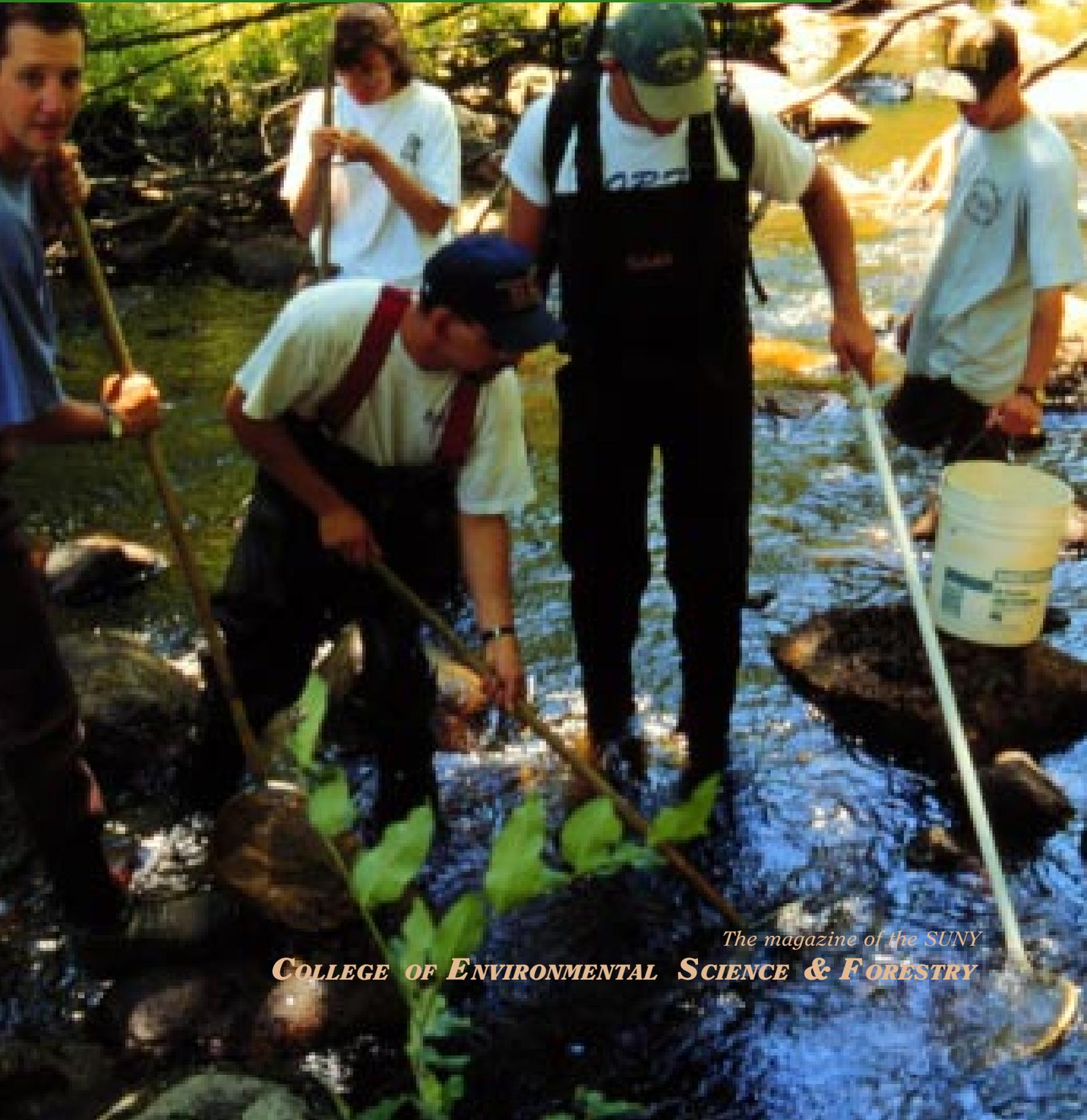


INSIDE E·S·F

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SUNY College of Environmental Science and Forestry
1 Forestry Drive
Syracuse, NY 13210-2778

President: Ross S. Whaley

Vice President for Student Affairs and Institutional Advancement:
James M. Heffernan

Editor and Designer: Jeri Lynn Smith,
Director of News and Publications

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Additional Assistance: Kathleen A. Ciereck, Christine J. Cryslar, Geraldine C. Trendell

Office of News & Publications
122 Bray Hall
315-470-6644



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On the Cover

Robin Kimmerer provides a peek at a summer camp exercise at the Cranberry Lake Biological Station.

