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College of Natural Resources and Environment
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Research Centers and Cooperatives

April 2011

College of Natural Resources and Environment

• Fish and Wildlife Conservation • Forest Resources and Environmental Conservation • Geography • Wood Science and Forest Products • • College of Natural Resources and Environment National Capital Region • Natural Resources Distance Learning Consortium • • Center for Environmental Applications of Remote Sensing • Center for Forest Products Business • • Center for Unit Load Design • Conservation Management Institute • Forest Modeling Research Cooperative • • Forest Productivity Cooperative • Forest Operations and Business Research Cooperative • Freshwater Mollusk Conservation Center • • Horseshoe Crab Research Center • National Marine Fisheries Service Recruiting, Training, and Research Unit • • National Science Foundation Center for Advanced Forestry Systems • Reynolds Homestead Forest Resources Research Center • • Sustainable Engineered Materials Institute • USDA Forest Service and Natural Resources Conservation Service National Agroforestry Center • • USDA Forest Service Southern Research Station: Center for Aquatic Technology Transfer, Forest Watershed Science Research Work Unit, Utilization of Southern Forest Resources Research Work Unit • USGS Patuxent Wildlife Research Center • • USGS Virginia Cooperative Fish and Wildlife Research Unit• Virginia Water Resources Research Center • Wood-Based Composites Center •

VirginiaTech
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Research Centers and Cooperatives

Natural Resources Distance Learning Consortium

(www.nrdlc.org)

Virginia Tech serves as the lead institution in this growing consortium of accredited universities, established in 2003. Members currently offer over 400 graduate and undergraduate courses, 15 graduate certificates, and 12 graduate (master's) degrees in natural resources management and related disciplines. Whether taking an "a la carte" approach to professional development or enrolling in a certificate or degree program, students can customize their academic experience with courses from different universities to meet their specific career goals.

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Center for Environmental Applications of Remote Sensing

(http://cears.cnre.vt.edu/)

The mission of the Center for Environmental Applications of Remote Sensing (CEARS) at Virginia Tech is to provide interdisciplinary leadership in remote sensing through formal instruction, outreach, cooperative research, and consulting. CEARS contributes to applications of the science and technology necessary to better understand effects of both natural and human-induced variability and change within the Earth system. CEARS focuses on three pressing priorities: (1) to further our understanding of the Earth's major biogeochemical cycles, (2) to improve understanding of the factors affecting biological diversity and ecosystem structure and functioning, and (3) to develop a systematic understanding of changes in land uses and land cover that are critical to ecosystem functioning and services and, human welfare.

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Center for Forest Products Business: Alfred P. Sloan Foundation Affiliate

(http://www.cfpb.vt.edu/)

The Center for Forest Products Business was established to help forest products firms improve the management of their operations and the marketing of their products. Our mission is accomplished through educating business professionals for employment in the forest products industry, providing useful market research, and offering continuing education for forest products industry professionals. The center's research and education efforts focus on understanding the consumer of forest products and how effectively forest industries are able to provide for their needs. Cooperators include faculty members and students within the College of Natural Resources and Environment and the Pamplin College of Business, forest industry partners, trade associations, and USDA Forest Service scientists from the North and Southern research stations. The center is part of the Alfred P. Sloan Foundation's Industry Studies Program to conduct scholarly research that benefits from deep industry knowledge and engagement with forest products industry practitioners.

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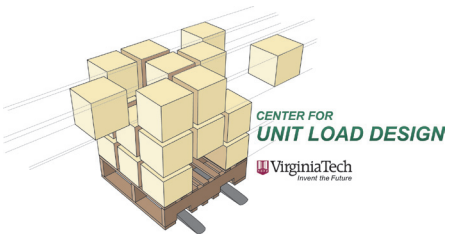

Center for Unit Load Design

(http://www.unitload.vt.edu)

The Center for Unit Load Design at Virginia Tech is the only research facility in the United States that performs comprehensive research and development work, provides technical assistance, and offers educational programs focusing exclusively on the interactions of packaging, pallets, and material handling equipment. Research at the center provides information and technologies that optimize the relationship between the design and performance of unit load material handling systems, which helps reduce company costs and environmental impact while increasing the safety of the nation's transport system. The center provides a wide range of evaluations to assist companies in the development of new, more efficient pallet, packaging, and equipment designs, and performs customized and standard tests, including those specified by the American Society of Testing Materials, American National Standards Institute, International Organization of Standards, and International Safe Transit Association, as well as government agencies.

