

Virginia
Cooperative
Extension

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A Few Words from Bob Smith

April showers are greening things up in Blacksburg, and students are spending more time enjoying themselves on the Drillfield, so it must be spring. Spring also reminds me of the importance of our natural resources programs in the college, and all that our faculty and students do to help maintain a sustainable environment for future generations.

We are blessed to have an abundance of natural resources in the United States, but unfortunately we are not always good stewards of our resources. One of our goals in the College of Natural Resources and Environment is to provide an education that helps create a "natural resources citizen." Students and faculty, through education and their service in communities, help everyone to better understand the importance of the choices we each make with regard to our environment and natural resources. Our students and faculty work on stream restoration projects to remove debris and create better habitats for fish and wildlife. They cooperate with businesses and conduct energy audits to demonstrate where energy savings can be made. They plant riparian buffers to keep large animals out of the water, help shoreline stabilization, and create a better habitat.

Last week the College of Natural Resources and Environment celebrated Earth Week/Arbor Day with a tree planting ceremony. Eric Wiseman, assistant professor of urban forestry in the Department of Forest Resources and Environmental Conservation, worked with Virginia Tech's campus architect to find a suitable location to plant the trees, helped select the trees, and assisted the grounds department with the logistics. Fifteen urban forestry students served as team leaders, teaching other student groups and the public how to plant trees. Virginia Tech President Charles W. Steger and Virginia Secretary of Natural Resources Doug Domenech presided at the celebration and helped plant the ceremonial tree. After the event, Secretary Domenech visited faculty in our departments of Forest Resources



Janaki Alavalapati, forest resources head, President Charles W. Steger, and Doug Domenech, Virginia Secretary of Natural Resources, plant a ceremonial tree at Virginia Tech's Earth/Arbor Day Ceremony.

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ENGAGEMENT matters

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Tech, Virginia State University, the U.S.
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governments.

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and Environmental Conservation and
Fish and Wildlife Conservation to
see research and teaching efforts for
natural resource issues.

In this issue of *Engagement
Matters*, Michelle Prysby shares
the success of the Virginia Master
Naturalist Program and Henry
Quesada discusses a study
abroad trip to Costa Rica, where
students spent 12 days studying
environmental issues, ecotourism,
and examining sustainability within
the country. Neil Clark tells us
about a program for vegetation
management along power lines,
and Jennifer Gagnon shares a new
forestry program for real estate
agents. If you have any questions
regarding our engagement efforts,
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FEATURE

Virginia Master Naturalist Volunteers Contribute to Natural Resource Education, Citizen Science, and Stewardship With Virginia Cooperative Extension

Michelle Prysby
Virginia Master Naturalist Program Coordinator
College of Natural Resources and Environment

The solutions to many natural resource issues lie, at least in part, with engaging the public. Our natural resource Extension programs engage landowners, professionals, industry, and youth. The Virginia Master Naturalist Program reaches an additional category of individuals: volunteers. The Virginia Master Naturalist Program is a volunteer training and service program providing education, outreach, and service to benefit natural resources and natural areas in Virginia. Volunteer training includes 40 hours of classroom and field time in natural history and natural resource management.

To become a Certified Virginia Master Naturalist, each volunteer must complete 40 hours of service in education, citizen science, or stewardship. The program currently is sponsored jointly by Virginia Cooperative Extension, Virginia Department of Conservation and Recreation, Virginia Department of Forestry, Virginia Department of Game and Inland Fisheries, and the Virginia Museum of Natural History. In addition, the 30 program chapters across the state work with more than 300 local partners, including schools, nature centers, nonprofits, and local governments.

In 2010, these volunteers contributed more than 44,400 hours of service to education, citizen science, and stewardship projects to benefit Virginia's natural resources. They also contributed more than 15,700 hours towards the administrative work of running the local chapters. In total, the more than 60,000 hours of volunteer service, just in 2010, is worth more than \$1.2 million (www.vaservice.org/go/volunteer/statistics/).

In recognition of its strong partnerships and volunteer work, the Virginia Master Naturalist Program has been awarded a 2011 gold-level Governor's Environmental Excellence Award. These awards recognize governmental programs, nonprofits, and businesses whose actions have significantly benefited the environment and Virginia's natural resources (www.deq.virginia.gov/info/geea/2011/homepage.html).