The State University of New York College of Environmental Science and Forestry offers a diverse range of accredited programs and degree options in environmental and forest biology, environmental studies, chemistry, environmental resources and forest engineering, forest technology, landscape architecture, paper science and engineering, resources management, and construction management and wood products engineering.

The College's mission is to be a world leader in instruction, research and public service related to: understanding the structure and function of the world's ecosystems; developing, managing and use of renewable natural resources; improving outdoor environments ranging from wilderness, to managed forests, to urban landscapes; and maintaining and enhancing biological diversity, environmental quality and resource options. As such, ESF has maintained its unique status within SUNY's 64-school system as only one of four specialized colleges and one of only eight doctoral granting institutions.

ESF takes affirmative action to provide equal opportunity for all people and to build a campus community that reflects a wealth of diversity.

An Open Letter To Scientists And Engineers

by Neal F. Lane

We are enjoying a golden age of discovery, as exciting research continues to uncover new knowledge about our universe. However, a different kind of golden age — that of ever increasing funding for American science and engineering — is clearly over. Some experienced researchers now look back nostalgically to the decades after World War II, when taxpayer support of science was almost unquestioned and an agenda for science was rarely discussed.

Today, public support must be earned. We can no longer expect it in the form of a blank check and an undefined agenda. This is entirely appropriate. At the same time, I remain very concerned that the nation will not be doing enough to maintain and strengthen its position as a world leader in science and engineering over the next several years.

It is now more vital than ever for us, the research community, to make a convincing case to the public about the tangible societal benefits that flow from science and technology, and the importance of investing adequately in research and education.

At the National Science Foundation (NSF), our surveys continue to show that more than two-thirds of the public believes that science is a net good. But the vast majority of people have no understanding of the scientific process; 98 percent of them don't know what research means. This gap should trouble all of us.

It is also troubling that many scientists and engineers, while concerned, do not think they can do anything about the gap. This may be because traditional scientific education does not prepare its graduates very well to assume a role as an activist in society, an ambassador for science.

I well understand the discomfort, from my own career experience. But during my years as director of NSF, I've come to understand the need for the research community to reach out to the public. In more personal terms, we need to engage in genuine public dialogues with our local communities, in the mold of what I call the "civic scientist." This concept embraces many types of outreach; not every researcher is well-suited (or available) for a particular type of activity, at a given time. But a little more awareness can go a long way. Even describing a current research effort in accessible terms to a neighbor can have unexpected — and sometimes unknown — results.

I might even venture to say that such outreach should be numbered among the professional responsibilities of scientists and engineers. Graduate education in science and engineering should emphasize communications skills along with research skills. The result would be much better teachers and communicators to the public.

Preparation for research careers has not focused on this dimension, and most of us could use some help. I have been urging researchers to seek out and take advantage of the public affairs resources at their own institutions in making a compelling case to the public.

One particularly effective means to make our case is through the news media, a type of outreach that, perhaps more than others, fills many of us with trepidation. According to survey results discussed recently on National Public Radio, a quarter of U.S. scientists have never spoken to a reporter, and most others do so only once every year or two. Our public affairs resources are particularly valuable here. Practice is essential; we simply must learn to speak in terms that the general reporter — representing our non-scientist friends and neighbors — can understand. The impact can be astounding, because the news media amplify our words. (And this cuts both ways.) With only one interview, we can reach people across the state or the nation.

Let us redouble our efforts to work together. For university-based researchers, when a newsworthy discovery is made or about to be published, NSF would like to join with you to get the message out. Individuals pursuing science-oriented careers with government, non-profit organizations, and corporations will find other avenues of communication and willing cooperators. In this way, the story will reach a much larger audience; and that will be good for all of us, and good for the nation.

It is true that the climate for science has changed forever. But change brings opportunity. If the sobering budget outlook prompts us all to communicate more broadly, more frequently and more effectively, then we have learned an important and necessary lesson that will serve the science and engineering community well in any climate.

A distinguished physicist, Lane held positions at leading universities as a faculty instructor, researcher and administrator before joining the National Science Foundation as its director in 1993.



Campus Update

Edwin C. Jahn Laboratory Dedication Ceremonies Set For October 15

Dedication ceremonies for the new Edwin C. Jahn Laboratory will be held on the ESF campus Wednesday, October 15.