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Conservation Management Institute

(http://www.cmi.vt.edu/)

The Conservation Management Institute works with natural resource management agencies and organizations to solve problems effectively and efficiently. The institute provides information management and spatial information technology services, field ecological expertise, professional development courses, and administrative coordination activities to partners around Virginia, the region, and internationally.

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Forest Modeling Research Cooperative

(http://www.frec.vt.edu/ForestModelingResearchCooperative/)

The Forest Modeling Research Cooperative is an outgrowth of the Loblolly Pine Growth and Yield Research Cooperative that was founded at Virginia Tech in 1979 for the purpose of developing growth and yield models for intensively managed loblolly pine plantations. The current name reflects a broad interest in and an expanded scope of modeling work that includes diverse species, production objectives, and regions. Although loblolly pine remains a primary research thrust, the FMRC is addressing an expanded array of growth and yield modeling projects both in the United States and South America.

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Forest Productivity Cooperative

(http://www.forestnutrition.org/)

The Forest Nutrition Cooperative is an international partnership working to increase the productivity, profitability, and sustainability of plantation forestry throughout the Americas. The program is jointly administered by co-directors located at Virginia Tech, North Carolina State University, and the Universidad de Concepcion in Chile. Tom Fox serves as the co-director at Virginia Tech. There are currently 52 members from forest industry that manage more than 10 million hectares of forest land in North and South America. Members include forest industry, allied industries, and governmental agencies that operate in eight countries (United States, Mexico, Chile, Colombia, Venezuela, Argentina, Uruguay, and Brazil).

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Forest Operations and Business Research Cooperative

(http://www.forestoperations.frec.vt.edu)

In 1973, the Virginia Tech Industrial Forest Operations program was initiated as a cooperative effort among the pulp and paper industry, forest equipment manufacturers, and Virginia Tech to provide undergraduate and graduate education programs. These programs were designed to prepare foresters for careers in wood procurement, working with independent contractors, and overseeing the operational aspects of forest industries. To create opportunities for graduate students, research became a larger focus in 1984 when faculty members and students began regularly cooperating with forest industry and equipment manufacturing personnel in the selection of research focus areas and projects. The program has since evolved with a name change to Forest Operations and Business to better reflect students' and employers' needs in a changing forest industry. Based in the Department of Forest Resources and Environmental Conservation at Virginia Tech, the Forest Operations and Business Research Cooperative taps a broad range of university and industry resources to provide students with educational and research opportunities that address forest industry needs. The cooperative works in four major research areas related to forest management activities:

1. Evaluating operations with regard to safety, productivity, planning, and logistics
2. Creating tools to improve the efficiency and profitability of forest operations
3. Analyzing forest business issues such as supply chain management and biomass utilization
4. Evaluating the environmental impacts of forest operations

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Freshwater Mollusk Conservation Center

(http://www.fishwild.vt.edu/mussel/)

The Freshwater Mollusk Conservation Center at Virginia Tech is a cooperative research and propagation facility to restore and recover endangered freshwater mollusks in Virginia and adjacent states. Beginning in 1978, the Virginia Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, began life history research on a suite of recently listed endangered mussels. Numerous graduate student theses and dissertations over roughly a 20-year period provided the knowledge and expertise to implement a propagation program. In 1997, the first propagated juveniles of a federally endangered species were released to augment reproduction in that population. In 2000, a grant from the National Fish and Wildlife Foundation and matching funds from other agencies enabled the center to construct a 2,700 foot building and pond complex to enhance its conservation work. Over the last 10 years, the annual production of juveniles has gradually increased, such that roughly 50,000-100,000 juveniles of 10-12 species are typically produced each year for release to natal rivers.

