

# InsideESF

The Magazine of the SUNY College of Environmental Science and Forestry



## Leaders of the Pack

ESF honors students supplement their educations with internships.

See page 14.





Dr. Jacqueline Frair, right, and Bernie Reschke, a general mechanic with a specialty in carpentry, adjust one of the specimens from the Roosevelt Wildlife Collection as pieces from the collection are installed in the north concourse of the Gateway Center. Frair is associate director of the Roosevelt Wild Life Station.



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On the cover: Senior Erin Moody sits with Woton the wolf at Wolf Park in Battle Ground, Ind. Read about the work Moody and other honors students have done during their summer internships, page 14.

### LETTERS TO THE EDITOR

We invite letters to the editor.\* You can email your comments to [InsideESF@esf.edu](mailto:InsideESF@esf.edu) or mail them to us at:

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## InsideESF

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*InsideESF* is produced by the Office of Communications of the State University of New York College of Environmental Science and Forestry.

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Printed on Recycled Paper

Spring 2013 1



## LETTERS TO THE EDITOR

### Magazine topics draw reader in

Dear Editor,

*Have you done something different with the current issue? Usually I just flip through looking for familiar names and subjects and then toss it aside. This issue I practically read everything. Maybe it's the topics – snow leopards, WOW – no more ruffed grouses – and the American chestnut possible comeback after three generations of researching – that's perseverance! Let's hope this genetically modified variety works. My previous home was filled with beautiful American chestnut woodwork. I really had to search high and low for replacement pieces – usually ended up taking red oak and staining it to match.*

*Living on campus must be great for the new students. I recall that a number of the SU first-year dorm RAs were upper-class ESF students who paid some of their bills by yelling at us to “keep it quiet!” With all the building since I was there in the late '60s, the campus must be getting crowded.*

*I'm glad we are keeping up the “Woodsperson” side of the ESF. It was always lots of fun seeing the various events, but we always seemed to lose to Penn State. Congratulations to the men and women on their success this year.*

*It is really great to see all the musical talent at the school. What outstanding names for the groups – “Acid Reign” and “Ecotones.” We used to have mandatory Wednesday morning Cultural Convocations from 11 a.m. to noon. Occasionally there was musical talent presented. Maybe some of the musical talent could be showcased at these, if the convocations are still held.*

*This was a super issue. Best wishes in continuing the great stories and pictures in coming issues.*

Ron Thompson '65  
Decatur, Ga.



## Murphy to step down as president



Dr. Cornelius B. Murphy, Jr.

Dr. Cornelius B. Murphy, Jr., announced in December that he plans to step down as president of the SUNY College of Environmental Science and Forestry (ESF).

“I have very much enjoyed my service to ESF and its extraordinary faculty, staff and students,” he said. “I am confident that the College will continue to enhance our national and international service and commitment to our vision of ‘A Better World through Environmental Discovery.’”

Upon leaving the presidency, Murphy will focus on teaching and special projects at the College. The ESF Board of Trustees has initiated the transition process and a national search for a new president. Murphy expects to remain in the position until a successor is named, which could take up to a year.

At the time of his announcement, the Board of Trustees issued a statement that said, “We will seek, together, to find a president who is enthusiastic and dedicated to leading an internationally recognized, nontraditional institution through the next phases of opportunity and growth. Times of change are times of opportunity and together we will celebrate what we have accomplished with President Murphy and position ourselves with future leadership that will encourage us to continue to create a better world through environmental discovery.”

The Board of Trustees is responsible for managing the search process in accordance with the Guidelines for the Selection of a President and submitting its recommendations to the chancellor and trustees of the State University of New York. The Presidential Search Committee includes representatives of the ESF faculty, staff, students, alumni, the ESF College Foundation and the Board of Trustees, and a representative designated by the SUNY chancellor.

Murphy was named president of ESF in 2000. He led the College through an unprecedented expansion of its physical facilities with the construction of the College's first residence hall, Centennial Hall, and the construction of the Gateway Center, designed to LEED Platinum standards. The rehabilitation of Baker Laboratory was completed during his tenure. In addition, ESF has embarked on plans to construct a new academic research building at the western edge of the campus.



**"I have very much enjoyed my service to ESF and its extraordinary faculty, staff and students," Murphy said.**

During Murphy's presidency, ESF has been widely recognized as one of the best colleges in the nation, garnering solid rankings in publications such as U.S. News & World Report, Forbes and Washington Monthly. Also under his leadership, the College improved the quality of its student body and increased its enrollment: In 2000, ESF's freshman class included 190 students and the College's total enrollment was about 1,600, including graduate students. By comparison, the 2012 freshman class was a record 327. At the same time, the College's total enrollment has grown to more than 2,300.

The College also expanded its academic offerings, adding programs such as bioprocess engineering and sustainable energy management, and increased to more than 75,000 the number of hours its students devote to community service. Murphy also greatly increased ESF's partnerships with businesses and other educational institutions throughout the Central New York region. ESF has emerged as a leading partner in new economic drivers such as the Syracuse Center of Excellence and the CNY Biotech Accelerator.

Student life was enhanced under Murphy's leadership by the establishment of an intercollegiate athletic program.

Murphy joined ESF after a 30-year career with Syracuse-based O'Brien & Gere, an environmental engineering firm, where he rose to the position of president and chairman of the board. Murphy helped transform the company from a regional engineering firm into a multifaceted international corporation.

Murphy has a doctorate in chemistry from Syracuse University, where he was a NASA Fellow, and a bachelor's degree in chemistry from St. Michael's College. He received an honorary doctor of science degree from Clarkson University in 1997.

## **Murphy honored as F.O.C.U.S. 2013 Wisdom Keeper**

ESF President Cornelius B. Murphy, Jr., was honored this spring as F.O.C.U.S. Greater Syracuse's "Wisdom Keeper," which recognized his efforts to make Central New York more sustainable and a better place to live, work and play.

When the committee was looking at candidates for the 2013 Wisdom Keeper award, Murphy was an easy choice, said F.O.C.U.S. Executive Director Charlotte "Chuckie" Holstein. "Neil is the essence of a Wisdom Keeper," she said.

According to Native American legends, the Wisdom Keeper is one who hears the earth's story and teaches others to learn from, honor and care for the earth and their community. "Neil understands that our community is only on loan to us from the generations that came before," Holstein said, "and he knows it is our job to leave it better than we received for the generations that have yet to come."

The recognition will be commemorated with a bronze plaque placed in the F.O.C.U.S. Wisdom Keeper Garden on the east side of City Hall Commons in downtown Syracuse. The Wisdom Keeper Garden is one way F.O.C.U.S. demonstrates the power and effect of sustainability on the local area.

## **ESF recognized for value, quality, leadership**

ESF was highly ranked this year for the value it offers students, the quality of its environmental programs and its role as a leader in climate issues.

■ The College was named one of the nation's 150 "Best Value" colleges and universities by The Princeton Review. The college guide describes ESF as "nationally renowned" and quotes ESF students who described the College as "a small, personal school" with "tough coursework" where professors are "brilliant in their fields" as well as "supportive and easy to find and speak to." Students say they are impressed by faculty members who "can back up their teaching with real experiences."

■ Mother Nature Network ranked ESF second on a list of the Top 10 Best College Environmental Programs in the United States. Mother Nature Network noted ESF "handles more than 25,000 acres of land in Central New York and the Adirondack Park, where nearly 2,500 students in the graduate and undergraduate program choose majors as specific as aquatic and fisheries science, construction management, forest ecosystem science, paper engineering, and bioprocess engineering. Research takes priority, too, with faculty working on more than 450 projects — including wildlife disease prevention, nanotechnology, and genetic engineering — around the world."

■ The College is a finalist in the Second Nature 2013 Climate Leadership Awards, an annual competition among U.S. colleges and universities that are signatories of the American College & University Presidents' Climate Commitment (ACUPCC). ESF was selected as a finalist based on a nomination that detailed the College's commitment to achieving carbon neutrality by 2015, its incorporation of sustainability into the accreditation process and technological innovation, particularly in the construction of the new Gateway Center. Winners will be chosen from among videos submitted by the finalists.

■ ESF is listed in the 2013 Princeton Review Guide to 322 Green Colleges. The Princeton Review partnered with the U.S. Green Building Council to identify the schools with the nation's most eco-friendly campuses and present information about each school's sustainability, "green" majors and "green" job placement.

The publication cites ESF's involvement with the development of an ethanol-producing biorefinery in New York and notes the College is committed to being carbon neutral by 2015.





Seniors Eugene P. Law, left, and Aislinn Brackman received the Chancellor's Award for Student Excellence. Chancellor's Award honorees excel both in academic achievement and in the areas of leadership, athletics, community service, creative and performing arts or career achievement. Law is an environmental resources engineering major, the undergraduate representative to the ESF Board of Trustees, the ESF representative to the Syracuse University Student Association and a brother of Alpha Phi Omega Community Service Fraternity. Brackman is a paper and bioprocess engineering major. She served as president and treasurer of the Undergraduate Student Association and as a member of the Empire Forester yearbook staff and the Green Campus Initiative.

## New degree focuses on energy management

ESF has introduced a new Sustainable Energy Management undergraduate degree program that focuses on energy markets, management and resources.

The program is designed to give students an understanding of responsible energy resource use and insight into how these resources impact the natural world. The program is interdisciplinary and involves coursework in the natural sciences, social sciences and humanities, communication, and quantitative/qualitative problem-solving and critical thinking skills.

"The study of responsible energy resource use and the development of sustainable sources of energy is a critical national and global issue," said David Newman, chair of the Department of Forest and Natural Resources Management, which houses the new program. "We need decision makers who are knowledgeable about the quality and quantity of potential energy sources and the ways they can affect the environment and human health. Students who study in this program will be well prepared to meet these challenges."

Twelve students have enrolled in the program, which was offered for the first time in the fall.

The ESF campus provides numerous opportunities for hands-on learning for students in the program. The College, which has committed to achieving carbon neutrality by 2015, already has several photovoltaic arrays, a biodiesel production facility and a fueling station for fleet vehicles that run on alternative fuels.

Most significantly, however, students in the program will be able to learn through the operation of ESF's new Gateway Center, which will house a state-of-the-art combined-heat-and-power plant that will provide energy for the center and four other campus buildings.

"The Gateway Center will give our students a unique opportunity to learn about sustainable energy while they watch it at work," said Michael Kelleher, ESF's executive director of energy and sustainability, who also will serve as a faculty member in the new program. "This will be a learning experience like no other."