The event will begin with a VIP luncheon scheduled for noon in the Alumni Lounge in Marshall Hall.

A ribbon-cutting ceremony will take place at 1:30 p.m. on the building's patio. The ceremony will include installation of a time capsule in the Lab's cornerstone.

Construction began on the \$22 million Jahn Laboratory—ESF's first new building in more than 20 years—in October 1994. It was designed to replace the aging, and marginally safe academic and support space for the College's world renowned Chemistry program now housed in the Hugh P. Baker Laboratory.

More than 188 donors have made gifts or pledges to ESF's Jahn Laboratory Appeal as of June 1. The College seeks some \$1.1 million to reach the full complement of research instrumentation and special laboratories the Jahn Lab was designed to house. Funds also are needed for challenge grants to obtain major equipment, for a sustaining endowment for future

equipment replacement, and for endowed fellowships for graduate students expected to fill the new building's expanded research capacity.

Family and friends of the late Dr. John A. Meyer established the Appeal's first naming gift: the John A. Meyer Radioisotope Laboratory. Meyer, one of ESF's distinguished scientists, pioneered several research efforts in wood and wood products. He died in January.



Gary E. Colella



Gary A. Waters

Two Named To Positions At College

After extensive nationwide searches, Gary E. Colella was named director of Physical Plant and Dr. Gary A. Waters was named director of Development at ESF this spring.

Colella joined the College staff in 1986 as facilities program coordinator, and twice served as acting physical plant director. He has been involved in the construction of the Jahn Laboratory, and the new, high-tech SMART classroom in Illick Hall. Colella also is helping to plan the proposed renovation of both Marshall Hall and Baker Laboratory.

Colella oversees a department with more than 60 employees. The staff maintains more than 200 buildings on ESF's main campus and seven regional campuses, which comprise some 25,000 acres across Central New York and in the Adirondacks.

Waters is a former administrator at Berry College in Georgia, most recently serving as director of major gifts and development services. During his 13-year tenure there, he worked as assistant dean of admissions and director of financial aid before beginning his work in development.

Waters directs ESF's fund-raising efforts, focusing on major gifts and now assists in the College's campaign to raise \$1.1 million to equip the Jahn Laboratory.

Eight Firms Join ESPRA

Eight new members joined the College's Empire State Paper Research Associates Inc. (ESPRA).

The new members comprise four pulp and paper companies, MacMillan Bloedel of Canada, the Lyons Falls Paper Company of New York, Sodra Cell AB of Sweden, and Kimberly Clark of Ohio; a chemical supply company, Zeofinn Oy, based in Finland; and three paper machinery companies, Beloit of Wisconsin, Valmet of Finland, and Voith-Sulzer of Germany.

The associates are a worldwide organization of pulp, paper, and supplier companies that support the research being done by ESF's Empire State Paper Research Institute (ESPRI). Its members include companies in 11 countries.

Bristol-Myers Squibb Gift Supports Minority Scholarships And Services

Through the efforts of ESF College Foundation Board member William McGarry, Bristol-Myers Squibb contributed a \$20,000 grant-in-aid to the College that will enable ESF to attract and support talented minority students.

The bulk of the gift will be used for direct scholarship aid and is expected to assist four to six students this year. The remaining funds will be used to support programs aimed at ensuring students' success at ESF. As part of this effort, ESF's pre-orientation program for minority students will be expanded in time and content, and various support activities will continue through the fall term.

Additionally, Clinton Allen and Ethel Campbell, two executives of Bristol-Myers Squibb, have contributed to on-campus workshops and programs to expose ESF students to the world of work after college.

"This gift and contributing activities heralds an active college/corporate partnership," commented ESF President Ross S. Whaley. "We are deeply indebted to Bristol-Myers Squibb, and are very excited about continued cooperative efforts."

Recycling At ESF: Active and Innovative

It would be expected that an institution devoted to environmental science would have an active and innovative recycling program. ESF meets those expectations.

From July 1996 to last March, the College collected 44,000 pounds of scrap metal, 12,000 pounds of cardboard, 5,000 pounds of clear glass, and 90,000 pounds of mixed office paper, according to Christine Langlois, senior staff assistant in ESF's Physical Plant.

ESF also recycles old motors and lab equipment, working with the Onondaga County Resource Recovery Agency.

"We take the time to take each piece apart and look at it to see what can be used again," said Langlois.

