



Forestry Department's Geneticists Further College's Excellence

COLLEGE OF NATURAL RESOURCES
 Virginia Polytechnic Institute and State University

As Virginia and parts of the nation continue to face the difficult challenge of maintaining economic viability while preserving forest resources, the college has stepped forward to offer its expertise. The forestry department's forest molecular biology and genomics program in collaboration with the College of Agriculture and Life Sciences' horticulture department, the Institute for Advanced Learning and Research (IALR), and the Virginia Bioinformatics Institute (VBI) is discovering innovative ways to strengthen economies while sustaining forest resources.

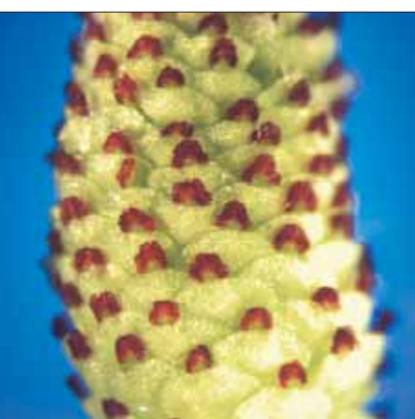


Transgenic poplar shoots forming from calli. Transgenic manipulation is used to study the function of native genes controlling flowering. By treatment with different plant hormones, pieces of leaf tissue are first induced to form masses of cells called calli, which are subsequently induced to differentiate shoots and then roots to regenerate an entire plant.

Photo credit: Amy Brunner

For the past three years the forest molecular biology and genomics program has incorporated traditional plant breeding concepts into the development of cutting-edge techniques that yield high-value forest crops. Trees can now be genetically propagated based on desirable traits such as improved wood quality and enhanced pest and disease resistance. The benefits of genetically propagated trees in turn lead to greater timber yields and more efficient forest management. "The vegetative propagation of trees and other plants has taken place for thousands of years," noted forest department head Harold Burkhart. "However, some plants are simply easier to propagate than others."

Conifers, which are essential to the paper and construction industries, have a track record of being much more difficult to clone than hardwoods. However, the process of somatic embryogenesis (SE) allows elite varieties of conifers to be produced in considerably less time than it would take



A dissected poplar floral bud showing immature female flowers.

Photo credit: Amy Brunner

using traditional conifer breeding methods. Somatic embryos are triggered to form from cells within the conifer seed. The somatic embryos then multiply in tissue culture containers and can develop into plants when supplied with growth media of the right compositions. When the first small plants appear in the tissue culture container, they are planted into a solid medium and transferred to a controlled environment in the greenhouse. These small plants in the greenhouse that originate from somatic embryos are referred to as "mini-plugs." The mini-plug is then relocated to the nursery bed. Masses of multiplying somatic embryos can be stored in cryotanks under liquid nitrogen preserving elite genotypes of trees for future needs.

Using SE and other clonal propagation methods, the college's two full-time faculty in forest genetics and biotechnology have been involved with several major research projects. Associate professor Ulrika Egertsdotter has been using SE technology in the varietal propagation of fir trees for the purpose of growing highly desirable Christmas trees. The project was initiated in 1995 by a collaborative effort between the Norwegian forest research institute and Biri national nursery in Norway. "By having a clonal propagation technique in place, we will be able to propagate the trees that have the best Christmas tree characteristics such as needle retention and aroma," commented Egertsdotter.



The vegetative propagation of poplars in tissue culture.

Photo credit: Amy Brunner

In addition to Egertsdotter's Christmas tree propagation research, associate professor Amy Brunner has been trying to isolate the key regulatory genes that affect carbon retention in trees. The forest genetics team is currently involved in the genetic cloning and propagation of over one million loblolly pines partly for the purpose of sequestering carbon. The loblolly pines are being grown for the Canadian based CellFor Inc., the world's largest forest tree seed supplier. "The faster and more physiologically efficient a tree grows, the more carbon that can be sequestered," Burkhart pointed out. The ability of trees to retain and sequester carbon helps to offset rising levels of atmospheric carbon dioxide.

Continued on page 5, Excellence



College welcomes Brunner as newest faculty member

This fall the college welcomed associate professor of forestry Amy Brunner as its newest faculty member. Brunner earned her B.S. in biology at the College of Wooster, her M.S. in molecular biology at Vanderbilt, and her Ph.D. from Oregon State University in forest genetics. She brings a strong research background in molecular biology and forest genetics, both fields of growing interest in the forestry department.

Brunner considers it an "exciting challenge" to be one of the department's first geneticists since the late Peter Feret to introduce molecular biology as it relates to forestry. Brunner decided to come to Virginia Tech from Oregon State because "it would be a good opportunity. The college has a lot of potential and I wanted to be a part of the university-wide initiative to build strength in plant molecular biology."

She hopes to develop a graduate course related to her research focus, introduce the field to undergraduates, and establish a lab and research projects that will attract good students and post doctorates.

One of Brunner's current research projects deals with the genetic control of flowering in trees. Specifically, Brunner's research focuses on poplars (*Populus* species). Grown for wood products and the biological remediation of environmental problems, poplars also have the potential to be a major bioenergy crop. Poplar is one of only three plants and the only tree to have its entire genome sequenced, and poplars are a model system for developing new approaches for tree improvement as well as for discovering the genes responsible for adaptation in natural environments.

Brunner is working on identifying the genes and environmental interactions that control the developmental transition from the juvenile, non-flowering phase to flowering in poplar trees.