Students seeking the degree will earn at least 120 credits. Graduates will be prepared for jobs in energy resource management positions with public agencies, private industry and non-profit organizations.

## Alumnus receives Japan Prize

Dr. Jean M.J. Fréchet M.S. '69, Ph.D., '71, was a recipient of the 2013 Japan Prize, one of the most prestigious international awards in science and technology.

Fréchet was honored along with C. Grant Willson for outstanding achievement in the "development of chemically amplified resist polymer materials for innovative semiconductor manufacturing processes." The foundation annually awards the Japan Prize, now in its 29th year, to scientists and researchers in two categories who, regardless of nationality, made substantial contributions to their field as well as peace and prosperity of humankind.

Fréchet studied chemistry at ESF with Dr. Conrad Schuerch, a renowned chemistry professor who was known for his work in polymer, carbohydrate and wood chemistry. Fréchet, who also holds a doctorate from Syracuse University, is vice president for research at King Abdullah University of Science and Technology in Saudi Arabia. He has served as an adviser to several global companies, including Unilever, IBM Corp., Xerox and DuPont.

Fréchet delivered his acceptance speech with advice for young scientists: "In order to solve technological problems, it is often good to gather a team of people with different backgrounds: some who will be able to draw from their experience and intimate knowledge of a technology, and others with a different background and perhaps little experience, but who may be able to suggest new or unusual ideas. I have been very fortunate to work closely with Grant Willson, a man with a most creative mind, outstanding leadership qualities and a wonderful personality."

The Japan Prize aims to reward those who have made a substantial contribution to the advancement of science and technology as well as peace and prosperity.



Dr. Jean M.J. Fréchet





## Research raises questions about dams' effect on fish migration

Major hydropower dams in the northeastern United States, constructed with state-of-the-art features designed to allow migratory fish to pass through on their way to spawn upstream, have failed in that regard, raising questions that should be addressed as more dams are planned worldwide.

Those findings were reported in a study published in January in the journal "Conservation Letters." Dr. Karin Limburg, a fisheries ecologist at ESF, was a member of the research team and is the second author on the paper.

The team of ecologists and economists reported that despite the presence of fish passage facilities that were built into the dams, the actual numbers of fish that passed through them during several decades were only tiny fractions of targeted goals.

"It may be time to admit failure of fish passage and hatchery-based restoration programs and acknowledge that ecologically and economically significant diadromous species restoration is not possible without dam removals," stated the paper, written by lead author Dr. J. Jed Brown of the Masdar Institute of Science and Technology in Abu Dhabi, United Arab Emirates, and his colleagues.

The three large river systems studied — the Merrimack, Connecticut and Susquehanna — are historically important rivers for a suite of fishes that migrate from the sea to rivers; they are called diadromous fishes by scientists and include species such as sturgeon, salmon, shad, river herring and eel.



Dr. Christopher Nomura

## Nomura takes aim at bacteria

ESF scientists are developing a biochemical process that uses a protein molecule to disrupt the process by which bacteria become virulent, a finding that could have widespread implications for human health.

The work is led by Dr. Christopher Nomura of the College's Department of Chemistry, who discovered that a simple protein molecule can interrupt the process bacteria use to move, eat, attach to surfaces and communicate with one another or, in other words, to become potentially harmful.

"This is fundamentally a new way to think about blocking bacteria from becoming virulent," Nomura said.

Exposing bacteria to the synthetic protein disrupts the developmental sequence that is common among such organisms, he said. This gives the process the potential to work against an array of bacteria including those that threaten patients with certain illnesses, such as cystic fibrosis, stubborn strains that commonly affect hospital patients and strains that occur in desert environments and prove troublesome for

U.S. troops serving in Afghanistan or similar arid environments.

The College is seeking to patent the process.

Nomura is working with his post-doctoral researcher, Dr. Benjamin Lundgren.

The antimicrobial process has an added advantage over traditional antibiotics currently in use: It will be extremely difficult for bacteria to do an end run around the process by simply mutating. Since the protein targets hundreds of genes simultaneously, a corresponding mutation also would involve hundreds of changes. Traditional antibiotics attack only one aspect of the bacteria's development, making mutation a simpler task.

"Basically, we're interrupting the flow of genetic information in the cell, in effect 'hacking' the program of the bacterial cell," Nomura said. "If we can fundamentally control the mechanism of gene expression, we can control what the bacteria are capable of doing. We can prevent them from becoming virulent."





## ESF Scientist Rediscovered Long-lost Giant Fish from Amazon



Dr. Donald Stewart and an Arapaima gigas skeleton

An ESF professor has put aside nearly a century and a half of conventional wisdom with the rediscovery of a species of giant Amazonian fish whose existence was first established in a rare 1829 monograph only to be lost to science some 40 years later.

Dr. Donald Stewart, a fisheries professor, found evidence in the monograph of a second species belonging to the genus *Arapaima*, air-breathing giants that live in shallow lakes, flooded forests and connecting channels in the Amazon River basin.

For 145 years, biologists have thought that *Arapaima* consisted of a single species whose scientific name is *A. gigas*. But Stewart rediscovered a second species that he describes in the March issue of the journal "Copeia," published by the American Society of Ichthyologists and Herpetologists.

"In a sense, this forgotten fish has been hiding in plain sight in this old monograph but that monograph is so rare that it now resides only in rare book collections of a few large museums," Stewart said. "I was truly surprised to discover drawings that revealed a fish very different from what we consider a typical *Arapaima*."

This different species was originally named *A. agassizii* in 1847 by a French biologist but a catalog published in 1868 considered it to be

the same species as *A. gigas*. That second opinion was widely accepted and, since then, no scientist has questioned that view.

"What is remarkable is that this fish was not rediscovered swimming in the Amazon but, rather, on the pages of a rare monograph from 1829 that described its anatomy in great detail," Stewart said.

The fish described in the monograph had been collected in the Brazilian Amazon about 1819 and carried to Munich, Germany, as a dried skeleton. There the Swiss biologist Louis Agassiz, who was just beginning his career and later became a professor of zoology at Harvard University, supervised a technical illustrator in drawing the complete skeleton in great detail. At that time, however, he applied the name *Sudis gigas* to the drawings. That rare skeleton was in a museum in Germany until World War II, when it was destroyed by a bomb dropped on the museum.

Stewart said those drawings reveal numerous distinctive features that leave little doubt it should be considered a valid species. Those features include details related to the fish's teeth, eyes and fins.

Stewart's research was supported, in part, by National Geographic Society and ESF.





Above is one of the cheetahs Deanna Russell works with through Action for Cheetahs in Kenya. At right is a cast of a jackal footprint that Russell brought to ESF on a recent campus visit.

## Deanna Russell '11 Named Roosevelt Young Explorer

A 2011 ESF graduate has been honored by ESF's Roosevelt Wild Life Station (RWLS) as the first Roosevelt Young Explorer.

Deanna Russell, who earned a degree in wildlife science, received the award because she displays a passion for natural history and fieldwork exemplified by Theodore Roosevelt, for whom the station is named. Roosevelt Young Explorers, selected from among current ESF students or alumni under the age of 30, receive a modest cash award and their work is highlighted in RWLS web and print media.

Russell works with Action for Cheetahs in Kenya to sustain a population of cheetahs by conserving their prey species, managing their competitors and researching their habitat requirements. Her work also has a major community development and education component.

Working with local Kamba, Samburu and Masai people, Action for Cheetahs in Kenya (ACK) informs communities of the ecological and economic importance of predators in Kenya. During her first year with ACK, Russell participated in cheetah-related research and monitoring, human-wildlife conflict interviews and community meetings on protecting livestock from predators. She represented ACK last summer at an international conference in Nairobi, Kenya, to reduce poaching in Africa.

Russell was in the United States to apply for grant funding for a national survey of cheetah populations in Kenya before returning to Kenya this spring.

"There's wildlife everywhere. We heard lions and hyenas every night. The people are so friendly. It's like no place else on Earth," she said. Her next step is to work with scat detection dogs to assist a graduate student collecting fresh cheetah scat to test their stress levels outside of national parks and reserves.

Russell recently visited ESF to deliver a cast of a jackal footprint she collected in Kenya to Dr. Jacqueline Frair, associate director of the RWLS. Russell said her ESF classes gave her real-world experience and that the school's small size allowed her to build relationships with faculty members that helped her make career connections.

"The methods I learned are exactly those used in the field ... global positioning systems, geographic information systems, distance sampling, camera traps, animal track identification, data analysis," she said. She sees that ESF wildlife science graduates are working in organizations around the globe. "We're a small school," she said. "But we make a big impact."



Deanna Russell, third from left, has been honored as ESF's first Roosevelt Young Explorer. She is shown here at a gathering of Americans and Kenyans during her work in Kenya.



# Happy Trails

## Trailhead Café Opens in Gateway Center

There's a new eatery on the ESF campus. The Trailhead Café opened its doors to the ESF community March 18.

The Trailhead Café, located in the College's new Gateway Center, is a collaborative venture between ESF and Morrisville State College. The eatery will be operated by the Morrisville Auxiliary Corporation (MAC) through a new ESF Auxiliary Services division. MAC currently operates five food service locations on the Morrisville campus.

Junior Farrah Hassan and sophomore Laura LaBarge were the first two customers in line on opening day. Both were pleased with the new dining spot and its menu. Said Hassan, after tasting her hamburger and fries, "It's great!"

Kim Muniz, associate director of dining for MAC, was looking forward to learning what the students thought of the café. "I can't wait to hear what the kids have to say. I'm curious to see what's different on this campus compared to ours."

A grand opening celebration was held March 26 with ESF President Cornelius B. Murphy, Jr., and Dr. William J. Murabito, interim president of Morrisville, speaking at the event. Light refreshments from the café were served.

The ESF community selected "The Trailhead Café" as the facility's name via an online poll of students, faculty and staff. "The Trailhead Café" received 576 votes and won by a margin of only 21 votes over the second-place entry, "The Treehouse."

Artwork used in The Trailhead logo design was inspired by an illustration originally found in a 1929 Camp Log produced by the sophomore students who attended a mandatory ESF Summer Camp that year. The Summer Camp was designed to give students practical field experience, and the Camp Log contained stories about activities, research papers, jokes, photos, poetry and artwork. The illustration accompanied a poem called "Trails," which was attributed only to "A.R.S." The poet might have been a student listed as assistant business manager in the Camp Log, Arthur R. Spillers.