Students play an active role in the College's recycling efforts. The 12-member ESF Recycling Club goes from building to building on the ESF campus to collect recyclable items. It also operates an innovative compost system that uses worms to break down food waste produced at the College.

The club also tries to spread recycling knowledge through community outreach programs such as educational sessions at area schools. This year, for instance, the group helped students at Syracuse's Fowler High School.

"Education is one of our main goals as a group," said ESF graduating senior and Recycling Club President Stephanie Gomon.

Moon Library Reaches For SUMMIT

A new, fully integrated library system shared with Syracuse University has been installed in ESF's Moon Library. Called SUMMIT, the system is the third generation of a computerized library system to bear the name but its patron services are considerably enhanced, said Elizabeth A. Elkins, ESF's director of College Libraries.

SUMMIT's public catalog, OPAC, offers expanded search capabilities with results prioritized and listed according to relevance to the search, and provides hypertext links to other records in the system as well as links to other electronic resources such as bibliographic databases, full text sources, images, and sites on the World Wide Web.

Moon staff members use SUMMIT to order, catalog and check in materials as well as for circulation records. A web version of the system is available from homes and offices; a link from Moon Library's homepage (<http://www.esf.edu/moon>) will connect users to the web SUMMIT.

High School Junior Wins International Award With Research Conducted At ESF

Emily Zebrowski, a Liverpool, NY, high school junior, received a first-place award in the chemistry division in the International Science and Engineering Fair held in May in Louisville, KY.

Research for Zebrowski's project, "Photochemical Degradation of Quadricyclane," was conducted at ESF. She worked with Dr. John P. Hassett in the environmental chemistry laboratory facilities.

The first-place award carries a \$3,000 prize from the U.S. Air Force and a four-year, full-tuition scholarship to Temple University. More than 1,000 students from the United States and 20 other countries participated in the fair.



Dan Christian of Physical Plant sorts metals, plastics, and glass for recycling.

continued on next page

Campus Update, continued

Zebrowski was eligible to participate in the competition after winning local, state, and national science fair competitions. Her study explored how different light wavelengths affected the decomposition of quadricyclane—a jet fuel—in a laboratory model simulating a naturally-occurring body of water.

Sons Follow Daughters 'To Work' On ESF Campus

Mirroring the College's highly successful, four-year-old Take Our Daughters to Work Day, the ESF Women's Caucus in conjunction with the Office of Personnel and Affirmative Action, invited employees to bring their sons to work June 25.

Both day-long programs sought to introduce middle school children to the emerging roles of men and women in today's workplace, and a variety of career

fields either in ESF's academic discipline areas or higher education. Daughters' day, held as part of the national Take Our Daughters to Work Day April 24, drew almost 30 participants; approximately 34 sons or friends of College employees attended the June 25 program.

Faculty, staff members, and students volunteered to host hour-long hands-on workshops for the children. Judith J. Kimberlin of the Personnel office, Janine M. DeBaise, an Environmental Studies Faculty lecturer, and Samantha Callender, a senior biology student, coordinated both programs.

Workshops featured activities that included a participatory papermaking program, an exercise in landscape design, a botany and greenhouse tour, explorations in the Faculty of Forestry soils laboratory, and a hands-on computer class. Each day concluded with an open-ended discussion on careers.



Michael Smith, grandson of Student Affairs staff member Merita Travis, shows off his 'catch' in the Roosevelt Wildlife Collection.

1997 Honor Students

Nicole M. Bogardus of Brier Hill, Landscape Architecture

Daniel P. Carpenter of Pattersonville, Construction Management & Wood Products Engineering

Jane M. Cummings of Syracuse, Landscape Architecture

Anthony S. Figiera of Fulton, Environmental Resources & Forest Engineering

Dawn K. Ford of Katonah, Environmental & Forest Biology

Trevor S. Fravor of Pulaski, Dual Option in Environmental & Forest Biology / Forest Resources Management

Aaron T. Graves of North Norwich, Forestry

Susan M. Guisinger of Rome, NY, Environmental Resources & Forest Engineering

Tracy Ellen Hahn of Cicero, Forestry

Christopher Kostoss of Schenectady, Ranger School valedictorian

Maria Mastriano of North Syracuse, Environmental Studies, valedictorian

Anthony T. Nguyen of Binghamton, Paper Science & Engineering

David J. Nichter of Central Square, Dual Option in Environmental & Forest Biology / Forest Resources Management