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Horseshoe Crab Research Center

(http://www.nmfs.vt.edu/HSCwebsite)

The Horseshoe Crab Research Center at Virginia Tech is the only multi-investigator research unit dedicated to providing essential information needed for sustainably managing the horseshoe crab resource. Since its creation in 2001, the HCRC has produced a steady stream of information useful for scientific and management purposes to conserve the horseshoe crab resource. Horseshoe Crab Research Center scientists are actively participating members of both the horseshoe crab scientific and management communities. The research center is also engaged in the training of young professionals and regularly engages in outreach to the general public.

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National Marine Fisheries Service Recruiting, Training, and Research Unit

(http://www.nmfs.vt.edu)

The National Marine Fisheries Service Recruiting, Training, and Research Unit was established to recruit outstanding students from across the country into the field of marine resources population dynamics. The management of natural resources is heavily dependent on the work of highly skilled quantitative biologists. The unit is bringing top graduate students, funding, jobs, and exciting research opportunities to the college. Because of this unique collaboration of federal and university scientists, Virginia Tech has become a training center for the nation's marine agencies, and the Commonwealth of Virginia is playing a greater role in the research and sustainable management of economically important living marine resources. Note that the National Marine Fisheries Service is a line office of the National Oceanic and Atmospheric Administration.

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National Science Foundation Center for Advanced Forestry Systems

(http://cnr.ncsu.edu/fer/cafs/)

The Center for Advanced Forestry Systems is a National Science Foundation Industry/University Cooperative Research Center (NSF I/UCRC) that bridges top forestry research programs with industry members to solve complex, industry-wide problems. The mission of CAFS is to optimize genetic and cultural systems to produce high-quality raw forest materials for new and existing products by conducting collaborative research that transcends species, regions, and disciplinary boundaries. CAFS is a multi-university center that works to solve problems through multi-faceted approaches and questions on multiple scales, including molecular, cellular, individual-tree, stand, and ecosystem levels. This effort relies on the participation of scientists with expertise in biological sciences (biotechnology, genomics, ecology, physiology, and soils) and management and processing (silviculture, bioinformatics, modeling, remote sensing, and spatial analysis).

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Reynolds Homestead Forest Resources Research Center

(http://www.arec.vaes.vt.edu/reynolds-homestead/)

The Reynolds Homestead Forest Resources Research Center in Critz, Va., was created in 1969 to study forest biology, including genetics, physiology, and soils. Specific projects include harvesting to increase forest health and productivity, site preparation, forest fertilization, loblolly pine physiology, and forest herbicide testing. Facilities include 780 acres, a two-acre pond, house, apartment, lab and office space, greenhouse, coolers, two tractor sheds, and an additional seven acres dedicated to the continuing education center and the Reynolds family museum house and cemetery.

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Sustainable Engineered Materials Institute

(http://www.semi.vt.edu)

The Sustainable Engineered Materials Institute involves the cooperative efforts of faculty, staff, and students from several departments who have a shared interest in promoting the wise management of timber resources to ensure an economic and environmentally sustainable supply of renewable resources to match future demand for building construction materials and allied products. The focus of SEMI is on research, although the institute participates in the instructional and outreach missions of the university. Research efforts are directed in several areas, including the materials science of wood in relation to the processing and performance of wood-based composite products, wood property relationships with silvicultural practices, engineering design of composite materials and the structures made from them, and computer simulation modeling of tree growth and yield, composite design, composite manufacturing, and composite performance. The long-term goal of SEMI is to design composite products from the wood of trees grown on intensively managed forest plantations.

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USDA Forest Service and Natural Resources Conservation Service National Agroforestry Center

(http://www.unl.edu/nac/)

The National Agroforestry Center is a partnership with the USDA Forest Service Research and State & Private Forestry units, and the Natural Resources Conservation Service (NRCS). The center accelerates the application of agroforestry through a network of partners who conduct research, develop technologies and tools, and coordinate demonstrations and training of natural resource professionals. The Blacksburg unit of the center is focused on forest farming with non-timber forest products, particularly integrating medicinal and edible forest products under trees. Current efforts include sustainable harvest and management of ramps, an edible forest product that is embedded in Appalachian culture. Long-term research of black cohosh, a native medicinal plant, with volunteer citizen scientists is leading to recommendations on improved management of this important forest product, and training natural resource conservationists. The Forest Farming Network is working with private forest landowners to examine the potential of growing native medicinal plants under natural tree cover.