A food service advisory committee will be established at ESF this spring to provide student, faculty and staff input on menu items, sustainability considerations and other management decisions. The new café employs a number of ESF student workers.

The Trailhead Café supports New York state producers, growers and manufacturers by purchasing many products within the state. The creative café menu has daily specials and will be open 11 a.m. to 5:30 p.m. Monday through Friday. Nature and simplicity are combined in the décor of the Trailhead Café to give it a warm, inviting atmosphere while the kitchen is outfitted with equipment that meets LEED Platinum certification requirements. The café anchors the large main concourse area of the Gateway Center and serves as a comfortable gathering place for all members of the ESF community with the capacity to seat 140 guests.



Junior Farah Hassan, wildlife science, and sophomore Laura LaBarge, conservation biology, were the first two customers at The Trailhead Café, the new eatery located in the Gateway Center.





Pictured clockwise from top left: The Gateway Café has become a popular spot on campus for students, faculty and staff.

Junior Kristen Howard, a natural history and interpretation major, is a submarine sandwich maker extraordinaire.

Becca Dowsland, executive chef, center, unveils the Big Neil Burger during the Trailhead Café opening. Pictured with Dowsland are ESF President Cornelius B. Murphy, Jr., left, and Morrisville State College Interim President William J. Murabito.

The Chef gives the daily lunch specials.





## Newcomb work-study students pocket knowledge along with paychecks for a summer's work

Over the last 25 years, some 200 ESF students have been employed in work-study jobs at the College's Newcomb Campus; together, they have painted 340 miles of boundary and grid lines, measured 1,315 Continuous Forest Inventory plots, inventoried 14,000 acres of stands on Huntington Wildlife Forest – virtually everything that's not under water – and captured and tagged more than 1,000 mice, chipmunks, shrews and other small mammals.

"Getting work experience before entering the employment world is essential to success," said Stacy McNulty, associate director of the College's Adirondack Ecological Center at the Newcomb Campus. "The federal work-study program provides critical assistance to these students while they're in college. It helps pay for their education and, at the same time, enables them to gain skills in natural resource fields. They learn things like species identification, wildlife handling and communication skills. Plus, they are a tremendous help to the staff as we maintain this huge piece of property."

Every summer, the busiest season in Newcomb as students, faculty members and visiting scientists arrive to study and do research, the work-study students staff two crews that set out into Huntington Wildlife Forest (HWF).

Forestry operations work-study students are responsible for work assignments such as forest surveying, mapping and timber stand improvement. The forestry crew, under the supervision of forester Michael Gooden FOR '78, has spent the equivalent of 19.3 years working in the woods since 1988. Gooden said students learn about chainsaw operation,

herbicide application and other special skills taught by experienced foresters. "By the end of summer, they are proficient in tree identification, orienteering and maintaining safe operations in the forest," Gooden said. "Those are all skills they can use in their careers."

Wildlife Technician Charlotte Demers EFB '86 supervises the wildlife crew. Duties for those students can involve live-capture of animals; tagging and radiotelemetry of mammals including white-tailed deer, mustelids (members of the weasel family) and small mammals, such as chipmunks and mice; loon surveys; amphibian censusing; aquatic sampling; litter and seed collection; and wildlife habitat and vegetation inventory. Demers said the students mark plots and maintain trails and equipment used in labs and the field. "They help with data entry and analysis and work alongside graduate students and researchers," Demers said.

Typically, four students are assigned to each work crew.

Andrew Blum FNRM '87, now a senior forester with the New York Department of Environmental Conservation, said his work-study job at Huntington Wildlife Forest provided the first step in his forestry career.

"The work study allowed me to earn some money and further develop the field skills I had learned in the classroom. I did field work such as forest inventory and transect surveying, which provided me practical field experience that employers desire and which aided me in finding employment in forestry after graduation from ESF," he said.

**"I feel extremely lucky to have been a work-study student at HWF and remember those days fondly. I consider my time at HWF to be among the best experiences of my life."**

— Joshua Millspaugh '91



Dr. Joshua Millspaugh EFB '91, a work-study student in 1989 and 1990 who now is a professor of wildlife management at the University of Missouri, said his time in Newcomb was “incredible, both personally and professionally.”

“I feel extremely lucky to have been a work-study student at HWF and remember those days fondly. I consider my time at HWF to be among the best experiences of my life,” he said. “HWF was a wonderful introduction to becoming a field biologist because of the research opportunities and mentoring by staff, graduate students and faculty.”

One of the students who worked with Demers was Desiree Narango EFB '06, who recently earned her master's degree in urban ecology from Ohio State University, where she studied the effects of urbanization on avian behavior. Her main responsibility was kayaking around lakes monitoring common loon reproduction.

“My time in Newcomb, especially with the loon monitoring program, gave me the initial research skills I needed on my resume to apply for field ecology jobs after I graduated from ESF,” Narango said. “Since then, I've worked on both mammals and birds all over North and South America, from the White Mountains of New Hampshire to the Sonoran Desert in Arizona and the rainforests in Ecuador.”

They are some of the many students who have made a difference at the Newcomb campus in the last 25 years.

“These two crews create the foundation on which experiments and long-term research on Huntington Wildlife Forest are based,” McNulty said. “They make a real contribution to what happens here.”

For more information on the work-study program at the Newcomb Campus, visit [www.esf.edu/aec/jobs/workstudy.htm](http://www.esf.edu/aec/jobs/workstudy.htm).



The summer 2012 Newcomb Campus summer student workers posed for a group photo, above. On the previous page, some of the students are seen with Adirondack Mountain Club trail-work supervisors.



## Ranger School celebrates a century, moves on with new leadership

The ESF Ranger School in Wanakena will complete its Centennial Celebration in 2013 and welcome new leadership as Dr. Michael Bridgen takes over as director from Christopher Westbrook, who will retire after 18 years as director.

Westbrook, a member of The Ranger School Class of 1973, led the school through the growth of the academic program, with the addition of degree offerings in land surveying technology and environmental and natural resource conservation, and the expansion of the physical facilities. The \$6 million expansion, completed in 2002, added a smart classroom, conference room and new dining facilities. Existing facilities were rehabilitated as part of the same project. He has also been involved in leading economic development efforts in St. Lawrence County.

Westbrook served as an equipment technician and faculty member before he became director in 1995.

Bridgen joined the faculty in 1992. He earned a Ph.D. in tree physiology and genetics from Michigan State University and worked with Westvaco Corp. in West Virginia for two years before joining The Ranger School faculty. The courses he teaches include dendrology and silviculture.

The Centennial Celebration will conclude as Westbrook presides over his final Ranger School graduation in May. The celebration kicked off with the annual alumni reunion in August and expanded to the community with a family-oriented event called the Forest Festival in September. In February, the Winter Rendezvous featured current students facing off against the alumni in a hockey game (the alumni won) and a dinner for alumni, students, staff and friends at the Wild Center in Tupper Lake.



Christopher Westbrook



Dr. Michael Bridgen



# Indigenous Wisdom &

# Environmental Science

# Find Harmony

## Camp Immerses Native American Youth in Field Biology

by Karen B. Moore



Robin W. Kimmerer

"It's total immersion field biology, and it's that sense of re-energizing curiosity again and our natural powers of observation," said Dr. Robin Kimmerer, describing the Native Earth Environmental Youth Camp.

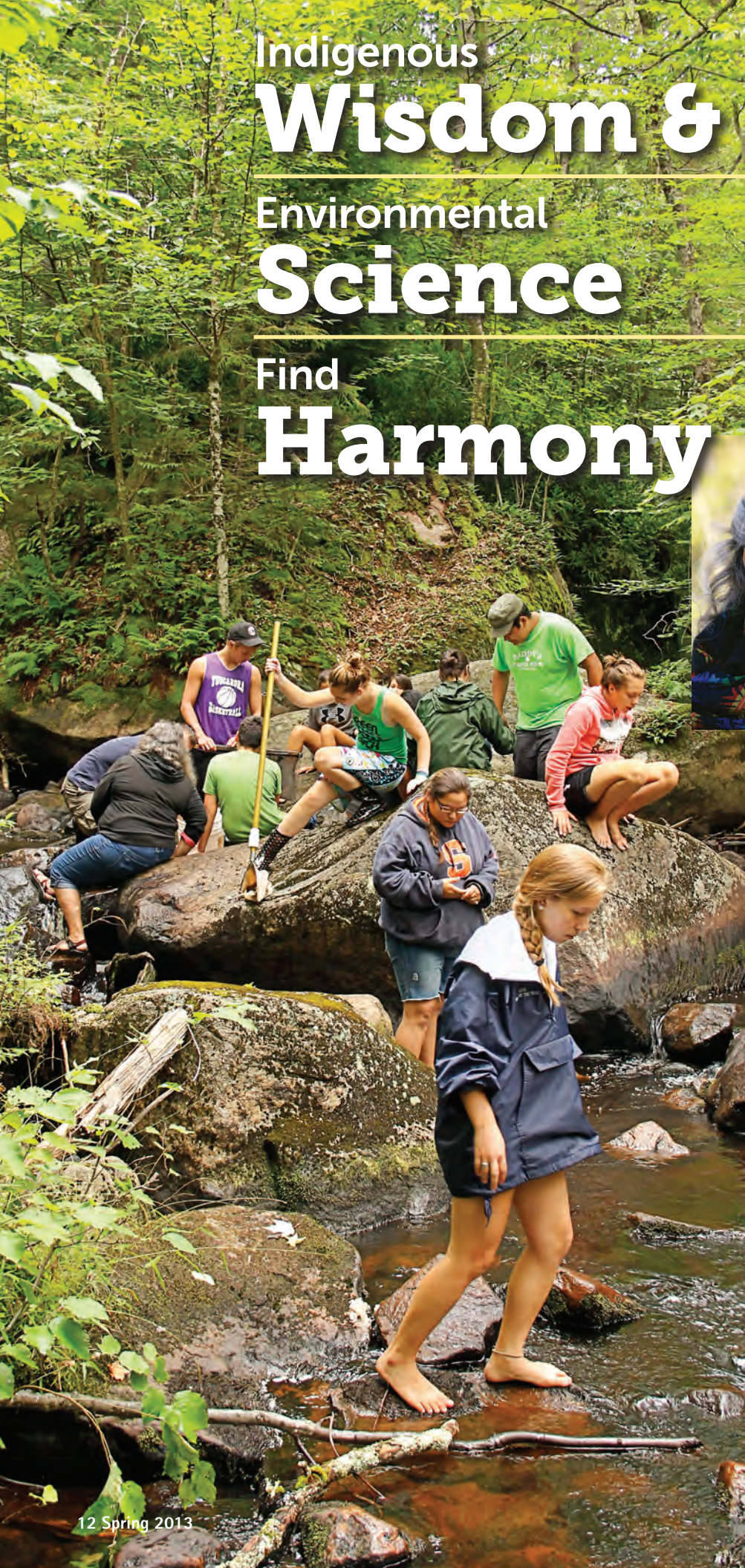
The camp, offered by the Center for Native Peoples and the Environment at ESF and run in collaboration with the Haudenosaunee Environmental Task

Force, weaves together the traditional knowledge of the Haudenosaunee with environmental science. The camp provides a 10-day experience for indigenous youth from all over the Northeast blending traditional environmental knowledge and environmental science. It is funded by the National Science Foundation.

