addition, state, county, and municipal governments, including Oklahoma Forestry Service and Oklahoma Division of Wildlife Conservation, employ NREM graduates in a variety of resource management consultant, restoration, service, and technical positions.

## **Natural Resource Ecology and Management Undergraduate Degree Options**

Fisheries and Aquatic Ecology is designed for students with interest in the management of fish and other aquatic species populations and their habitats in streams, rivers, lakes, and ponds. Students gain the skills in research techniques and methodology in fisheries science, including habitat measurements, population sampling techniques and abundance estimation, age and growth analysis, recreational surveys, data analysis and report writing. Recreational use, sustainable management of fish populations, natural resource policy and land use ethics are additional topic areas emphasized.

Forest Ecology and Management emphasizes the science-based conservation and management of forest lands, ecosystems, and related natural resources. Students gain skills that are necessary for the measurement, assessment, valuation and development of management strategies for forests and related natural resources. Successful completion of the curriculum will provide competency in the general areas of basic science, forest biology, forest mensuration, forest

plant species identification, forest economics, natural resource policy, decision-making, problem solving, and communications. The option is accredited by the Society of American Foresters (SAF). Requirements for this option include the successful completion of field camps in May, which are scheduled to follow the sophomore and junior spring semesters and are held annually in diverse forest settings. Field forestry skills, forest ecology, integrated natural resource management, timber cruising, resource economics and land use ethics are emphasized at camp and integrated in the senior-level capstone course.

Rangeland Ecology and Management emphasizes understanding management of grasslands, shrub lands, and savannas for livestock forage production, wildlife habitat, and other ecosystem services such as carbon sequestration, soil health and off-site water yield. Courses teach the effects of wildfire, invasive species and other disturbances on biotic and abiotic processes, and strategies for restoration of damaged rangeland ecosystems. The importance of prescribed fire as a rangeland restoration tool, livestock grazing management, and the identification and value of native grass and forb species for livestock forage, wildlife food and habitat cover, and other uses are emphasized. Students learn to integrate their knowledge of soil, water, vegetation, wildlife habitat and natural resource policies into management of public or private rangelands for multiple uses.

Wildlife Ecology and Management provides insight into the biological basis for management of wildlife populations and habitats, with emphasis on current management problems. Students gain the skills in wildlife research techniques, including aging and sexing, wildlife and vegetation sampling, and wildlife population and habitat analysis through field sampling and use of wildlife population models. Students learn the fundamentals of why certain ecosystems support certain wildlife species and how these species are adapted to those environments. Recreational use, sustainable management of wildlife populations, natural resource policy and land use ethics are additional topic areas emphasized.

Wildlife Biology and Pre-Veterinary Science provides the ecological background and training in natural wildlife science and population dynamics in addition to the basic sciences necessary to prepare students for graduate education in veterinary medicine. The option combines research and management training in population ecology with basic biology, anatomy and chemistry of wildlife species and their habitat requirements.

Students entering the NREM department are encouraged to join and become active members of one of many student organizations: Society of American Foresters, Society for Range Management, The Wildlife Society, and the American Fisheries Society. Participation in one or more of these organizations provides students the opportunity to attend state, regional or national meetings where they will gain valuable advantages through networking, student competitions and interacting with various career-related activities.