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USDA Forest Service, Southern Research Station, Center for Aquatic Technology Transfer

(http://www.trout.forprod.vt.edu/catt/)

The Center for Aquatic Technology Transfer has been working with resource managers in the USDA Forest Service's Southern and Eastern regions and researchers from the Southern Research Station since 1995 to provide innovative solutions to aquatic resource management challenges on national forests. The center offer a broad range of services to national forests in the Southern and Eastern regions, ranging from logistical support to full project planning, implementation, reporting, and follow-up.

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USDA Forest Service, Southern Research Station, Forest Watershed Science Research Work Unit

(http://www.srs.fs.usda.gov/cfwr/)

The mission of the Forest Watershed Science Research Work Unit is to provide information, methods, and guidelines to implement and evaluate ecosystem management concepts, practices, and effects on water, soil, and forest resources. The Blacksburg team seeks to acquire new knowledge about factors that influence the distribution, abundance, and production of trout and other coldwater fish in the southern Appalachians and to provide the technical basis for protecting, enhancing, and restoring coldwater streams and their faunas. Current research focuses on impacts of climate change on streams habitats, habitat fragmentation by barriers to movement of aquatic organisms, riparian management, and the ecology of large wood streams.

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USDA Forest Service, Southern Research Station, Utilization of Southern Forest Resources Research Work Unit

(http://www.srs.fs.usda.gov/usfr/)

The mission of the Utilization of Southern Forest Resources Research Work Unit is to define and apply chemistry, materials science, forest management, and engineering principles to the characterization and utilization of southern forest resources for maximum societal benefits with minimal environmental consequences. The Blacksburg team is currently focusing on research in the areas of green building, pallet repair and recycling, and urban tree monitoring.

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USGS Patuxent Wildlife Research Unit

(http://www.pwrc.usgs.gov/)

The Patuxent Wildlife Research Center operates a Park Studies Unit at Virginia Tech to conduct research and technical assistance to national parks and other protected natural areas nationwide. Research is focused on recreation resources management, recreation ecology (visitor impacts to protected environments), carrying capacity, and nature-based tourism.

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Virginia Cooperative Fish and Wildlife Research Unit

(http://www.coopunits.org/Virginia/)

The Cooperative Research Unit program was established in 1935 to enhance graduate education in fisheries and wildlife sciences and to facilitate research between natural resource agencies and universities on topics of mutual concern. The Virginia Cooperative Fish and Wildlife Research Unit is a partnership among the U.S. Geological Survey, the Virginia Department of Game and Inland Fisheries, Virginia Tech, and the U.S. Fish and Wildlife Service. Staffed by federal personnel, the unit conducts research on renewable natural resource questions, participates in the education of graduate students, provides technical assistance and consultation on natural resource issues, and provides continuing education for natural resource professionals.

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Virginia Water Resources Research Center

(http://www.vwrrc.vt.edu/)

The Virginia Water Resources Research Center was established at Virginia Tech in 1965 under the federal Water Resources Research Act of 1964 and designated as a state agency in 1982 by the Virginia General Assembly under the Code of Virginia (§23-135.7:8). The Code of Virginia explains that the VWRRC exists "for the purposes of developing, implementing, and coordinating water and related land research programs in the commonwealth and transferring the results of research and new technology to potential users." All colleges and universities in the commonwealth are served by the VWRRC. The center has a long-standing tradition of providing research and educational opportunities to future water scientists, promoting research on practical solutions to water resources problems, and facilitating timely transfer of water science information to policy- and decision-makers and the general public.

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Wood-Based Composites Center

(http://www.wbc.vt.edu)

The Wood-Based Composites Center is an National Science Foundation multi-university Industry/ University Cooperative Research Center housed in the Department of Wood Science and Forest Products at Virginia Tech. The WBC, established with industry funding in 1999, focuses on fundamental research and education for the purpose of advancing the science and technology of wood-based composite materials. Industrial members interact on a regular basis with students and faculty from the center's academic partners: Oregon State University, the University of Maine, the University of British Columbia, and Virginia Tech.

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Your Notes