In 2010, Virginia Master Naturalist (VMN) chapters reported 441 hours contributed directly to Virginia Cooperative Extension (VCE), mainly through leading or assisting with programs for natural resource 4-H clubs and camps. Several chapters have organized their own 4-H Junior Naturalist clubs, and we are currently investigating the feasibility of a more unified statewide Junior Master Naturalist program. Master Naturalists also have assisted VCE at a number of workshops and special events, such as county fairs.

More notable, however, is the overall amount of time that VMN volunteers spend on education projects, most of which can easily be seen to relate to VCE's mission and new strategic plan, even when they are not specifically associated with an Extension office. Nearly one-third of all VMN volunteer time in 2010 was spent on education projects, totaling 18,000 hours valued at \$376,740 (www.vaservice.org/go/volunteer/statistics/). These projects include programs for youth, such as classroom activities, Meaningful Watershed

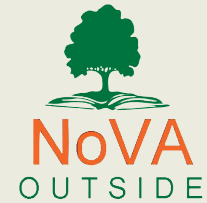
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Educational Experiences, and schoolyard habitat projects. They also include programs for adults, such as a Plant Natives campaign on the Eastern Shore, habitat programs for homeowners, and talks for a variety of community groups.

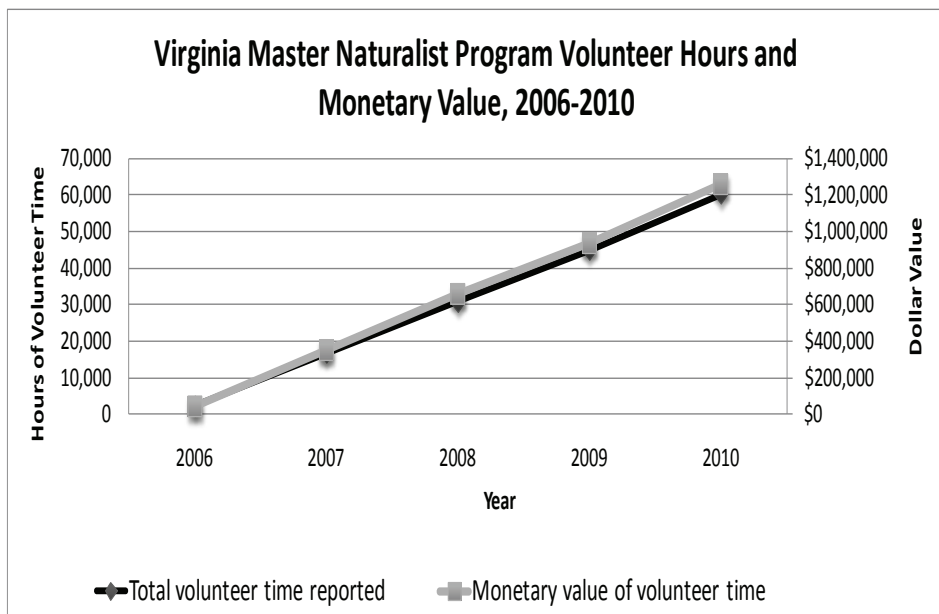


Virginia Master Naturalist volunteer Les Lawrence teaches a school group about the importance of trees and forest habitats during their field trip to New Quarter Park in York County. (Photo by Lisa Deaton, Virginia Department of Forestry)



NoVA OUTSIDE is an organization developed in conjunction with members of the Arlington Regional Master Naturalists with the mission of connecting children with nature. NoVA OUTSIDE applied for and recently received a social justice grant from the Unitarian Universalist Church of Arlington to increase the time students spend outside connecting with nature in afterschool programs. The grant focuses on schools with more than 60 percent of the students receiving free or reduced lunch. NoVA OUTSIDE is currently working with 10 schools in Northern Virginia (four in Arlington and three each in Alexandria and Fairfax). The program provides weekly activity plans for the afterschool staff, as well as seasonal training on several of the activities. Six master naturalist members currently serve as school liaisons to help implement the program and further train the staff.

Adapted from the Arlington Regional Master Naturalist Chapter 2010 Annual Report



Over the lifetime of the program, Virginia Master Naturalist volunteers have contributed a total of 154,932 hours of service, valued at more than \$3.2 million.