FROM THE DEAN'S PERSPECTIVE

Greetings from the College of Natural Resources. As we make the seasonal transition from spring to summer and bring the academic year to a close, it is always an exciting time for students, staff, and faculty. The longer days and warmer weather encourage all of us to get out and shake off the winter doldrums. Our 41st Annual Awards Banquet was one such occasion. As you will read elsewhere, in addition to recognizing many of our award winning students and scholarship recipients, we had the distinct honor to recognize Dwight Chamberlain, Carl Garrison, Robert Schmidt, and Donald Bright with the top awards from the college. Each in his own way has been a real contributor to the success and reputation of our college, and we enjoyed the opportunity to celebrate their accomplishments.

In early January I had the opportunity to participate in a national workshop sponsored by the National Association of University Forest Resources Programs. Among the very important topics that we discussed was the future of graduate education in the natural resources. One very alarming trend that is beginning to emerge is the growing lack of qualified individuals with graduate degrees to take on the responsibilities for guiding natural resource programs, both public and private, and providing the research we need to address the growing list of unresolved policy and science questions. As the current generation of natural resource professionals reach retirement, there is a growing void that must be filled if we are to manage our resources in a sustainable and responsible manner.

Virginia Tech has taken on the challenge of increasing the number of doctoral level graduates to help fill this and other needs. But even with this commitment we are likely to continue to be short of the number of new professionals needed. The college is positioning itself to continue to be the go-to-place for top notch graduates with advanced degrees. However, as noted in our workshop discussions, the programs that train these students need varying degrees of adjustment in order to produce the types of graduates who will mesh with current and evolving needs. The coming year will be an important one for our college as we seek ways to refine our graduate programs so that we continue to produce skilled professionals who can have an impact.

Graduate education is a very competitive arena in today's environment. Most of our graduate students are supported by funds derived from external grants and contracts. In order to continue to attract the best and brightest students we often need resources to provide the "perks" that are not provided by grants or allowed with public funds. Funds are needed to send beginning students to national meetings where they can begin to network with established professionals and refine their research topics. Funds are also needed for "seed money" to explore currently unfunded research areas and to purchase essential equipment that will open exploration in new areas. Finding support for these and other needs of our graduate program is often a challenge. To help address these issues we have established the Graduate Performance Award (GPA) endowment account to provide a sustained source of funds to enhance our graduate education efforts. If you

completed a graduate degree at Virginia Tech I invite you to join me in helping to build this endowment. Generating gift support for graduate education is often difficult because it is less tangible than a structure, and the need is not as easy to understand as a traditional undergraduate scholarship. However, if we are to fully train competent professionals critical to the continuation of our profession, we must have your support. I am confident that your Hokie Pride combined with your commitment to the profession will encourage you to help.



Dean Kelly with 2006 Outstanding Alumnus Carl Garrison.

In his remarks at the Awards Banquet, Carl Garrison talked about the important role that certain mentors had played in his professional development. I want to continue on that theme and recognize the important role that my first mentor, my father, played in my development. Much of my interest and early knowledge of the natural world was provided by my father as we walked in the woods and fields near our home. Although short on formal education, he was the personification of the lifelong learner as exemplified by his purchase of a computer at age 80 and his self education on its use. He held an amateur radio license for 81 of his 93 years and became one of the most knowledgeable and respected practitioners among his peers. As a man of considerable honor, he understood the value of commitments and straight dealing. And although he succumbed to the complications of heart disease in early March of this year, his role as a mentor will not end. The lessons learned over the years are still there for guidance. I hope that this personal reflection, along with Carl's observations, will remind all of us of the important roles we play, both intended and unintended, in the development of others and the profession we seek to serve.

J. M. Kelly



Garrison, Schmidt, And Bright Named Outstanding Alumni

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Please let us know what is happening in your life so we can include the news in our next college newsmagazine.

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Thanks. We would love to hear from you. Send it NOW while you are thinking of it!

During the re-styled College Awards Banquet this spring at Virginia Tech's German Club, Carl Garrison received the College Outstanding Alumnus Award, and Robert Schmidt the Graduate Young Alumnus Award, and Donald Bright the Undergraduate Young Alumnus Award by the College of Natural Resources and the Virginia Tech Alumni Association.

In receiving the award for his outstanding career achievements in natural resources, Garrison said, "I am humbled and honored. Loving the outdoors, I have been fortunate to have a career that has brought me both personal and professional fulfillment. My professors and fellow students at the college were a great inspiration to me."

Garrison joined the Virginia Department of Forestry (VDOF) in 1980 after graduating from Virginia Tech. He worked for 15 years in various forester positions including district forester for southeastern Virginia. In 1995 he moved into the private sector as a consulting forester to start his own business and returned to the VDOF in 2002 as a regional forester for one of the largest regions in Virginia.

In November 2004, Governor Mark Warner appointed Garrison to the position of state forester for the VDOF, which is responsible for protecting 15.8 million acres of forestland, managing 16 state forests and other state lands, and providing assistance to non-industrial private forest landowners.

Garrison has served as a member of the Regional

Open-Space Preservation Advisory Board along with being an active member in the Society of American Foresters (SAF). In 1985, he served as chair for the Virginia Division of SAF.

Recognized for his early career accomplishments and service to the university, Schmidt is a 1998 Ph.D. graduate of the wood science and forest products department. He now serves as senior vice president of market applications for Dynea North America, one of the world's leading providers of industrial adhesive systems. He is responsible for new business development and strategic planning, as well as Dynea's technical service, product development, and research groups in North America. Schmidt earned numerous professional awards for his research when he was a graduate student and continues his association with the wood science department through his generous service with the Wood-Based Composites Center.