Robyn Niver of Claverack, Environmental & Forest Biology

James Norman of Floral Park, Ranger School salutarian

Joel Pawlak of Holland, NY, Paper Science & Engineering, salutarian

Kirk Prutzman of DeWitt, Chemistry

Autumn L. Radle of Clifton Park, Environmental Studies

Todd M. Selby of Johnson City, Construction Management & Wood Products Engineering

Matthew J. Sheehy of Poughkeepsie, Chemistry



400 Earn Degrees From ESF And The Ranger School

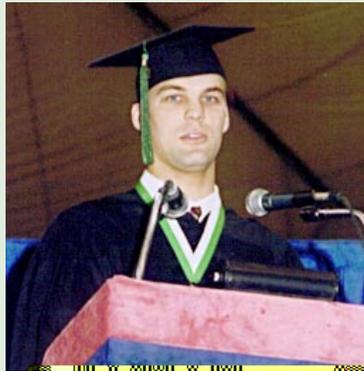
Commencement ceremonies May 11 in Syracuse and May 24 in Wanakena honored more than 400 students who earned degrees from main campus programs and the New York State Ranger School.

Commencement weekend activities began Saturday, May 10, with the College's traditional Commencement Convocation and included the annual senior class slide show and receptions for degree candidates and their families. On Sunday, some 300 bachelor's, 40 master's, and 15 doctoral degree students joined their counterparts at Syracuse University for joint commencement ceremonies. Robert Coles, a research psychiatrist and Pulitzer Prize-winning author, was the commencement speaker.

Maria Mastriano of North Syracuse, an Environmental Studies major, was named class valedictorian. Joel Pawlak of Holland, NY, a Paper Science and Engineering graduate, was named salutatorian.

The 53 associate in applied science graduates of the forest technology program at the Ranger School were led by valedictorian Christopher Kostoss of Schenectady, and salutatorian James Norman of Floral Park.

Leland Crawford, RS'66, human resource leader for the Northeast Forest Region of International Paper Company, delivered the commencement address.



Photos: ESF's Convocation in the carrier Dome; main campus Valedictorian Maria Mastriano and Salutatorian Joel Pawlak; Chemistry graduates pose for the camera; and the Ranger School Class of 1997.



Back To Basics

New partnership between the Haudenosaunee and ESF 'builds capacity' for local problem-solving

by Claire B. Dunn

The woman is a Mohawk Indian looking for a way to guide her people back toward self-sufficiency and better health. She came to ESF's Cranberry Lake Biological Station to learn how to identify the plants that grow on her home territory along the St. Lawrence River.

The man is a senior professor at ESF, an internationally recognized animal behaviorist whose work has been featured in *National Geographic*. He was at the biological station to deliver a lecture and to research the status of the lake's beaver population.

Lunch time on a dreary Adirondack afternoon found the two of them trading information in the biological station's rustic dining hall. The subject was beavers.

Tammy Bonaparte was telling Dr. Dietland Müller-Schwarze that she had always been told there was powerful medicine in a beaver's tail. But Mohawk trappers on the Akwesasne Reservation, where she lives, had told her the substance was in sacs under the beaver's tail. The trappers told her that beavers rub the medicine on themselves when they get scraped or cut and the medicine speeds the healing process. She wondered what Müller-Schwarze knew about it.

Müller-Schwarze told her the sacs produce castorium that the beavers use for scent communication. The castorium has been used for many purposes, he told her: as a homeopathic remedy



Robin W. Kimmerer leads a class of Native American professionals in a botany exercise at the Cranberry Lake Biological Station.

in his native Germany, and as an ingredient in perfume. Ancient Romans burned it in lamps, believing the fumes induced abortion. But a beaver using it for medicinal purposes? Müller-Schwarze had not heard that Iroquois belief.

"This is fascinating," said Dr. Robin Kimmerer '75, an ESF associate professor who introduced Bonaparte and Müller-Schwarze. "This is really a case where I'm learning as much as the students are. The cross-cultural exchange of indigenous and scientific knowledge is one of the goals of our program."

The students at Cranberry Lake that day, and for the next four weeks, were Native Americans from the Mohawk, Tuscarora and Seneca nations. They were enrolled in a unique course called "Ecological Inventory Techniques for Native American Resource Managers."

"The things the program participants learn at the summer Cranberry intensive course will funnel directly into their jobs," said Kimmerer, director of the biological station. "It's hands-on practice. They'll read about it but they'll also go out and do it."