Campers spend the first five days at Thompson Island Youth and Elders Camp in Akwesasne, N.Y., exploring indigenous values and culture. The remaining days are spent at ESF's Cranberry Lake Biological Station in the Adirondacks, where the science-related activities are also tied to traditional Haudenosaunee teachings.

"It's a braiding together of environmental science and traditional ecological knowledge," said Kimmerer of ESF, director of the Center for Native Peoples and the Environment.

For example, she explained, when the basket makers come to camp, they show students how the traditional baskets are made from black ash trees by first learning about the tree. Because the black ash tree is one of the targets of the invasive emerald ash borer, a wood-boring beetle that is blamed for destroying more than 50 million ash trees in the United States since





the beetle was discovered in Michigan in 2002, the students also learn about potential threats, Kimmerer said. “Together, we look at the ecology of the tree, its cultural importance in basketry and the conservation threat from invasive species.”

Considering the scientific backdrop, the camp is extremely innovative. “Often times native youth don’t participate in western science to the extent that they might because they often feel it’s at odds with traditional culture,” said Kimmerer. “What we’re trying to demonstrate through the camp is that traditional knowledge and science work together hand in hand. Traditional teachings about how to care for the earth can be used in partnership with Western science. We also hope to encourage their participation in environmental science careers.”

Started in 2007, the camp has already seen some of its early participants pursue higher education in environmental fields including tribal environmental leadership from a political perspective. “Simply to have them go on to college is a big deal,” Kimmerer said. “They’re often the first generation in their family to go to college.”

The camp is one way the Center approaches its mission to educate the next generation of environmental leaders to

use “the wisdom of both indigenous and scientific ways of knowing,” according to Kimmerer. And while the camp is one of the Center’s most visible activities, the work is more far reaching than the educational program for youth:

The Center is also working with Neighbors of Onondaga Nation, a local group that collaborates with the Onondaga Nation on environmental protection, restoration and other issues, including the Two Row Wampum Renewal Campaign.

Dr. Jack Manno of the Department of Environmental Studies is leading ESF’s participation in the campaign, which is developing an educational effort to commemorate the 400<sup>th</sup> anniversary of the first treaty between the Haudenosaunee and European settlers. The highlight of the campaign will be a 13-day trip down the Hudson River this summer with participants traveling side by side from Albany to New York City to depict the imagery symbolized by the Two Row Wampum: the two cultures traveling peacefully on their own journeys.

Educational stops along the way during the trip will serve to inform people about what the treaty meant and how it is carried into contemporary life. Part of the event is expected to take place on Onondaga Lake.

The Center recently received a \$700,000-plus grant from the U.S. Department of Agriculture to partner with the College of Menominee Nation. The Menominee are the Keepers of the Great Menominee Forest in Wisconsin. “It’s a beautiful intact forest,” said Kimmerer. “It looks like old growth, but it’s a forest managed according to traditional indigenous principles.” Dr. Colin Beier of ESF is co-principal investigator on the grant.

ESF’s Huntington Forest at the College’s Newcomb Campus will be a sister forest to the Great Menominee Forest and the two institutions will partner on writing a new forest ecology course to bring together traditional and scientific knowledge. “The course can be taught at both schools,” said Kimmerer. There also will be a research exchange with five students from ESF and five from the Nation. The students will conduct research in the two forests related to forest well-being and climate change.

“It’s a very exciting project,” she said. “We talk a lot about the importance of bringing together Western and traditional ways of knowing and here we’re really going to be able to do that in the class and on the land.”



Stream ecology is one topic examined during Native Earth Environmental Youth Camp, pictured on page 12. Pictured from left, Mia Arnold, a member of the Onondaga Nation, takes a hands-on approach to studying nature. Learning Native American dances is part of the camping experience. Campers prepare canoes for a trip on the lake.

**To read more about ESF’s involvement with the Two Row Wampum Renewal Campaign, go to page 15.**

**To learn more about the Center for Native Peoples and the Environment, go to [www.esf.edu/nativepeoples/](http://www.esf.edu/nativepeoples/).**



A group of ESF's most outstanding undergraduates left campus in the spring of 2012 and headed out to spend the summer working in ecosystems ranging from rivers to the pine bush and settings as diverse as a wolf park in Indiana and a museum in Moscow, all part of their participation in the ESF Honors Program.

## On their honor

By Karen B. Moore, Claire B. Dunn and Dee Klees

The eight students were the first ESF students able to take advantage of internships offered by the Honors Program. The opportunity is a new one, supported by a gift from Douglas G. Dellmore WPE '68 and his wife, Dana. The gift was made through ESF's Centennial Campaign, the College's first comprehensive capital campaign.

The Dellmores hope the new opportunities will increase student motivation to explore solid concepts and research before they graduate and enter the working world.

"It's a focused way to try and assist students who are competitive and motivated to do the good things that are needed in the world," Douglas Dellmore said when he attended ESF's December Convocation to receive the ESF Alumni Association's Lifetime Achievement Award.



Dana and Douglas G. Dellmore WPE '68

The ESF Honors Program has two aspects: The Lower Division Honors Program provides first- and second-year students with experiences that engage them in unique challenges. The Upper Division Honors Program provides opportunities for junior and senior students to complete intensive research and creative projects under the guidance of faculty.

Dr. William Shields, a biology professor who serves as director, said his vision for the program is to provide the richest academic experiences possible to ESF's best students and help prepare them for life after college.

"Providing funding for the honors students to do this makes the internship experience a centerpiece for them to become passionate about the Honors Program and ESF. And by finding appropriate partners, we can use it as seed money to grow the program," Shields said.

He described internships as a critical part of an experiential education, one of the hallmarks of the ESF student experience.

"This allows them to follow their hearts instead of just following the money," Shields said. "This program challenges them. It is intended to make them apprentices to science, not just students of science."

Shields expects the College to formalize its relationship with some of the institutions that host internships as the program develops. Prospective partners include businesses, governmental agencies and nongovernmental organizations.

The Dellmores' financial support also enables ESF honors students to participate in national undergraduate research conferences to share the results of their work and network with their peers from institutions across the country.

"We are exceedingly grateful to the Dellmores for investing in our students this way," Shields said. "Some of our most dedicated students now have opportunities they've never had before. This is an investment both in these deserving students and in the College as a whole."

*The honors students tell their stories...*



*Aya Yamamoto*

## Internship Leads to Journey Down the Hudson

Aya Yamamoto arrived at ESF interested in activism, eager to do some hands-on learning outdoors and ready to challenge herself academically.

It all came together last summer through her Honors Program internship with the Two Row Wampum Renewal Campaign, which will sponsor a voyage down the Hudson River to commemorate the 400<sup>th</sup> anniversary of the first treaty between the Haudenosaunee and European settlers.

"I love the idea of hands-on learning. That's the reason I came to ESF," said Yamamoto, an environmental biology major from Staten Island who attended high school in New York City's Lower East Side. "But I definitely didn't foresee that activity panning out on my home river."

The campaign kicked off in Syracuse in February with an event called "Sharing the River of Life" at Syracuse Stage. The highlight of the campaign will be a 13-day trip down the Hudson River this summer with participants traveling side by side from Albany to New York City to depict the imagery symbolized by the Two Row Wampum: the two cultures traveling peacefully on their own journeys.

Through her internship, Yamamoto served as the logistical organizer for a four-day trial run in which she

and other participants paddled canoes and kayaks from Saugerties to Bear Mountain State Park, a journey that translates to a 60-mile road trip. Yamamoto lined up camping accommodations, helped organize meals and met with supporters who came to meet the travelers during the four-day trip.

She received a stipend for the work she did this summer, and her internship is continuing on an unpaid basis through her senior year at ESF. She will work on the project until August. Her long-term goal is a career at the crux of indigenous and environmental issues.

"I didn't foresee that the honors internship would give me a chance to do this sort of hands-on learning. I saw it as a chance to challenge my skills academically," she said. "It's just wonderful that it ended up giving me hands-on experience as well as a chance to learn applicable skills like being an organizer for an educational campaign like this."

"This is one of the most enriching experiences of my college career. It's given me really tangible skills in the fields that I see myself moving into."





Dave Keiter

## Research Takes Student to Russia

Dave Keiter, originally from Portland, Ore., and now a senior majoring in wildlife science, found his honors project took him across continents and beyond the Arctic Circle.

Keiter worked on a small-mammal study with a professor from the University of Alaska at Fairbanks and two biologists from the Russian Academy of Sciences. He traveled first to St. Petersburg, Russia, then to Moscow. At the zoological museum of Moscow University, he studied the collections of small mammals to learn what information could be gleaned from existing resources.

"It's interesting work," he said, but challenging because the information at Moscow University wasn't digitized. The difference in technology was a bigger challenge than language.

"I tried to learn a little bit of Russian before I went," Keiter said. He learned more of the language while he was traveling. "I picked up a lot about how to get around and enough for day-to-day use, but I'm nowhere near fluent."

From Moscow, he journeyed across the Ural Mountains to Labytnangi in western Siberia to join a research expedition that trekked north and set up camp beyond the Arctic Circle. His field work involved the live trapping and observation of six species of voles and two species of lemmings as well as helping with the capture of mountain hare, ptarmigan and even a banded peregrine falcon.

While it was summer in the Arctic, there were challenges: "The mosquitoes were absolutely terrible," Keiter said, even as he noted that they were a small part of the unforgettable experience. "There were one or two amazing camp dinners," he said. "Everybody made food and sat and talked for hours."