Bright, who was also honored for his early career achievements, began working for Morgan Lumber Company in Red Oak, Va., after earning a B.S. in forest products marketing and management from the college in 1998. Now as general manager, Bright is responsible for over 50 employees and oversees all aspects of lumber production at the state-of-the-art, 26 million-board-foot lumber mill.

He served as a member of the college's Center for Forest Products marketing and management advisory board and is involved with the Virginia Forest Products Association and the Southern Lumberman's Association.

College Honors Friend Dwight Chamberlain

Dwight Rhodes Chamberlain was given the Friend of the College Award at the 41st Annual Honors Banquet this spring. In making the award, Dean Mike Kelly said, "Dwight Chamberlain personifies friend of the college. His special interest in wildlife and fisheries has been an important contribution. This award recognizes Dwight for that and the many ways he has helped advance the programs and objectives at the College of Natural Resources."



Dwight Chamberlain pictured with his wife at the Hardy Lake Raptor Center named in his honor in Scottsburg, Indiana.

A 1967 wildlife master's graduate of the college, Chamberlain funds an annual scholarship under his name to attract strong graduates to the fisheries and wildlife sciences department. Created in 2001, the Dwight R. Chamberlain Graduate Fund provides scholarships to students who show a genuine interest in a career in wildlife management and conservation. He called the two and a half years he spent at Virginia Tech "the best years of my life, and I could not have been any happier."

"Not enough money is given to the fisheries and wildlife department," Chamberlain said, "and with today's job market so extremely competitive, students need a master's degree and a strong research background."

Chamberlain has also contributed substantial donations to help complete the Henry Mosby, Burd S. McGuinness, and Richard Hunter Cross honorary endowment funds.

The majority of Chamberlain's career involved teaching biology at Virginia Tech, Hanover College, and University of Maryland. He was an interpretive naturalist for Indiana's Parks and National Wildlife Refuge Systems.

Outstanding Senior Contributes To Chimp Research

For wildlife science student Jason Swenson, who received the outstanding College Senior award, traveling to remote locations in the African country of Tanzania to set up state-of-the-art global positioning systems (GPS), a solar powered freezer, and a digital weather station in the Mahale Mountain National Park is only part of a day's work. Along with offering technical expertise in advanced research equipment, Swenson also collected and aided in the analysis of fecal samples taken from wild chimpanzees.

Swenson has been to Tanzania twice as part of university veterinarian Taranjit Kaur's research with the "Bush to Base" project that is being funded by the National Science Foundation. As a research assistant, the computer experience Swenson gained from years of work experience in the computer industry coupled with his current educational pursuits as a wildlife science major made him an ideal candidate for Kaur's research team.

During his second visit to the African country in the summer of 2005, Swenson's work was noticed by a National Geographic television film crew, which led to an appearance for Swenson on the "Wild Chronicles"

television show special detailing the mysterious outbreak of an upper respiratory disease infecting the wild chimpanzee population of the Boodango Forest region of Tanzania. The "Wild Chronicles" crew observed Swenson's collection and analysis of chimpanzee fecal samples, which led the crew to coin the term "Professor of Poop" or "Dr. Poop" for short. Even though Swenson is only an undergraduate and therefore neither a professor nor a doctor, he already has gained some valuable insights into chimpanzee physiology through fecal analysis. "This method can help us identify parasites, intestinal bacteria, and elevated levels of cortisol, which is a good indicator of stress," noted Swenson.

These insights into the health of Tanzania's chimpanzee population are only a part of the Bush to Base project. The project is a long-term, holistic system of information transfer involving technology integration, research, and education through a project to study and protect chimpanzees in Tanzania. The Bush to Base project involves researchers from Kyoto University in Japan, the University of Alabama at Birmingham, the University of Rhode Island, National University of Rwanda, and Management Sciences Inc.



Wildlife science senior Jason Swenson uses a GPS-enabled personal digital assistant (PDA) to enter in data on the chimpanzees of Tanzania.

AWARDS

A. B. Massey Honorarium

Department of Fisheries and Wildlife Sciences

Nathaniel (Than) P. Hitt

Department of Forestry

Aaron M. Bernard

Department of Geography

Ethan W. Knocke

Department of Wood Science and Forest Products

Sarah K. (Katie) Harrison

Alumni Award for Outstanding Scholarship

Department of Fisheries and Wildlife Sciences

Jason D. Swenson

Department of Forestry

Melanie B. Nichols

Department of Geography

Jason B. Inman

Department of Wood Science and Forest Products

Michael J. Edwards

College of Natural Resources

Jason D. Swenson

The Outstanding Sophomore Scholar Award

Emma E. Pemberton

David Wm. Smith Award for Outstanding Service

David R. Daversa, forestry

Outstanding Science Award

Katie A. Goodrich

The Curriculum Clubs' Outstanding Member Awards

American Fisheries Society

Larissa Graham

Forestry Club

Ben Bradburn

Forestry Graduate Student Association

Rob Elliott and Brad Miller

Forest Products Society

Hunter Pusey

Geographic Society at Virginia Tech

Kristin Morales

Society of American Foresters

Matt Carroll

Urban Forestry and Arboriculture Student Society of Virginia Tech

Michael Pavlis

The Wildlife Society

Jeremiah Purdum

Xi Sigma Pi

Katherine Baker

Virginia Tech Unveils Branding Campaign

University President Charles Steger unveiled a new branding campaign in early February, ending the two-year creative effort of more than 800 faculty, staff, students, and alumni.