Real Forestry for Real Estate

Jennifer Gagnon, Extension Associate, Virginia Forest Landowner Education Program
 Department of Forest Resources and Environmental Conservation

K. Jason Fisher, Extension Forester, Virginia Cooperative Extension, Central Region
 College of Natural Resources and Environment

Nonindustrial private forest landowners are, and will soon become even more, important to the future health and productivity of Virginia's forests, as family forests are poised to undergo an unprecedented change in ownership. In Virginia, 20 percent of private forests are owned by landowners over the age of 65 who own 38 percent of Virginia's forestland. This land will soon be either transferred to their heirs or sold. In fact, one in five acres is owned by people who plan to sell or transfer some or all of their land in the next five years. Most people buying forestland (74 percent) are first-time forest owners, and their tenure is short. They tend to be well-educated and economically privileged, and think of themselves as responsible, caring stewards of the land. However, they often cite lack of knowledge as a reason for not engaging in forest management activities.

This forthcoming change in ownership presents an excellent opportunity for natural resources professionals to make contact with new landowners, to share management information, and to encourage these people to think of their woodlands as potential sources of income, wildlife habitat, recreational opportunities, firewood, and ecosystem services, all of which may be improved by active forest management. Engaging landowners early on may significantly increase their participation, as they are most receptive to learning about forest management during their first five years of ownership.

Some of the actions we would like new landowners to take include:

- Attend natural resource educational programs
- Be aware of natural resource agencies and what assistance they can provide
- Form a relationship with a professional forester/game biologist
- Develop land management goals and objectives
- Write a forest management plan
- Become involved in landowner associations

Through these actions, new landowners should acquire the knowledge and skills they need to be good stewards of the land, thereby protecting the future of Virginia's forestlands.

To reach landowners early in their tenure, the Virginia Forest Landowner Education Program (VFLEP) and the Virginia Tree Farm committee have developed a new program called Real Forestry for Real Estate. This program has two components. First, we have assembled new landowner packets. The goals of these packets are to make new forest landowners aware of (1) the importance of the resource they currently own, (2) opportunities for education and technical assistance, and (3) voluntary conservation programs, such as the Virginia Tree Farm. The packets also provide landowners with the resources necessary to become good stewards of their land. The packets contain information from VFLEP, Virginia Tree Farm, Virginia Department of Forestry, Virginia Forestry Association, Virginia Cooperative Extension, a tree identification book, and a postage paid postcard, which can be returned to receive additional information. This set of materials appeals to a variety of forest landowner motivations, while increasing their awareness of the many natural resource services available to them in Virginia.

The second component of this project involves providing continuing education opportunities for real estate professionals. We developed two 4-hour courses that the Virginia Association of Realtors is currently reviewing for continuing education credits. Once approved, we will offer 12 courses throughout Virginia. The courses focus on establishing the importance of forests and forestry in Virginia, as well as providing real estate professionals with tools to help them better understand the properties they are showing, thus increasing the appeal to potential buyers. At the end of each class, we will discuss the new landowner packets and distribute a set number to each participant with instructions to hand them out to clients interested in purchasing rural lands.

There will be three ways to measure the effectiveness of this project. First, every six months we will contact each real estate professional given the new landowner packets to determine how many they shared with clients. This will measure how many new landowners received the information. Second, the number of postcards returned requesting more information will be tallied. This will measure how many recipients of the information packets responded to this mode of communication. Finally, on the Virginia Forest Landowner Update website

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(cnre.vt.edu/forestupdate) there is an option to sign up for the quarterly newsletter of the same name. Two fields will be added to this signup form to help us determine if the participant found out about us through the new landowner packets. The first field will ask how long they have owned their property (to determine if they are new landowners) and the second field will ask how they heard about VFLEP (with a number of options to choose from, including from their realtor).

These numbers will be reported to the sponsoring agencies. If participants deem this a worthwhile way to contact new landowners and disseminate natural resource information, the project will continue as funding allows.

Seed money for this project (\$5,600) was provided by the Virginia Tree Farm Committee. The American Tree Farm System awarded an Education Grant (\$10,000) for project continuation.



One in five acres of forestland is owned by people who plan to sell or transfer some or all of their land in the next five years.



Information for the new landowner packets is contained in an attractive, professionally designed folder, which features logos of both the Virginia Forest Landowner Education Program and the American Tree Farm System.