The honors project grew out of work Keiter did in the summer of 2011 while helping a doctoral candidate in Alaska. While there, he worked on some research of his own. A professor from the University of Alaska saw his side research and recognized that Keiter's research abilities and small animal trapping experience would be valuable for the mammal survey. Keiter developed his study with the help of ESF Associate Professor Jacqueline Frair. He is analyzing the data he gathered from the Labytnangi small-mammal survey for a chapter in his honors thesis with hopes to have it published. Such population studies can provide clues about climate change, he noted.

## Counting Turtles Via Kayak

For most people, spending the summer kayaking on a river is an exercise in relaxation. For Amy Chianucci, a conservation biology graduate student, it was part of her research on northern map turtles on the Susquehanna River in New York's Southern Tier.

Following up on a 2006 study of the turtle population by Dr. Victor Lamoureux from SUNY Broome Community College, Chianucci wanted to ascertain whether the turtle population had changed.

"Last year, the Southern Tier was hit really hard by Tropical Storm Lee and saw the highest floods ever recorded in the area," she said. "Although turtles are adapted to flooded conditions, I figured that such a catastrophic event would have some sort of effect on the population."

Because her trapping permit didn't arrive from the DEC until the middle of the summer, Chianucci spent the first half of the summer conducting turtle surveys on the Susquehanna and Chenango rivers to determine the extent of the northern map turtle population. Using GPS and Google Earth, Chianucci mapped the turtles' locations in the river. "Using these locations, I determined the best places to anchor the basking traps later in the summer," she said.

Throughout the summer, she caught approximately 25 turtles. "We even recaptured a huge female from the 2007-2008 field season. It was exciting to see that the marks held up over the four years as well as seeing how much the turtles had grown over those four years," she said.

Although Chianucci didn't catch enough turtles to accurately determine a number for the present population, she used the field data from the 2007-08 season and calculated a population size of approximately 125 individuals. "However, by using corresponding dates between the two field seasons (2007-2008 and 2012), I found that on similar dates, similar numbers of turtles could be seen basking," she said. "From this I concluded that the populations between the two years were probably very similar."

Chianucci credits the honors program with giving her an opportunity she might not have had otherwise. "I was able to receive funding to conduct my research which I otherwise

would not have. I gained valuable experience in the field in addition to learning how to conduct research independently. Additionally, the paper that I wrote in conclusion of this project helped me to further refine my professional writing skills."

Amy Chianucci







Shelby Delgado

## Endangered Butterflies Nurtured in Preserve

Karner blue butterfly populations have declined greatly due to human activities; Shelby Delgado spent her summer working to restore this endangered butterfly to New York.

Delgado, a senior wildlife science major, conducted research at the Albany Pine Bush Preserve where she helped raise Karner blues as part of the Albany captive breeding program and then released them back into the preserve.

The Karner blue is experiencing a decline primarily due to human activities such as agriculture, urbanization and fire suppression. "Although facing environmental challenges elsewhere, Karners in general are doing pretty well in the Albany pine bush," said Delgado. "Because they are very host specific, in the early stages of life, habitat preservation is essential for species survival."

Adult female Karner blue butterflies are captured from New York sites and immediately transported to a rearing facility in Concord, N.H. Eggs produced by these butterflies are raised to chrysalises and brought to the Albany Pine Bush Preserve. The adults that emerge are released into restored habitat to begin new colonies. According to the state Department of Environmental Conservation, in many cases these "new" colonies in fact represent the return of the iconic species to the very spots where it was once abundant.

Delgado was also able to devote some time to her honors thesis, looking at the genetic structure of prairie warblers, which involved banding the birds and taking blood samples weekly. But most of her time was devoted to the butterflies.

"A group of butterflies that I let go had a second brood a few meters from the release site," she said. "That was really rewarding." The butterflies aren't tagged, but because they don't move long distances from their birth site, researchers know the parts of a brood based on where they are located and the butterflies that were there before them, she said.

The hot summer of 2012 led to more than one brood of butterflies last year. "It was really neat and doesn't happen often!" Delgado said.

## Everything Leads to Food

Michelle Meyer has a lot of interests including working with children, writing and communication, and environmental issues. The more she pursued her various interests during her first three years at ESF, the more they combined to focus her attention on what became, in her view, an increasingly common thread: food.

"More and more, I kept coming back to food. Everybody eats. Everybody wants to eat three times a day," she said. "People have lost the connection to where their food comes from. We think it comes from the grocery store. We've completely disassociated it from the environment."

Meyer's interest in food and her participation in ESF's Honors Program led her to an internship last summer with Atlantic States Legal Foundation in Syracuse. She spent her time researching urban agriculture, learning about the mechanisms that make it work, the benefits of producing food in urban settings, restrictions and regulations, and land use challenges. She also visited urban agriculture sites in Pittsburgh and Chicago. Her experience culminated in a paper titled, "Urban Agriculture: A Capacity-building Strategy for the Revitalization of Vacant Land and Communities as a Whole," that addressed such topics as the economic development potential of urban agriculture, the ecological implications and the human health aspect.

Meyer continues to do volunteer work with Atlantic States Legal Foundation through her final semester. Her goal is to work with children and educate them about growing food.

"You can get kids really interested in science just by growing food," she said.

Meyer has participated in the Honors Program since she was a junior at ESF. "I wish I'd found the program earlier," she said. "I was an orientation leader and I kept telling my small groups of freshmen and my mentees, 'Join the Honors Program if you can. It's awesome.'"

Michelle Meyer





## Internships Central to Education



Laura DeJoseph

ESF Provost Bruce Bongarten doesn't understate the importance of internships in a college education: "If I had my way, everyone would do one."

Internships are emerging as a major element of an ESF education, expanding beyond the Department of Paper and Biopro-

cess Engineering (PBE), where a professional experience has long been an integral part of the program.

The College has hired its first internship coordinator, Laura DeJoseph, who will focus on developing internship opportunities for students and supporting both faculty members and employers in making those opportunities available to students.

DeJoseph works with John Turbeville, ESF's assistant dean for student affairs and director of career services.

"It's very important to connect what students are learning in class with what happens in the so-called real world," Bongarten said. "Some universities have every student do an internship or co-op. At ESF, it's required of every PBE student. This reflects the influence the supporting industry has on the department."

The numbers help tell the story: This spring, there were nearly 250 internships posted on GreenLink, an online employment and career resources site for ESF students and alumni. Half the 74 employers that attended the Environmental Career Fair in the Gateway Center in February reported that they were recruiting for internships. And in the 2011 survey of graduating students, 52.4 percent responded that they had participated in internships for academic credit. In the last academic year alone, 140 internships were completed for credit.

DeJoseph's job is part of ESF's effort to create an infrastructure that supports internships and gives the College a mechanism to ensure the experience is part of a student's educational program, not just a summer or part-time job in the field. "We have to have oversight to make sure educational objectives are being met," Bongarten said.

"Internships are the key to students gaining real-world experience that will help them be successful in their future fields," DeJoseph said. "I look forward to connecting students with opportunities at top organizations to gain that experience. Through the support of scholarships, alumni and organizations in the field, our students are getting the kind of experience that can launch them in their careers."



Erin Moody

## Wolf Pups Get a Helping Hand

Erin Moody spent the summer with a colony of wolves for her honors project. The senior from Poughkeepsie, N.Y., is majoring in conservation biology and had already completed her honors thesis with a research project on martens. She was looking for a new challenge when she learned about the possibility of an internship at Wolf Park in Battle Ground, Ind.

"I knew I wanted to work with predators, and wolves are probably the most persecuted predators in North America," she said.

Wolf Park is a conservation research park and home to a colony of wolves socialized to tolerate contact with the humans who study them and visitors who tour the park to learn about the species. The park was home to 14 adult wolves, six pups, two coyotes, two red fox and 10 bison when Moody was there.

Those six pups provided some of her most memorable moments, she said. In addition to teaching park visitors about the wolves, Moody's responsibilities included an occasional daylong shift of tending the pups, watching them play and sleep.

"Sometimes I would be changing their water and picking out ticks and I would just have to sit back and think 'Wow, I am helping to raise wolf puppies,'" she said.

Moody considers herself fortunate to find a rare internship working with predators thanks to encouragement from her adviser Professor William Shields and Associate Professor Jacqueline Frair. The support provided by the honors program allowed her to afford the summer in the unpaid internship. Moody said she intends to continue her studies in the field of human-carnivore conflict, which becomes increasingly important as growing populations of humans and predators such as coyotes and wolves come into contact in shared habitat.

Moody said she would advise any student interested in charismatic animal behavior projects to pursue the interest even if it seems tough to find a post in such a competitive field.

"They should go ahead and try. It could just work out like it did for me," she said.



## Student Tallies Mussel Population

The often overlooked population of tiny but potentially treacherous freshwater mussels in the Lake Ontario watershed is the focus of the honors project of Daniel Symonds, a conservation biology major from Rush, N.Y.

Freshwater mussels came into the public arena in the 1990s as surging populations of invasive zebra mussels clogged water pipes and hydropower intakes in the Great Lakes. North America is home to about 300 types of freshwater mussels, called unionids, and 30 of those are found in New York state, Symonds said.

"Most of them are in streams," he said. "Only a couple species can live in the deep water of lakes."

Symonds, now a senior, developed his project out of his work with two biologists for the state Department of Environmental Conservation. They had a grant through The Nature Conservancy to take an inventory of unionid populations in streams flowing into the lake between Rochester and Oswego. Using U.S. Environmental Protection Agency protocols for quick assessments of water quality, they looked at the relative abundance of unionids in the streams. For his project, Symonds extended the work to look at the relative diversity of unionid populations in five streams. With the guidance of Associate Professor Kimberly Schulz, Symonds chose five streams that had previously been found to have either high levels of unionid diversity or low levels. He then looked for any correlation between mussel diversity and four water quality parameters.

Symonds is working with Schulz to analyze the data gathered during the summer and running water samples. So far no correlation has appeared in the data, Symonds said, "but no correlation is a result in itself."

During the winter break, Symonds updated ESF's unionid collection under the guidance of Assistant Professor Rebecca Rundell in preparation for putting the information online and making it more easily available to the research community.

Daniel Symonds



John Richardson

## Cruise Focuses on Chemistry Research

When John Richardson talks about his summer excursions, he's not talking about pleasure cruises, but rather about working research cruises on the Delaware River aboard the RV Hugh Sharp. Richardson, a senior chemistry major from Glenville, N.Y., gathered data for his honors project on microbial oxidation of carbon monoxide into carbon dioxide as the craft traveled from Philadelphia to the mouth of the Delaware in 2012.