The campaign features a fresh logo and slogan designed to convey the university's evolving goals. The new logo replaces subtitled Virginia Polytechnic Institute and State University with the trademarked slogan—"Invent the Future."

Steger called the new slogan "critical" to the school's success.

The logo is displayed in newspaper ads across Virginia and posted on the school's updated website. In addition to branding changes, the website now features links to school-sponsored podcasts. By the end of the summer, Virginia Tech will have a "completely redesigned web page, not only in look but also in functionality," university associate vice president Larry Hincker explained.



College Played Part In National Makeover



Wood science and forest products assistant professor Dan Hindman stands in front of Blacksburg resident Carol Crawford-Smith's home, which was the feature of the February 12 episode of ABC's "Extreme Makeover: Home Edition."

Dan Hindman, assistant professor of wood science and forest products, through his involvement with the Center for Innovation in Construction Safety and Health (CICHS), played an important role in the safe renovation and reconstruction of Carol Crawford-Smith's house that was featured on February 12 primetime ABC series "Extreme Makeover: Home Edition." Virginia Tech united with the Blacksburg community to build Smith a more handicapped-accessible house to give her family a better life and help her fulfill her artistic dreams.

Once a ballet dancer with the Dance Theatre of Harlem, Crawford-Smith was forced to abandon her passion for performing when she was diagnosed with multiple sclerosis. Carol's dream has always been to have her home and studio in one place so she can continue to teach and spend time with her two young sons.

Because of the tight schedule, the two-week, rapid build project involved high intensity production, self-formed work crews, and significant opportunities for

safety incidents that within a heartbeat could have resulted in an accident or injury. CICHS served as the safety advisors on the construction site and took shifts of two students and one faculty member at a time for 24 hours, five days a week. Hindman and others served as walking safety signs by wearing orange safety hardhats. They helped direct traffic flow and reminded people to wear their safety gear. They even got the opportunity to take part in the building process by framing, dry walling, plastering, and raising the walls for the large doors around the front door.

Students from Hindman's classes, which focus on the efficient use of structural wood composite materials for residential and commercial application, also benefited from his project because they heard first-hand what it was like to build a house under very stressful conditions complicated by snow and subfreezing temperatures. "This was a good experience for our students that complimented design and analysis skills learned in the classroom," commented Hindman. The two-hour TV special showed how the unity of the Blacksburg community greatly helped improve someone's life. Hindman remarked, "I was amazed to see how many people donated materials and time for the project." More than \$1 million dollars was given to the extreme project in labor and materials.

College's First International Trip For Alumni A Success

In February, the college's Conservation Management Institute (CMI) extended the college's international outreach by hosting a five-day trip to the highly regarded eco-tourism resort, Chan Chih Lodge in Belize. Nine people, including five alumni and two faculty, went on the trip.

Chan Chih Lodge is located within a 130,000 acre private wildlife reserve in the jungles of the English-speaking Central American country of Belize. Chan Chih Lodge is internationally known for its scenic beauty, abundant wildlife, and superb accommodations.

While at Chan Chih Lodge, the group saw a wealth of the Central American country's exotic wildlife. The Virginia Tech group observed howler monkeys, spider

monkeys, a variety of birds including the endangered ocellated turkey, and a kinkajou. The kinkajou, also called the "night walker," is a cat-like species with a long tail that is just as much at home in the Central American tree canopy as the area's monkeys.

Along with the daily birdwatching and wildlife excursions, members of the college's travel group also enjoyed another of the site's attractions by traveling on horseback to nearby Mayan ruins. Mayan heritage remains a significant part of Belizean culture.

CMI executive director Jeff Waldon and director Brian Murphy led the trip. Wildlife Conservation Society fellow and jaguar researcher Carolyn Miller and her husband Bruce Miller, a bat expert, also offered their expertise

through lectures on the preserve's feline and bat populations.



The endangered ocellated turkey.
Photo credit: Brian Murphy



The Belize travel group (left to right): Raul Martinez (Belizean wildlife guide), Nancy Parsons (the college's development director), Ellen Jamerson, Beth Obenshain, Jeff Waldon (CMI executive director), Leslie Harris, Robert Harris, and Brian Murphy (CMI director). Not pictured but also on the Belize trip was Pat Merryman.

Photo credit: Martha Murphy

RESEARCH SPOTLIGHT

Useless Weed Or Valuable Wood?

The Tree of Heaven (*Ailanthus altissima*), contrary to its name, is an invasive species found throughout Virginia that is widely regarded as a nuisance and a difficult weed to eliminate. Assistant professor of wood science and forest products Brian Bond has recently teamed up with Charlie Becker with the Virginia Department of Forestry to put together information about the usefulness of the wood from this invasive tree species.

The Tree of Heaven is an ornamental shade tree native to Asia and northern Australia and was introduced to England from China in the mid-18th century. The tree then migrated from England to the United States in 1874. It was quickly discovered that this worldly tree can adapt to almost any soil and climate and is capable of resisting many insects and diseases.

In less than 10 years, the tree achieves its mature height of 90 feet with a diameter of three feet. Although the tree is considered a non-native weed species, the tree does have some value as firewood

Charlie Becker (left) of the Virginia Department of Forestry stands beside a tree of heaven board. Becker along with wood science and forest products assistant professor Brian Bond (not pictured) are compiling information for publication on this fast-growing species.



and in woodworking. Bond and Becker, however, were more interested in how easily such a fast growing species could be processed into dry lumber with minimal loss of wood in the sawing and drying process. Becker worked with a local sawmill to produce lumber from 20-year old ailanthus trees. The lumber was then shipped for drying to the Thomas M. Brooks Forest Products' wood drying laboratory. "We were interested in determining the proper drying schedule, and what defects may occur in the drying process," noted Bond.