The course was funded by one of two federal grants that have directed more than \$350,000 toward programs for Native American communities in Central New York. ESF, at times in concert with Cornell University, is helping to run educational programs and to act as a conduit that puts some of the funds into the hands of



Tammy Bonaparte learned from trappers on the Akwesasne Reservation about beavers' powerful medicine. This lodge in the Adirondacks was one under study by Dietland Müller-Schwarze.

native people. At the same time, scientists from both universities are ready to act as technical advisers to the native communities.

"It's historic. There's never been a partnership between the universities and the Iroquois before," Kimmerer said. "We're working in partnership to build capacity within the native community for them to solve environmental problems."

Those problems, Kimmerer said, could be the management of woodlots or fisheries. It could involve water testing or proper harvesting and regeneration of the black ash trees needed for traditional basketry.

At the Tuscarora Nation, the universities could supply technical support in producing a soil map of the reservation in Niagara County, north of Buffalo.

"For our reservation, we don't have a soil map done," said Neil Patterson, a Tuscarora who earned his bachelor's degree in environmental and forest biology last spring at ESF.

"We're trying to figure out how we can do it without hurting our sovereignty," he said. "This partnership with the universities should help build capacity for us to do it ourselves."

Patterson does geographical information systems work for Atlantic States Legal Foundation in Syracuse and he is the Tuscarora Nation's representative to the Haudenosaunee (People of the Longhouse) Environmental Task Force (HETF). A soil map would help his people learn more about crop productivity, animal habitat and development issues such as water filtration and leaching.

The U.S. Soil Conservation Service, now called the Natural Resource Conservation Service, wanted to test the reservation's soil in the 1970s, Patterson said.

"We had these guys coming to the nation, saying, 'We want to map your soil.' And at the time, we just weren't going to say, 'Yeah, come on in. Check out our soil and find out all about us,'" Patterson said. "It was that basic hesitation that comes with any sort of native-governmental relationship."

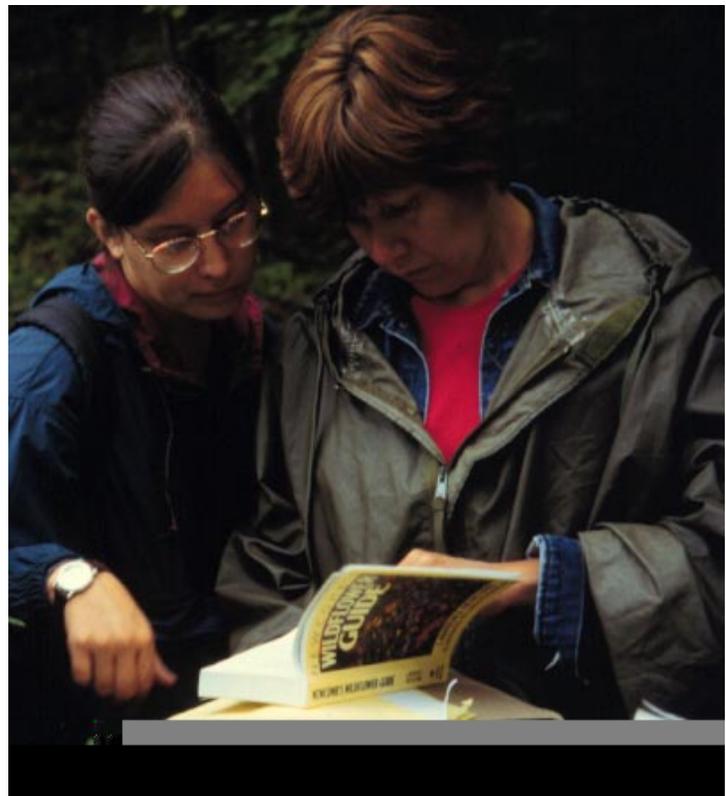
Farther north, at Akwesasne, Mohawks want to know more about the issue of restoring salmon in the St. Lawrence River.

"This is clearly an opportunity for partnership; ESF has lots of fisheries expertise and the Mohawk nation is building its fisheries expertise," Kimmerer said.

"Native communities want to start managing resources, but they don't even know what they have," she said. "If you're going to manage the forest to meet the needs of the people, you need to know what you have. We're not going to give our Iroquois partners prescriptions. They're going to make the decisions and we're just giving them the tools to make better decisions."