He developed the plan for the project after helping a doctoral candidate with lab work and being encouraged to turn his efforts into an honors project. Richardson's examination of past research on the topic indicated there was a need for a study of microbial oxidation of CO in sunlight and he designed a research project to investigate it.

His project piggybacked on the riverine studies of ESF Associate Chair and Professor of Chemistry David Kieber and Professor of Marine Biosciences David Kirchman of the University of Delaware. They had grant support for their work aboard the research vessel but had no money for an undergraduate research assistant, Richardson said.

"I wouldn't have been able to go without the money the honors program granted for housing and research materials," he said.

They have completed two research cruises and plan two more. The work of executing his own research was an unforgettable experience, Richardson said.

"I had been on two research cruises before," he said, "but this time it was different. I had the added responsibility of planning and the stress of making sure it all goes smoothly and that you have all the materials needed."

Richardson said he was awaiting results of lab tests of samples to include in the analysis for his honors project. He hoped to present some results at a conference in New Orleans this winter.

*Karen B. Moore and Claire B. Dunn work in the ESF Office of Communications. Dee Klees is a freelance writer in Syracuse, New York.*



# Centennial Campaign benefits internships, career development

The Centennial Campaign for ESF has received more than \$4 million in gifts designated to support internships and career development opportunities for students.

Among the leading supporters are:

■ The Rosen Fellowship Program, a recent addition to the College's internship portfolio, which gives students an opportunity to pursue a dream through an out-of-classroom experience linked to their career and life goals. Rosen Fellowships are supported by a \$15,000 gift from the Florence and Robert A. Rosen Family Foundation. The Rosens are successful business people who have also sponsored ESF interns at their Lakeside Farms property in the Hudson River Valley.

■ The Edna Bailey Sussman Fund, which has had a partnership with the College since 1985, through which more than 350 students have received nearly \$1.5 million in funding. The Fund has made a planned gift to the College that is currently valued at more than \$2.7 million, eventually doubling the number of internships offered through the program.

■ Jesse Fink '79 and Betsy Mitchell-Fink '79, who made a \$250,000 gift that will support student career development, of which internships are a key component. The Finks' gift supports internships within the Honors Program as well as those offered outside the program.

■ Honeywell Corporation, which has created a scholarship to support student internships with a \$25,000 gift. ESF student interns will work along with Honeywell professionals on the cleanup efforts of Onondaga Lake.

■ The Walbridge Fund, which has made a \$250,000 gift to support the work of ESF's Northern Forest Institute. This gift includes support for internships to work at ESF's Adirondack Interpretive Center in Newcomb, N.Y.

■ Lew and Dawn Allyn, 2010 Feinstone Environmental Award winners, who are longtime supporters of ESF's Center for Native Peoples and the Environment. Their gift includes funding for a student internship to support the work of the center. Last summer, a gift from the Allens helped support four interns who worked with the Tuscarora Environment Program and another who mapped culturally significant plants on the Seneca Nation.

■ The Masten House at the College's Newcomb Campus will also provide internship opportunities. Now owned by the ESF College Foundation, Inc., a grant from Empire State Development will fund renovations at the Masten House. Work will be done by a team that includes four ESF interns working with professional engineers and architects. The work is supported by a \$1 million grant to the Foundation for the renovation of the property. Masten House will be utilized by the programs of ESF's Northern Forest Institute.





# Centennial Campaign Progress Report



## Campaign Reaches 70% of Goal

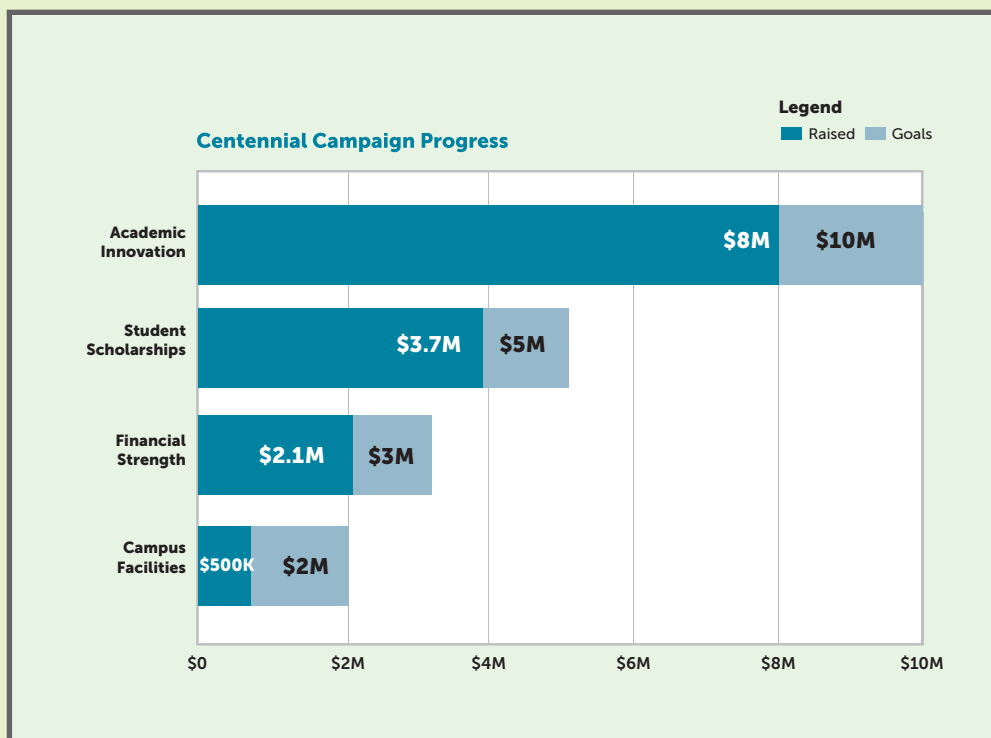
Nearly two years after the Centennial Campaign for ESF was publically launched at the Green Tie Dinner that celebrated the 100th anniversary of the College's founding, the campaign has reached more than 70 percent of its \$20 million goal.

Total gifts, when tallied this spring, added up to \$14.3 million, pushing the campaign toward the three-quarter mark. When the public announcement was made July 28, 2011, the campaign had received gifts of \$11.5 million.


"We are thrilled with the number of alumni and friends of the College who have stepped forward to support ESF's first-ever

comprehensive fundraising campaign," said Brenda Greenfield, executive director of the ESF College Foundation, Inc.

The campaign is built around the theme of "Environmental Leadership for a Second Century" and was designed to provide the financial resources essential to the continued success of the College in producing the environmental leaders of tomorrow. The campaign has four major funding priorities: supporting and encouraging academic innovation, enhancing and supporting students in new campus facilities, expanding undergraduate student scholarships and building overall financial strength for the College.







# From Syracuse to Santiago and Spain

ESF professors forge  
a "Spanish Connection,"  
exchanging faculty and  
ideas for sustainable  
planning involving nations  
on three continents





By George S. Bain

**Like** a pair of diplomats, two ESF professors — Emanuel J. Carter and Dr. Richard C. Smardon — have crisscrossed the globe for three decades, developing international academic cooperation and stressing the importance of sustainability.

They have linked ESF to three universities — two in Spain and one in Chile — and helped establish a landscape planning program in Spain and a landscape architecture program in Chile.

They've seen the Spanish city of Vitoria-Gasteiz earn the title of European Green Capital 2012. And they're involved in the creation of a proposed ecological observatory in southern Chile similar to the Adirondack Ecological Center.

Smardon, of the Department of Environmental Studies, calls this international interdisciplinary program the "Spanish Connection."

All the miles traveled have produced two benefits, he said.

One is "seeing the establishment of environmental and landscape management programs — with some assistance from us — which are focusing on developing interdisciplinary problem-solving approaches for sustainable landscape management."

The other, Smardon called "twinning, the exchange of faculty and ideas from Syracuse to Santiago and Spain and vice versa."

Smardon has been involved in the effort since it began in 1979, when he joined the ESF faculty.

What Smardon calls "academic cross-pollination" started when faculty from Polytechnic University of Madrid, Spain, attended a conference titled "Our National Landscape" in Lake Tahoe in 1979. Smardon's contacts led to several invitations for him to make presentations in Spain in the 1980s. In 1986, he recruited U.S. speakers for a landscape and water resources conference in Madrid sponsored by that city's water supply agency.

Meanwhile, Carter joined the Department of Landscape Architecture in 1985 and began mentoring Off-Campus Program students, first in Italy and, in 1990, in Spain. Soon, he would be linking Spain, Chile and ESF in promoting sustainability.

"Sustainability to me means preserving natural and social capital to maintain prosperity and equity for current and future generations as well as protect environmental quality," said Smardon.

In addition to preserving resources, Smardon said, sustainability can be blended with ecotourism, as illustrated by the ongoing project to develop an ecological observatory at Frutillar, Chile. The combination "holds promise for 'green job' creation for economically depressed rural traditional and indigenous communities," he said.

Planning for the Frutillar project continues. The dean of the University of Chile's Faculty of Forest Sciences and Nature Conservation visited ESF in September to promote collaboration between the two institutions at Frutillar, a forestry practicum camp and arboretum.

In addition to monitoring the region's ecosystems, the project will help manage its urban development, said Carter. Before ESF's fall semester began, he taught a course in Chile and returned there Thanksgiving week, teaching a class for the Chilean Forest Service on

*(continued on next page)*





At top, Associate Professor Emanuel Carter visits San Pedro de Atacama in Chile with Professor Manuel Rodriguez of the University of Chile. At center is Dr. Luis Orive, coordinator of public space and the environment for the city of Vitoria-Gasteiz, Spain. At bottom is a drawing by ESF master's student Esma Maghezzi and a colleague, Chelsea Dewitt of the University of Virginia.

design aspects of urban forestry and green infrastructure and the implications for planned social housing projects. David Nowak, a U.S. Forest Service forester based at ESF, gave a class at the same symposium.

With all this travel, how do these "Spanish Connection" diplomats manage in a foreign language?

"My Spanish is very limited," said Smardon.

Replied Carter: "Puedo usar castellano bastante bien para trabajar sin problemas en España y Chile (I can use Spanish quite well to work without problems in Spain and Chile)."