Although several pieces of lumber warped as the lumber was sawn and dried, particularly those close to the heart of the tree, much of the lumber that was produced was clear and defect free.

Bond and Becker are compiling a publication on the wood properties and uses for this species, which should be available this summer. For more information on this project, contact Brian Bond at (540) 231-8752 or bbond@vt.edu.

Cell Anatomy Research Improves Utilization Of Low-Density Hardwoods



Zink-Sharp and Ph.D. student, Richard Johnson, examine a test specimen using SEM.

Photo by Michael Keirnan.

Studies examining the engineering properties of wood on the micro-scale have received increased attention recently due to the dramatic upsurge in genetic modification research.

Under the direction of associate professor Audrey Zink-Sharp, the Department of Wood Science and Forest Products is exploring the relationship between wood quality and forest management treatments of low-density hardwoods through electron microscopy and micro-engineering analysis. This approach allows for rapid and accurate measurement of modifications made to wood at the intra-ring property level.

In the past, low-density hardwoods such as sweetgum, yellow-poplar, and red maple have been overlooked for traditional engineering applications such as solid-sawn beams, columns, and timbers because they were perceived as having inferior properties compared to other hardwoods. However, Zink-Sharp's quantitative wood anatomy research looks into the possibility of making slight variations to a tree's inner core in order to drastically improve overall engineering properties.

"Because trees have the ability to make minute variations to cell wall structure in response to external stimuli, slight changes in the intra-ring properties transmit to the higher levels of wood structure, thus influencing macroscopic behavior, and ultimately, wood utilization," Zink-Sharp explained.

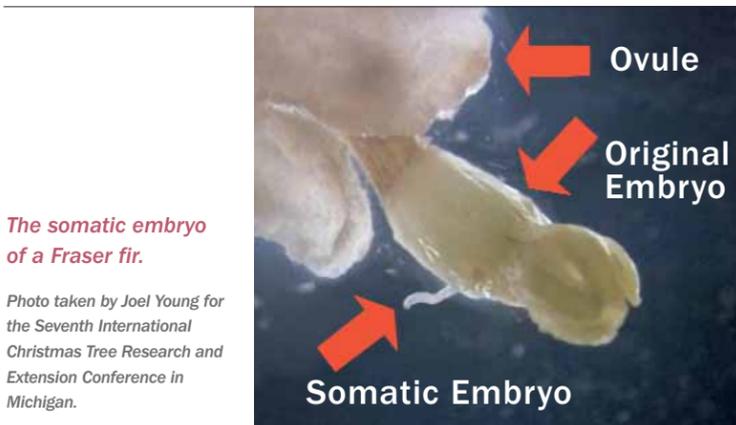
Scanning electron microscopy (SEM) is a powerful research tool. "Through SEM, we are able to determine properties such as maximum crushing strength, density, cell dimension, and growth rate from tree-core samples," said Zink-Sharp.

Future research includes additional studies on the influence of forest management strategies on the wood cell composition and the subsequent impact on crushing strength.

Excellence continued from page 1

The forest molecular biology and genomics program utilizes state and university facilities on campus as well as throughout Southside Virginia. The Virginia Bioinformatics Institute offers state of the art laboratory facilities for the program's molecular research. The Institute for Advanced Learning and Research in Danville, Va., also provides facilities in its tissue culture laboratory. The university's primary forestry research station, the Reynolds Homestead located in Patrick County, Va., also offers more than 700 acres for the trees to be further studied after cultivation in the lab and greenhouse. In Giles County, Va., the forestry department uses three 3,000 square foot greenhouses that are jointly leased with the horticulture department. As Burkhart pointed out, "The Department of Forestry is fortunate to be part of such important research with so many partners in the promotion of sustainable forests."

Pictured here inside one of the three greenhouses located in Giles County, Va, are several thousand mini-plugs that are being propagated for CellFor Inc.



The somatic embryo of a Fraser fir.

Photo taken by Joel Young for the Seventh International Christmas Tree Research and Extension Conference in Michigan.



Collection of flower buds from the upper crown of hybrid cottonwoods. Photo credit: Amy Brunner

STUDENT NOTES

Movic And White First Graduates In Packaging Sciences

Joe Movic and Braden White make history as the first graduates in the new packaging science option in the Department of Wood Science and Forest Products.

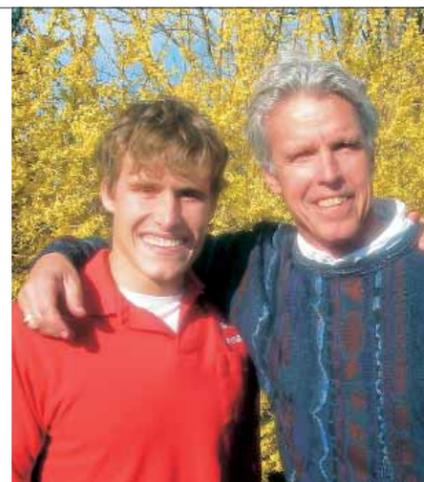
They first became interested in packaging science after working as laboratory technicians at the Center for Unit Load Design Laboratory. "Movic's and White's understanding of transport packaging and the interactions of packaging, pallets, and unit load material handling equipment sets them apart from others in the industry," said Paul Winistorfer, head of the Department of Wood Science and Forest Products.

The efficiency and safety of the global unit load logistics system for product storage and distribution can be significantly improved by understanding how critical components in the system interact during usage.