The Cranberry Lake course is part of a slate of programs funded by the two federal grants. Both grants are aimed at providing technical, scientific support for native communities that are trying to solve environmental problems.

The smaller grant, in the amount of \$73,000, came from the U.S. Department of Agriculture. It provides money for the four-week course at Cranberry Lake and an educational enrichment program at the Onondaga Nation School. The school program will emphasize hands-on learning.



Native students Gerri Jimerson, left, and Tammy Bonaparte refer to a field guide during a lesson in plant identification.

Students will plant and monitor the growth of trees and herbs that have medicinal uses. The children might learn how to test water and monitor its flow in a stream, said program coordinator Sonny Shenandoah.

"It's been talked about before. It's been a dream but now it's going to happen," said Shenandoah, who attended the school as a youngster and now studies math and science at Onondaga Community College.

Kimmerer said it is likely that units involving the study of forests, soils, water, and traditional medicine will weave science with traditional beliefs.

"Students will learn about the biology, chemistry, and history of plants that are used traditionally, but they'll also learn the plants' uses and names in Onondaga," Kimmerer said.

The USDA also supports two new courses at ESF. Kimmerer taught one of them, called Land and Culture: Native Perspectives on the Environment, for the first time last spring. She expects to offer Indigenous Plant Science next year.

The Onondagas, whose reservation is just south of Syracuse, used some of the grant money to buy a camera so they can take pictures of traditional medicine plants for a community education project.

"The Onondagas are making a handbook of traditional plant knowledge," Kimmerer said. "We're available if they have questions."

The more recent grant, a \$325,000 Performance Partnership Grant from the U.S. Environmental Protection Agency, has, in large part, been put in the hands of the HETF, to be used as the native communities choose.

"The universities got the money and shifted it to the nations. We said, 'You take it. You know best what you need. We're here to help you,'" Kimmerer said. "It's not the universities waltzing in and saying, 'Here's what we can do for you.' The technical expertise might be there but it might not be culturally appropriate."

Patterson said the partnership creates a new relationship between the universities and the native communities.

"It's a little bit of a change from strictly applied research, from when they just grabbed what they needed," he said. "It was a 'take-the-data-and-run mentality.' This is a partnership as opposed to a one-sided deal.

"It's something different," said Patterson. "It's a step in the right direction. It can change the existing structure of how universities deal with communities. In the past, native communities have felt violated by scientists coming in, taking what they need and leaving."

The HETF has chosen to use much of the money to build its own infrastructure and make the group a clearinghouse for environmental issues. For the first time, each tribe in the six-nation Iroquois Confederacy now owns a computer and there are hopes of developing an e-mail network.

"As the Haudenosaunee go overall, we're certainly behind the new technology," Patterson said. "Computers were one of the first purchases."

Kimmerer's hope is that if the group establishes a central headquarters and pays an administrator's salary, there will be an efficient system in place to deal with future funding sources and coordination of environmental projects.

Some of the EPA funds are being used for other purposes.

Native communities have held conferences on traditional knowledge and treaty rights. Around 200 black ash trees, which provide the primary component in traditional Iroquois basketry, were planted at the Onondaga Nation. Seventh- and eighth-grade students from Onondaga Nation School will measure them and one of Kimmerer's graduate students is using the trees as the subject of a master's thesis.

The course at Cranberry Lake brought 12 Native Americans to the biological station this summer. The first week, they studied plant identification with Kimmerer. The next three weeks were devoted to wetland ecology with recent doctoral graduate Greg Podnieszinski; inventory of freshwater communities with Neil Ringler, the new chair of ESF's Faculty of Environmental and Forest Biology; and a forest management workshop with



A soil map would help the Tuscarora Nation learn more about crop productivity, animal habitat, and development issues, said Neil Patterson '96, the Tuscarora's representative to the Haudenosaunee Environmental Task Force.

Associate Professor Jamie Savage '86, who teaches at ESF's Ranger School in Wanakena.

During the summer session's first week at Cranberry Lake, Kimmerer took the students on field trips around the biological station and to nearby sites such as Benson Mines in Star Lake, to study the wildflowers that bloom there in abundance.

In addition to Bonaparte, the group included Joanna Sunday, a Mohawk who compiled a history of Akwesasne that goes back to 1635; Vince Schiffert, a teaching assistant at the Tuscarora School; Amber Patterson, a Niagara County Community College student who also lives on the Tuscarora Nation; and two members of the Seneca nation, Gerri Jimerson, an intake worker on the Cattaraugus reservation, and Doug Huff, who works with the tribe's conservation department.