## ESF professors as mentors

The Vitoria-Gasteiz connection crisscrossed Spain as it developed in the 1990s, culminating in 1999, when Carter mentored two ESF graduate students in the city.

In 1990, Carter led his first fifth-year Off-Campus Program to Spain in Barcelona. The following year, Smardon — then in the Department of Landscape Architecture — hosted two professors from Polytechnic University for a yearlong sabbatical, Dr. Rafael Escribano Bombín and Dr. Maria Paz Aramburu Maqua. Carter continued to lead annual off-campus groups in Barcelona and Granada and was invited to lecture at Polytechnic University and the University of Granada. Through the Madrid contacts came his opportunity to mentor the students hosted by the Center for Environmental Studies in Vitoria-Gasteiz.

Working with those students, he met Dr. Luis Andres Orive, the center's director and a key landscape planner.

"Luis and I clicked," Carter said.

Since then, he has co-directed four two-week design studios — with European, Latin American and North American graduate students and young professionals — and presented at four international conferences on sustainable cities hosted by the Center for Environmental Studies.

In 2010, after participating in a design studio and a conference in Vitoria-Gasteiz, Smardon and Carter became involved in organizing a two-degree program at Basque Country University's campus in Vitoria-Gasteiz. One is for a master's in landscape planning and architecture, the other for a landscape planning specialist. Carter is listed on the program's Council of Experts. Both he and Smardon are on the landscape planning curriculum's guest teaching staff, as is Orive.

The new programs are timely, as Spain joined the European Landscape Convention in 2008, increasing the country's need for trained landscape specialists. According to the program's catalog, "these specialists will be capable of undertaking in a practical manner the current challenges of planning and project design, within the context of sustainability, of ecological integrity and social responsibility."

Smardon's most recent trip to Vitoria-Gasteiz was in June, when he helped review landscape inventory, classification and management work by graduate students in the first landscape planning class.

Carter was in Spain a week later to co-direct a two-week design studio, part of the Fourth Urban Landscape Forum, with graduate students and young professionals from Spain, Italy and the United States. He said the goal was to examine the feasibility of establishing an "inner green ring" in the core of Vitoria-Gasteiz. He



also participated as a presenter in a symposium that addressed "Green Infrastructure in the City — The Purpose of Natural Spaces in Urban and Peri-Urban Settings."

European Union policies are far ahead of the United States in encouraging, supporting and rewarding sustainable community and landscape preservation programs, said Smardon. Nearly 6,000 sustainability plans have been prepared for European communities compared with only about 100 for North American communities, he wrote in a 2008 paper for the journal "Management of Environmental Quality."

"Spain has coherent national and regional policies regarding sustainable development, and it tends to aggressively explore and try to implement best practices," said Carter.

In 2008, the European Union created the European Green Capital Award to encourage healthier living environments on the continent where four of five people live in cities. Cities of more than 200,000 residents can apply and are rated on environmental criteria, among them: policies dealing with climate change, transportation, sustainable land management, biodiversity, air quality, waste management, wastewater treatment and environmental management.

Vitoria-Gasteiz is the third Green Capital, after Stockholm for 2010 and Hamburg for 2011. It advanced over 11 cities in the competition's first round and five other finalists.

Smardon downplays ESF's direct involvement in the award, even if the Spanish city's policies reflect the teachings of ESF:

"I don't think Emanuel or I can claim to have much to do with it except that it exemplifies the kind of sustainable development practice that we all have been striving for."

Founded in 1181, Vitoria-Gasteiz is the capital of northern Spain's Basque Country. The city of some 240,000 residents is comprised of concentric circles, with the city at the center. Around it are the "Green Belt" — which the European Commission Environment website calls "a semi-natural green area partially reclaimed from degraded areas" — and a third circle dominated by forestry and mountains.

With so many green public areas, no resident lives more than 300 meters (330 yards) from an open green space. And the city's goal is to reduce daily domestic water consumption below 100 liters (26 gallons) per capita. In contrast, the Environmental Protection Agency says the average American family of four uses roughly 400 gallons of water per day at home.

## Creativity tapped

In Chile, the drive toward sustainable communities is less advanced.

"Academic, professional and political leaders are searching for the appropriate frameworks for sustainable planning, design and management," said Carter.

Added Smardon, "In Chile, there are slightly different drivers. The extractive industries like timber are decreasing, so they need sustainable economic development and jobs for rural areas — hence the interest in ecotourism."

## Several students contribute to Spanish Connection

Manuel Rodriguez, with his ESF master's in science, is just one of several students involved in the Spanish Connection through the years.

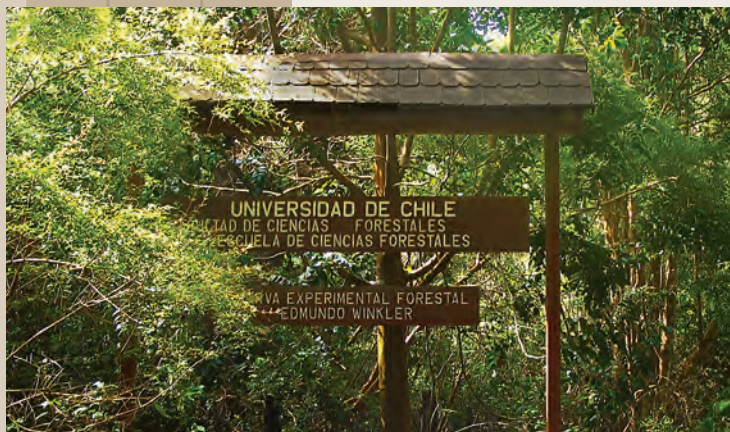
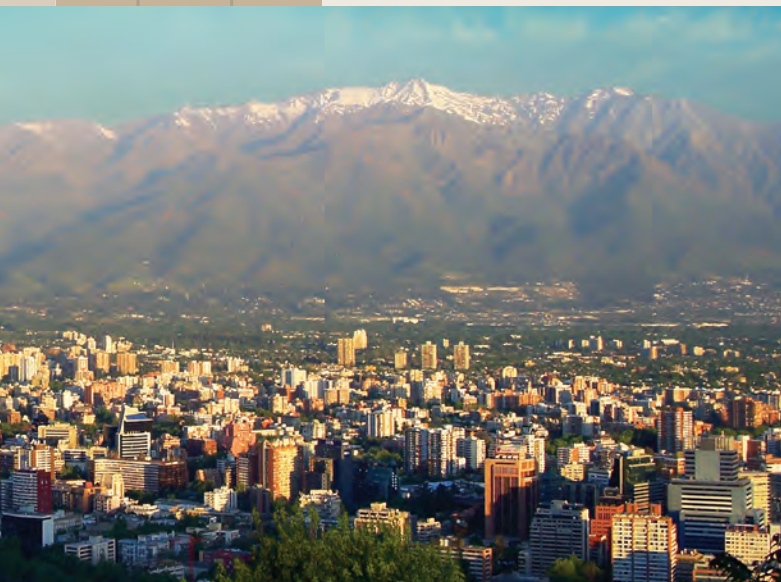
His daughter, Barbara Rodriguez Droguett, an architect on the University of Chile's Faculty of Engineering, received her master of science in landscape architecture from ESF in 2011. Her thesis provided an energy analysis of six green infrastructure strategies in urban areas. In Chile, she leads a team developing sustainable development, construction and management strategies in the design of cities, landscape, infrastructure and buildings.

Two ESF students received four-month internships at the Center for Environmental Studies in Vitoria-Gasteiz after finishing their master's in landscape architecture: Juan Vilela in 2004 and Samuel Gordon in 2005.

For his master's in landscape architecture in 2006–07, Shaun O'Rourke studied urban forestry interventions in La Florida, part of Greater Santiago, in his capstone project. In 2008–09, Miguel Berrios' capstone project addressed the design potentials of wild, eroded areas in Valparaiso, Chile.

Barbara Rodriguez, in Chile, and Dr. Luis Orive, in Spain, also have provided logistical support to fifth-year Off-Campus students. And they collaborate frequently with Carter. Rodriguez visited ESF to spend a week with Carter's Studio in Landscape and Urban Ecology in March 2007. In early 2008, Rodriguez, Carter and Orive offered another sustainable cities seminar for government leaders, academics and professionals in Spain.





Scenes from, at top, Santiago, Chile; at center, the University of Chile research station; and at bottom, Vitoria-Gasteiz Spain, European Green Capital of 2012.

The interests of American, Chilean and Spanish academics intersected at ESF in the early 1990s.

Manuel Rodriguez, now a professor of forest economics and financial director at the University of Chile's School of Forestry and Nature Conservation, received his master's of science from ESF in the early '90s and had known Escribano and Aramburu when they were on sabbatical from Madrid. Observing the projects of landscape architecture faculty and students, "he felt that this was a missing link in environmental practice in Chile," said Carter.

In 2002, Rodriguez and professor Carmen Luz de la Maza came to ESF seeking to start collaborative projects. Since then, Carter has been to Chile at least once a year, helping the University of Chile, in Santiago, develop a landscape architecture program. Carter's time there included serving as a Fulbright Senior Specialist during his sabbatical in 2007.

By 2011-12, an interdisciplinary graduate certificate was available in Landscape and Urban Ecology. By 2013, it will be upgraded to a graduate diploma course, the first of three diplomas that will lead to a master's degree in landscape architecture.

The School of Forest Sciences and Nature Conservation produced a 2011-2015 strategic plan emphasizing sustainable forest management through creative problem solving, critical thinking and responsible citizenship. In stressing flexible, diverse academic offerings — with five core courses and many electives — the plan cited ESF as a good example, the only American university so mentioned.

"I think the work that Emanuel and I did with Manuel Rodriguez to shore up their academic programs, which had been having enrollment issues, was a good example of crisis strategic planning — pooling our experience at SUNY-ESF to assist the forestry division at the University of Chile," Smardon said.

Carter taught a course in landscape and urban ecology in Santiago late last summer, shortly before the Chilean forestry school's dean, Dr. Javier Gonzalez Molina, came to Syracuse to meet ESF President Cornelius B. Murphy, Jr., Provost Bruce C. Bongarten and key faculty. Molina sought interested ESF faculty for research on southern Chile's ecosystems (mostly cool temperate rainforests), assistance in ecotourism development and assistance in redesigning and programming the current facility.

ESF is now party to an agreement through which Carter serves as a consultant with his Chilean colleagues to the Chilean Ministry of Housing and Urbanism, helping to develop concepts for urban forestry and green infrastructure in large public housing projects.