Since he graduated in December, Movic has been working with Pallet Alliance in the Chapel Hill, North Carolina area.

During the winter, White gained experience at Timpack Industries Ltd., a manufacturer of pallets in New Zealand. White is the son of Mark White, wood science and forest products professor and the director of the Center for Unit Load Design.

The Department of Wood Science and Forest Products hopes to change the packaging science curriculum from a study option to a minor. The department also plans to implement a proposed graduate program in packaging and logistics science.



Braden White with his father, wood science and forest products professor Mark White.



Scott McKee (left) and Matt Carroll help the team in the bow saw competition.

Forestry Club Holds Annual Timbersports

On February 18, the Forestry Club held its annual timber sports competition, Mini-Conclave. Teams from all over traveled to participate in Mini Conclave, including West Virginia University, North Carolina State, Dabney S. Lancaster Community College, Haywood Community College, and a forestry graduate team.

Students participated in both technical and physical events including timber estimation, photogrammetry, compass and pacing course, dendrology, wood identification, log roll, men and women's bow saw and cross cut, Jack and Jill cross cut, axe and knife throw and speed chop.

Melanie Nichols, natural resources conservation major won the women's bow saw. Ben Bradburn, forestry major won the men's bow saw competition. West Virginia University finished in first place.

The Mini-Conclave is used to help teams prepare for the Conclave. "The Conclave is the granddaddy of competitions," said Vice President of the Forestry Club Matt Carroll.

The 49th Annual Association of Southern Forestry Club's Conclave in March at Louisiana Tech University saw the Forestry Club place fourth out of 14 teams.



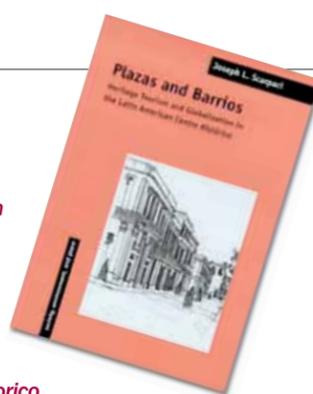
Students from West Virginia University compete in the log roll at Mini-Conclave.

FACULTY BREIFTS

Scarpaci Book Reviewer For Latin American Geography



Geography professor Joe Scarpaci faces the critics at the Conference of Latin Americanist Geographers in Michoacan, Mexico, while discussing his award-winning book, *Plazas and Barrios: Heritage Tourism and Globalization in the Latin American Centro Historico*.



Professor of geography Joe Scarpaci has recently been appointed as the book review editor of the Journal of Latin American Geography. The journal, formerly known as The Yearbook, has been in publication since 1996 and covers issues in the natural and social sciences. Scarpaci's role in the journal's publication is to seek current reviews for the readership.

At the biannual meeting of the Conference of Latin Americanist Geographers held in Michoacan, Mexico, in October, Scapaci presented his book, *Plazas and Barrios: Heritage Tourism and Globalization in the Latin American Centro Historico*. The book was showcased in a public and professional forum located in the Garden of the Roses in the United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage district of Michoacan.

The forum took on an author-meets-critics venue that included four U.S. and two Mexican urban geogra-

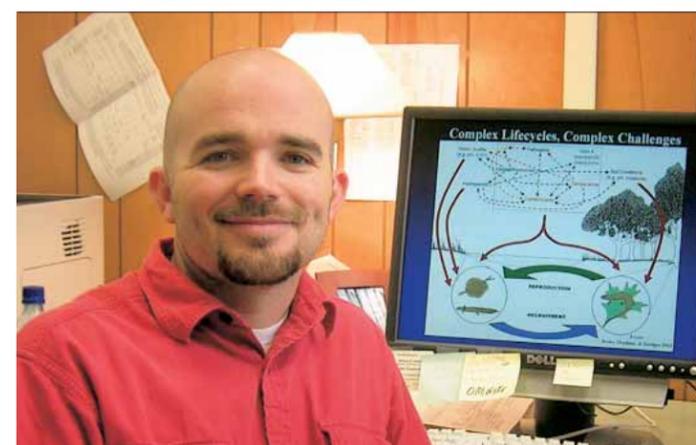
phers and architects. "My book was an attempt to appeal to a broad professional audience as well as the interested public," noted Scarpaci.

The book was based on 12 years of field research Scarpaci conducted in Latin America, where he acknowledged how architects, planners, politicians, sociologists, and engineers all had different views of historic districts. "Heritage tourism holds promise for mom and pop businesses and for the local economy, but big hotel chains are nibbling away at these colonial corners. Balancing the old with the new will be the key," Scarpaci said.

Plazas and Barrios was recognized in 2005 by the Phi Beta Kappa Mu chapter as the "most outstanding book" published by a faculty member at Virginia Tech. Scarpaci added, "This is probably the greatest honor I have received since coming to Virginia Tech in 1989."

Hopkins Briefs Capitol Hill

Over the winter associate professor of fisheries and wildlife Bill Hopkins addressed representatives on Capitol Hill on the effects of filling mines with the residues of coal combustion. Hopkins advised a panel, which consisted of U.S. Senate and House of Representatives members as well as a White House official representing the U.S. Environmental Protection Agency, that filling mines is a viable way to dispose of those materials, provided they are placed in a way that avoids adverse human health and environmental effects.



Hopkins is an expert on ecotoxicology and specifically on the effects of coal combustion wastes on fish and wildlife. "Enforceable federal standards are needed to guide the placement of coal ash in mines to minimize risks," Hopkins told the panel.