MAY

JUN.

JUL.

AUG.

Online Events Calendar

For the most complete online listing of natural resource education events, visit cnre.vt.edu/forestupdate and click on “Events Calendar.”

Student-Centered Teaching Methods in Natural Resources Curriculum

Henry Quesada, Extension Specialist, Wood Products, Department of Wood Science and Forest Products
College of Natural Resources and Environment

In recent years, different methods of delivering education have emerged, especially in higher education institutions. Although face-to-face delivery continues to be the method of choice, online teaching (asynchronous and synchronous) is gaining more momentum, and lately the introduction of more green and sustainable curricula into natural resources programs have put more emphasis on student-centered methods rather than teacher-centered methods. Student-centered course design encourages student reflection as a way to integrate knowledge into the students' learning process. Student-centered teaching methods include active learning, cooperative learning, and inductive teaching and learning. Teaching-centered methods, such as lecturing, designing assignments and tests, and grading, provide little opportunity for students to learn independently.

Recently, the Department of Wood Science and Forest Products designed the course entitled Global Issues in Sustainability based on student-centered teaching methods with the goal of facilitating an academic and practical environment where students are able to understand how human dimensions, economic development, and policy affect the sustainability of natural resources such as water, forestry, and wildlife. The course was offered for the first time in spring 2010. The course objectives were to (1) connect the academics with the practice, (2) foster an effective interdisciplinary curriculum, (3) link students to work experience and job opportunities, and (4) engage and empower students in the realm of sustainability, natural resources, and environment.

The course was structured in three different phases. In phase I students met for seven weeks in a classroom to cover the fundamental materials for an excursion to Costa Rica. In Phase II the students took a 12-day field trip to Costa Rica, where they visited national parks and ecotourism private projects and learned about sustainability and natural resources from Costa Rican experts. The last phase consisted of student-led class meetings for seven weeks.

To address the first objective, connecting academics with practice, students were asked to conduct research on the sustainability of Costa Rica before their field trip. Students perceived the country as sustainable where economic development was highly dependent on tourism, and as a direct consequence, they thought the country would be clean, with neat infrastructure, and few social problems. Upon their return to the United States, the students were asked again for their perceptions of



Students pose in front of the Texas A&M Research Facility in Costa Rica.

Costa Rica as a sustainable country. Even though they still perceived the country as a sustainable one, direct observation of current issues affecting natural resources caused students to believe that the sustainability of the country is actually quite delicate.

The second objective, to foster an effective interdisciplinary curriculum, was accomplished by allowing students from different majors to register for the course. Students loved this configuration and learned about different perceptions of the same subject matter. One comment that reflects very well the accomplishment of this objective is the following:

"...I liked the diversity of student backgrounds on the trip. I learned as much from the other students as I did from the lectures and field trips. Nathan and Abby always offered a business perspective I would have never seen myself. Colin saw design and potential in buildings and landscapes that helped me understand the culture better. Alyssa used big words like paleosismicity, and now I kinda know what that means. I guess I am just saying that having diverse backgrounds really added to the trip for me..."

The third objective was to link students to work experiences and job opportunities. Several students saw opportunities in Costa Rica for future business applications within the realm of ecotourism and are

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actively pursuing these opportunities. They are networking with Costa Ricans with the hopes of securing future job and research interests.

Engaging and empowering students was the fourth objective of this course. When students were asked at the end of the course if they felt more empowered, the whole class responded that they did indeed. For instance, one student indicated that *"...The study abroad empowered me as a student in many ways. The most important way was that it showed me that I can view the world on a whole new level. It taught me that I don't always have to rely on papers and rankings to tell me information but that I could go to the problem and assess it myself..."* Another student wrote the following closing statement *"...I was very engaged by the situation in Costa Rica. I frequently take what I learned in Costa Rica and apply/compare it to many different things I encounter in my studies (particularly forestry and wild land usage)..."*

This course is currently being taught this spring We look forward to a new opportunity to continue improving our teaching efforts for the benefit of the future natural resources and environment leaders of the commonwealth.



Students head towards the zip lines in Fortuna.