The most recent development in Frutillar was announced in February, when the governor of the Tenth Region and the mayor of Frutillar offered \$50,000 for further studies to advance the development of the proposed international observatory.

Frutillar Mayor Ramon Espinoza sees the project as boosting year-round tourism in his city, already a summer center for music and theater, Carter said. Espinoza is also interested in a new community master plan, based on the proposed facility's potential.

"This is a wonderful opportunity for short-term and long-term collaborative research for faculty and graduate students, especially in terms of forest ecosystems, watershed management and wildlife conservation," said Carter. "This is also an opportunity for short-term and on-going applications of community-scale planning, design and engineering."

*George S. Bain is a freelance writer and editor in Syracuse.*



## ESF men race to the top with second USCAA Championship

The ESF Mighty Oaks men's cross-country team defended its national title in November, finishing first in the U.S. Collegiate Athletic Association Cross-Country National Championships in Lake Placid.

The women's team finished third in a competitive field despite the absence of their strongest runner who was sidelined by a knee injury.

The competition featured 29 teams in both the men's and women's races.

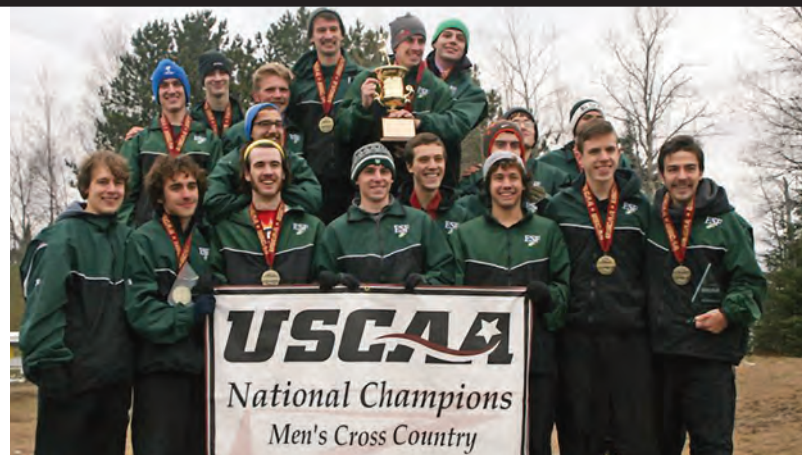
The ESF men, led by sophomore Timmy Callahan, who finished second overall with a time of 27:45 on the 8K course, took seven of the first 15 places.

"The entire 18-man squad was ready to defend their title and knew that in doing so it would take another huge effort," said Coach John View.

Joining Callahan on the course were Taylor Yerrick, Stephen Slonosky, Brian Busby, Jon Cleveland, Jeremy Driscoll, Jacob Wolfgang, Andrew Gritzmacher, Malcolm Moncheur, Peter LeDuc, Kai Crannel, Nick Grieco, Ethan Washburn, Collin Bartholemew, Matt DeLuca, Caleb Rudge, Nathan Sleight and Matt Allen.

View said the Mighty Oaks women ran their most courageous race of the season. Their top runner, Cambria Ziemer, was out with an injury.

"Knowing they were without Cambria, the remaining squad members went out and ran their hearts out," said View, who was recently certified as a U.S. Track and Field Level 1 Coach.



The ESF men's cross-country team celebrate the national championship.

Running for ESF were Kristen Campbell, Danielle Kaveney, Emily Martin, Casey Cole, Danielle Zgardinski, Jenny Frank, Radka Yang, Cara Keogh, Liz Bourguet and Kristin Pasquino. Eleven cross-country runners were named to the USCAA All-Academic Team. From the men's team, honors went to Allen, Busby, Callahan, Grieco, Moncheur, Sleight and Yerrick. From the women's team, the honored students were Lauren Alteio, Bourguet, Pasquino and Ziemer. Three men, Callahan, Yerrick and Slonosky, were named as first team All-Americans. Busby, Cleveland, Wolfgang and Driscoll were named second team All-Americans, as were Campbell and Kaveney.

ESF will host the 2013 and 2014 USCAA Championships at Drumlins in Syracuse.

## Men's soccer team earns spot in national semifinal

The ESF Mighty Oaks men's soccer team, in just its third year with varsity status, made it to the semifinals of the U.S. Collegiate Athletic Association (USCAA) National Championship Tournament in November.

The Mighty Oaks, who were seeded sixth in the eight-team field, had upset fourth-seeded Concordia College of Alabama in the quarterfinal, which earned them a spot in the semifinal. They lost that game 6-0 to the second-seeded Golden Bears of West Virginia University Institute of Technology.

"We had a great season," said ESF Coach Dan Ramin. "We upset a strong team in the quarterfinal, then faced a team with scholarship players in the semifinal. The guys played with a great deal of heart all season, and they certainly brought that spirit with them to this tournament. We had a great season."

The record for the season was 11-3-1. A highlight was retaining the "Barkeater Cup" in a game against Paul Smith's College.

The women's soccer team faced some challenges but finished with a winning record of

7-6-1. "The women had some close games," Ramin said. "They fought to the end in every one of them. We look to build on our successes next season."

Several soccer players were honored for their academic and athletic accomplishments.

Students named Academic All-Americans were Christina Elliott, senior, environmental and forest biology; Ashley Miller, sophomore, environmental resources engineering; Drew Gamils, senior, environmental studies; Megan Kuczka, sophomore, environmental science; Dan Arseneau, senior, landscape architecture; and Steven Tyrrell, senior, paper and bioprocess engineering.

Students named USCAA Athletic All-Americans were Kyle Siegel, junior, environmental studies; Tyrrell; and Miller. Miller is the only woman from ESF named to the USCAA Athletic All-American team.

Named USCAA Second Team Athletic All-Americans were Kyle Bardwell, sophomore, environmental resources engineering; and Ryan Graig, junior, environmental studies.



At top, the Mighty Oaks' Kyle Bardwell, in white, beats a Paul Smith's College player to the ball in the Barkeater Cup game. The Mighty Oaks won the game, 1-0. Above, in the women's Barkeater, ESF's Meg Beckwith, in white, goes for the ball. In the background is the Mighty Oaks' Ashley Miller. The ESF women lost 2-1 in overtime.





Ranger School student Shannon Hennessey competes in the East Coast Lumberjack Roundup sponsored in March by the ESF Woodsmen's Team. The event was held at ESF's Tully Experiment Station.

## Woodsmen stack up victories

The ESF Woodsmen's Team chopped its way through several successful timber sport competitions this fall. The ESF team won the inaugural Collegiate Ironjack World Championship, part of the Great Smoky Mountain Lumberjack Feud, in January. The team defeated three other teams to take the title. ESF team members Anthony Lombardo, Paul Scannapieco and Evan McFee finished second, third and fifth, respectively in the individual competition.

Team leaders Jason Schenck and McFee said that during the fall competition season, the ESF women's team finished first in all three meets while the men's team collected two first-place finishes and one second. The women kicked off the spring season with a win at Cobleskill while the men finished fourth.

"They are having a great season," said Coach Ian Freeburg, an ESF master's student who works as a visiting instructor at the Ranger School. "The women especially; they are dominating. Overall, the ESF team is probably the best in the country right now. The best teams are in the Northeast, and the ESF team is the best in the Northeast."



## ESF on track

ESF's Malcolm Moncheur, left, starts a race at the University of Rochester Invitational in April. The club track team was added this year to ESF's athletics lineup. Runners competed in four meets. Coach John View expects the track team to build on the success of the Mighty Oaks cross-country team and looks forward to the team competing at a higher level in the future.

## Basketball team wraps up first season

The Mighty Oaks men's basketball team made history with its first varsity season this past winter.

"We faced some typical first-year challenges," said Coach Scott Blair. "This season was about coming together as a team, focusing on fundamentals and learning what we need to do to be more successful. These guys played with tremendous heart all season and proved it with a big win at home on Senior Day. It was a great way to wrap up a first year as an intercollegiate program."

The Mighty Oaks compiled a 3-11 record this season. The final win came against The New School, 104-52, on the ESF team's home court at nearby Christian Brothers Academy.

That game and a contest three days earlier at Paul Smith's College earned sophomore Danny MacElrath honors as USCAA Men's Basketball Division II Player of the Week. MacElrath had two double-doubles totaling 31 points and 22 rebounds.

USCAA Academic All-American honors went to Zach Kalette.



The men's basketball team faced typical first-year challenges during its inaugural season. They will be back in action next year.



# EARTH WEEK



An ice cream social was one of the many activities in a jam-packed Earth Week schedule this spring. For more about Earth Week at ESF, go to [www.esf.edu/earthweek](http://www.esf.edu/earthweek).

## Publications

**Peter E. Black**, *Waterdrops: celebrating the wonder of water*, SUNY Press, 200 pages, 2012

**Charles Hall**, publications in the SpringerBriefs in Energy/Energy Analysis series: *Spain's Photovoltaic Revolution: The Energy Return on Investment*, with Pedro A. Prieto, 127 pages; *The First Half of the Age of Oil*, with Carlos A. Ramirez-Pascualli, 127 pages; and *The Chinese Oil Industry: History and Future*, with L. Feng and J. Wang, 113 pages, all 2013

John C. Hendee, **Chad P. Dawson** and Wenonah F. Sharpe, *Introduction to Forests and Renewable Resources* (8<sup>th</sup> edition), Waveland Press, Long Grove, Ill. 408 pages, 2012

Shri Ramaswamy, **Dr. Bandaru Ramarao** and Hua-Jiang Huang editor, *Separation and Purification Technologies in Biorefineries*, 608 pages, 2013

Thomas Princen, **Jack P. Manno**, and Pamela Martin, co-authors, Chapter 15: *Keep Them in the Ground: Ending the Fossil Fuel Era*, in *Is Sustainability Still Possible?* Island Press, 464 pages, 2013

## Do you know someone who wants to get out of the classroom?

ESF students — and those from other colleges — can spend a semester living and learning in the heart of the Adirondack Park. Participants will earn 15 credits during a semester at ESF's Newcomb Campus. Students will be immersed in an Adirondack experience while studying Sustainable Development, Environmental Ethics and Culture, Research Methods, Diverse Perspectives on a Common Landscape and Using Past Experience to Inform Future Management.

For information, contact **Paul Hai** at 518-582-4551 or email [pbhai@esf.edu](mailto:pbhai@esf.edu).







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