ALUMNI UPDATE

Recent Graduates Find Careers With The NGA

The college's relationship with the National Geospatial-Intelligence Agency (NGA) extends beyond just research funding. Many recent graduates of the college have careers with the NGA.

Emily Davis graduated with a B.S. in forestry and a minor in geography in 2003. Davis is working towards her masters in natural resources at the National Capital Region campus.



Recent graduates of the college Emily Davis (B.S. forestry 2003) and Berkely Almeida (M.S. geography 2005).

Shortly after graduation she began working full time with the NGA as an imagery analyst.

Berkely Almeida graduated with a M.S. in geography in 2005. He works with the NGA as a geospatial analyst.

Both students found their jobs by attending career fairs and talking with representatives from the NGA. "I'm not sure I would be working for the NGA if it had not been for the relationship between the NGA and the university," said Almeida.

Davis applied for her job with the NGA a year before

she graduated. Her experience in GIS and remote sensing put her ahead of the rest of the applicants. "NGA looks for a variety of backgrounds, not just people with GIS and mapping experience," said Davis.

The NGA's relationship with the college has opened doors to create internships, assistantships and possible future careers for graduates of the college.

NGA is a Department of Defense combat support agency and a member of the Intelligence Community. The Agency's mission is to provide timely, relevant, and accurate geospatial intelligence in support of national security.

Headquartered in Bethesda, Maryland, NGA has major facilities in the Washington, D.C., Northern Virginia and St. Louis, Missouri areas, with support teams worldwide.

Klenzendorf Continues International Wildlife Research

Since earning her Ph.D. in fisheries and wildlife sciences in 2002, Sybille Klenzendorf has been working as the director of all large mammal-related programs in Asia. She spends three months in Asia and the rest of the year in Washington, D.C.

She is a technical advisor for field projects and a committee member on graduate committees for students working on World Wildlife Fund (WWF) projects. She also writes proposals and reports in addition to working with the media and community relations and interagency communications.

Klenzendorf has worked on various projects such as tiger conservation in Sumatra and Russia, rhino conservation in Nepal and India, and elephant conservation in Cambodia and Laos.

Alumnus Serves Missouri Department Of Conservation

Recent grad Jennifer Guyot now serves the Missouri Department of Conservation (MDC) as a fisheries management biologist. Guyot, advised by professor Richard Neves, graduated with a master's degree in fisheries and wildlife sciences last December. While a graduate student, she worked with the college to restore the Cumberland elktoe and Cumberland bean, endangered mussel species of the Big South Fork National River and Recreation area in Kentucky and Tennessee.

As a fisheries management biologist for the MDC's Southwest region, Guyot manages Fellows Lake – an 820-acre public lake north of Springfield, Missouri. Her job includes coordinating children's fishing clinics and angler programs, and providing stream and lake assistance to private landowners in a three-county area.

Originally from Missouri, Guyot worked with the MDC previously as an hourly employee while finishing her B.S. at the University of Missouri-Columbia.



Guyot holds a musky at Fellows Lake, Missouri.

ALUMNI NEWS

Jack Aden, '72 B.S. in forestry and wildlife, was recently appointed to the positions of officer and director of Balkan-America, Inc. Balkan-America is a U.S. corporation that works to privatize the forest products industry in the former country of Yugoslavia.

Thom McEvoy, '78 M.S. in forestry, has published five books since 1998. Three of his books have won four national awards.

McEvoy's *Legal Aspects of Owning and Managing Woodlands* won Best Forestry Book for 1998 from the National Woodland Owner Association (NWOA). *Positive Impact Forestry - A Sustainable Approach to Managing Woodlands* won Best Forestry Book for 2004 from NWOA and the American Library Association CHOICE Award for Outstanding Academic Title in Biology/Botany. *Owning and Managing Forest - A Guide to Legal, Financial, and Practical Matters* won Best Forestry Book for 2005 from the NWOA. He has also written *Introduction to Forest Ecology and Silviculture* and *Using Fertilizers in the Culture of Christmas Trees*.

For the past 25 years he has been working as an associate professor and extension forester in the Rubenstein School of Environment and Natural Resources for the University of Vermont.

Melissa Love, '76 B.S. in forestry and wildlife, was recently appointed to the Alabama Forestry Commission for a five-year term as the board's only female member. Love owns a forestry consulting business in Alabama and previously worked for the Alabama Board of Registration for Foresters.

INTERNATIONAL CROSSINGS

College Continues To Expand International Programs



Director of the American University International Programs and professor of forest resources at the University of Georgia, Mike Tarrant takes a moment to rest on Mount Tasman in the Southern Alps of New Zealand.

Beginning in May, students will have the opportunity to study natural resources-related topics from a global perspective through study abroad programs with the American Universities International Programs (AUIP). Students can earn six credits and have the choice of traveling to Belize or Australia, with the academic focus of both trips on sustainable development: sustaining human societies and the natural environment.

Both trips last approximately three and a half weeks and combine eight to nine days of traditional classroom experience at either the University of Belize or James Cook University (Australia) with 16 days of field excursions. Students will snorkel, crocodile spot, and explore archaeological ruins. The trips conclude with final exams, projects, and presentations.

The Belize and Australia studies abroad are led by University of Georgia professor of forest resources and AUIP director Michael Tarrant, who has been heading trips to places like Antarctica, Australia, Belize, Fiji, New Zealand, and the United Kingdom since 2001.

"In 2005, over 300 students from the University of Georgia alone participated in the programs which began with only 29 students in 2001," explained Tarrant about the success and popularity of these programs. Tarrant will also be working with professor of fisheries and wildlife Brian Murphy, professor of wood science and forest products Tom Hammett, and professor of forestry Joe Roggenbuck. More information about AUIP is available online at www.auiip.com.