Future Hokies Visit College of Natural Resources and Environment

Jennifer Gagnon, Extension Associate
Virginia Forest Landowner Education Program
Department of Forest Resources and
Environmental Conservation
College of Natural Resources and Environment

In April, Emily Nester with Virginia 4-H brought a total of 400 fourth graders and 20 teachers from eight elementary schools in Tazewell County to Virginia Tech to discuss careers. Students visited the departments of Athletics, Horticulture, and Dairy Science, as well as the Virginia Bioinformatics Institute and the College of Natural Resources and Environment (CNRE). This was the continuation of a long-standing program developed by retired 4-H Specialist Jeff Kirwan.

A cadre of volunteers was assembled to greet and lead the groups through different activities at CNRE. Volunteers consisted of students and faculty from the Virginia Tech departments of Forest Resources and Environmental Conservation (FREC) and Wood Science and Forest Products, as well as the Virginia Water Center and CNRE staff. Janaki Alavalapati, FREC department head, and Bob Smith, CNRE associate dean of engagement, were on hand to welcome the groups.

The fourth graders toured Cheatham Hall, where volunteers used the hallway displays and posters to discuss professions in natural resources. Students also participated in the Project Learning Tree "Adopt a Tree" activity. For this activity, small groups adopted and collected data on one of several trees planted near Cheatham Hall and then shared this information with their peers. The activity exposed them to algebra, units of measurement, observation skills, and public speaking.

When asked, students emphatically replied that they enjoyed playing outdoors and would be interested in careers in natural resources, as well as becoming Hokies one day.



Jennifer Gagnon shows Tazewell students monarch butterfly eggs and larvae on milkweed plants outside Cheatham Hall.

Vegetation Management Along the Wire

Neil Clark, Extension Forester, Virginia Cooperative Extension, Southeast District

It is unlikely that you will think of vegetation management whenever you nuke a TV dinner—but you should. There are over 160,000 miles of electric transmission lines in the United States, and it is a safe bet that 70 percent or better of the area beneath the wires has the potential to be overrun by wild vegetation. Major blackouts across the Northeastern United States and Canada in August 2003 were caused by an errant tree as a result of lax vegetation management. Vegetation management is a significant expense for utility companies and is often sacrificed in tight economic times. However, the cost is plainly justified, considering power outages and quality issues cost \$120 billion per year. Powerlines are only one of many locations where undesirable weeds can wreak havoc; gas lines, railroads, road shoulders, and fencerows are other land areas where vegetation interferes.

For this reason, Virginia Cooperative Extension agents Jason Fisher and Neil Clark collaborated with Crop Production Services, Dow AgroSciences, Department of Game and Inland Fisheries, Department of Conservation and Recreation, and other partners to provide six hours of training and continuing education credits for 137 vegetation managers. This workshop instructed the managers on kudzu control, pesticide regulations, label changes, new product availability, early successional habitat maintenance and effects on wildlife, dormant basal treatment, and effective use of various spray equipment.

Perseverance and commitment are required to control kudzu that has become established. In areas where practical, knocking back kudzu with fire, followed by a succession of spray treatments on subsequent resprout attempts, is the most effective way to wear away at established patches. This process can take as long as 10 years.

Many of the pesticide regulations regarding the label being the law, as well as personal protective equipment and training requirements, have not changed much for many years. However, the Environmental Protection Agency's Endangered Species Protection Program is now in place. Applicators should check www.epa.gov/espp or call 1-800-447-3813 within six months of application to verify compliance with current endangered species regulations. Some preliminary information was provided concerning the National Pollution Discharge Elimination System, which is to begin this spring. Many details on implementation are yet to be decided. Aminopyralid is a new material that has received special local need labeling for site preparation in most southern states. It is a very safe, yet effective product for broadleaf control.

Participants in the workshop discussed how a proper vegetation management program is needed to maintain good habitat for quail, as well as many other bird and wildlife populations. For example, a solid covering of one- to two-year-old grasses, forbs, and legumes are much more beneficial to most wildlife than 4- to 12-foot tall tree saplings that block light penetration to the forest floor, reducing the biodiversity of the site.

A similar vegetation management field day will be held on May 19 at the Airfield 4-H Conference Center. Please contact Neil Clark at 757-653-2572 or via e-mail at southeast@vt.edu for further information.



Attentive participants learn about equipment improvements that will allow for easier, more efficient, and compliant application of herbicides.

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