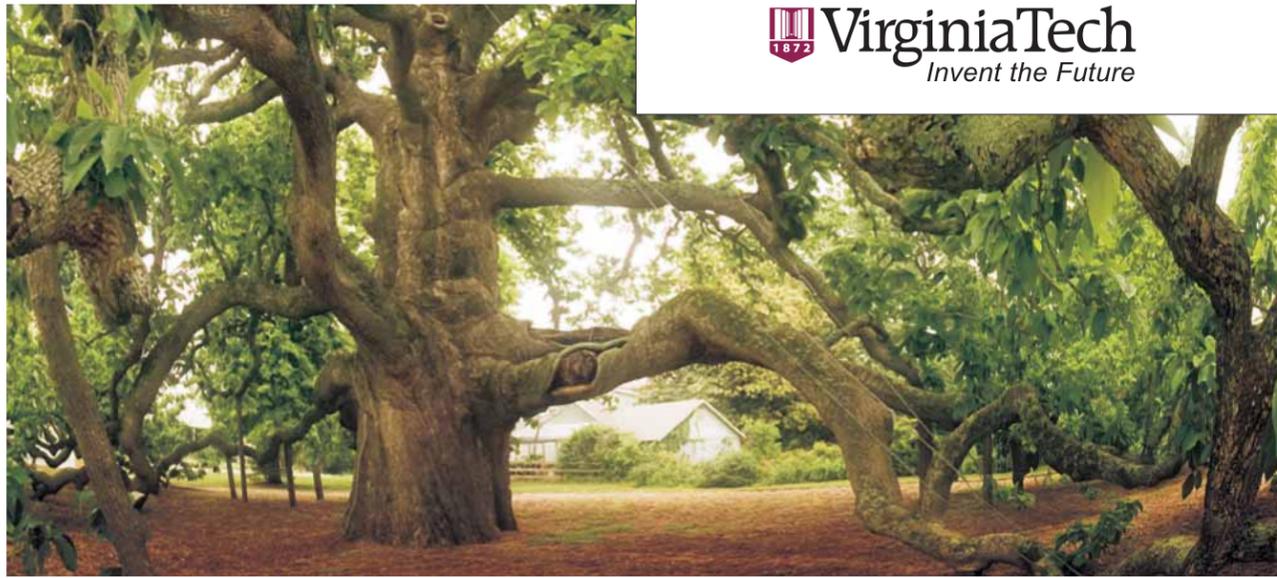
Forestry's Kirwan Co-Heads Virginia's Remarkable Tree Project

Virginia Tech forestry professor and extension specialist Jeffrey Kirwan and outdoor author and lecturer Nancy Ross Hugo began a two-year search early this year to find Virginia's most remarkable trees. "We're asking citizens to search their communities and natural areas for trees that are remarkable because of age, size, beauty, uniqueness, connection to the community, or historical and cultural significance," Kirwan said. "We're searching for trees that have unusual forms or interesting stories associated with them."

The effort, which is supported by Trees Virginia (the state's urban Forestry Council), will culminate with a keepsake book highlighting Virginia's top 100 trees. The 176-page book, to be published in 2008, will include full-color photographs taken by internationally-known photographer Robert Llewellyn from Albemarle, Va. Everyone who nominates a tree to the Remarkable Trees of Virginia Project will have his or her name listed in the book and on the project website.



State champion honey locust in Fincastle, Va.
Photo by Robert Llewellyn.



State champion cucumber magnolia in Colonial Heights, Va. Photo by Robert Llewellyn.

Kirwan and Hugo, who have worked together previously to develop and maintain Virginia's big tree registry program, are inviting children, adults, professional tree experts, and amateur tree lovers to participate in the project by nominating remarkable trees from their communities. The project organizers are also looking for "tree places" – parks, arboreta, and gardens where the public can visit remarkable trees.

"We'll be contacting schools, 4-H clubs, and scouting groups throughout the state to try and get youth involved with the project," Kirwan said. Hugo added, "The project encourages children to connect not just to trees in general but to specific trees. We want them to look carefully at the trees in their neighborhoods, so that they'll begin to feel connected to specific trees and their habitats, not just to anonymous nature."

Those interested can make tree or "tree place" nominations through mail or <http://www.cnr.vt.edu/4h/remarkabletree>, the project's website. Each nomination should include a photograph of the tree, the common and/or botanical name, where it grows, nominator contact information, name and address of the owner of the property

on which the tree grows, and an explanation of why the tree should be recognized as one of the following: big tree, beautiful tree, historic tree, old tree, community tree, unique tree, or other (such as a tree with a special story).

Kirwan and Hugo's project is an offshoot of the 2006 National Register of Big Trees prepared by American Forests. That list, published continuously since 1940, documents the biggest of 822 species of trees. With support from Trees Virginia, Kirwan has been maintaining Virginia's official tree register (Virginia Big Tree Program), which has provided 43 national champion trees and puts Virginia fifth in the nation for having the most big trees by species.



A young girl hugs a tulip poplar at Maymont Park, Richmond, Va.

Photo by Robert Llewellyn.

Mark your calendar
September 22 & 23

Celebrate Joint Research Building Dedication and Homecoming

The College of Natural Resources and the College of Agriculture and Life Sciences will be dedicating their new, joint research building on Friday, Sept. 22. The two colleges will also jointly celebrate their homecomings on Saturday, Sept. 23.

Check the website for details: www.alumni.vt.edu/reunion

Photo by Rick Griffiths



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