They spent part of each day listening to Kimmerer lecture in the biological station's 75-year-old Sanderson Lodge, and the rest of the day doing field work.

Kimmerer's aim was not to have the students memorize dozens of plant names, but to teach them how to use identification techniques so they can use field guides and textbooks to learn more about plants they find growing in the fields and forests on home reservations. The Iroquois students also were learning about the ecology of plant species and how to evaluate plant communities.

"It's really that sense of self-sufficiency," she said. "Putting knowledge in the hands of the community enables the people to do it themselves."

"You can take these ideas and apply them to whatever your particular circumstances are," she told the students during a lecture about different methods of plant inventory.

Her students have different visions of what the program could help them accomplish. Schiffert wants to have a native-run environmental program at the school where he teaches. Jimerson would like to see the establishment of a camp for teen-agers, where they could learn some of the things Kimmerer was teaching.

Huff is concerned about workers' safety and the native food supply.

"We used to be able to get crayfish right out of Cattaraugus Creek and boil them up," he said. "Not any more."

Bonaparte is concerned about the health problems that afflict her people, such as diabetes. She is also concerned about their growing dependence on Western conveniences. She is willing to settle for small victories: more backyard gardens, healthier meals, fewer trips to the corner grocery store for chips and dip.

At Akwesasne, she said, people are building houses wherever they choose. Some of those homes are damaging the water supply. Some are being constructed on prime agricultural land.

"There was nobody protecting anything," she said.

She hopes that by increasing her people's technical knowledge of plants and their habitats, the Mohawks will benefit more from the use of their land. "Maybe with this, we'll be able to tell these people, 'Look, there's wild onions growing there. Maybe you



The Mohawks, interested in the issue of restoring fish species in the St. Lawrence River, could tap ESF scientists' extensive knowledge of populations and habitat.

could think about putting your house on the other side of the street," she said.

At the very least, she said, they can learn about the way onions grow, and relocate them to another patch of ground where they could thrive.

One damp afternoon, when black flies and mosquitoes were swarming, Kimmerer led five students on a hike along Sucker Brook. Every few steps, she stopped to point out a plant or tree.

"What's this?" she asked, fingering the leaves of a tree along the trail.

"Beech?" someone guessed.

Kimmerer shook her head.

"It's juneberry. Good animal food. Good people food."

A few steps later: "This is bracken fern. It tells you something about the nature of the land."

The three-pronged bracken fern is a good indicator of poor soils. It is often found in areas damaged by fire. It has one great use: It tastes nasty to bugs, so it makes effective insect repellent. A hiker who doesn't mind looking silly can pick a fern at its woody stem, set it upside-down on his or her head, and make a leafy tri-cornered hat that keeps the pests away.

Farther up the trail, the group stopped to practice the line intercept method of forest inventory. They stretched tape measures over the ground in 10-meter lengths, noting the type and amount of vegetation in the tapes' paths. When they couldn't remember the name of a plant they found, they turned to Newcomb's Wildflower Guide.

"We are all interested in the medicinal quality of plants, trees, shrubs, and foods," Sunday said. "This was a practical guide for me to learn about plants. I had a basic understanding before but it's always good to learn more."

Claire B. Dunn is assistant director of ESF's News & Publications office.

Campus Profile

Charlie And Myrna Hall: Working Together For A Better World

by Claire B. Dunn



On a warm summer morning, Charlie and Myrna Hall are in their unfinished new sunroom, discussing the work they do for a living.

Charlie espouses opinions on nearly every subject that comes up: the world's crude oil supply, the environmental consequences of having a child, educational snobbery, rampant development in Southern California, Al Gore, television, people who ride lawn tractors too much, and the pitfalls of installing an Italian-style tile floor when you don't know what you're doing.

From time to time, he retrieves an academic paper from elsewhere in the house and drops it on the sunroom table.

"Here," he says "Read this."

He talks for a few minutes with his hands idle, then pulls out a large plastic file

box and sorts papers into piles on the floor.

"This is for my book," he says.

Myrna, his wife and professional colleague, sits for a few minutes, then finds a chisel and a hammer and chips at a door so she can install a doorknob. She is chagrined when she is forced to stop because the hammer's pounding drowns out the conversation.

"We're like this all the time," Charlie says. "We always work."

As a husband and wife, that compulsion gets them digging in the dirt on the three-and-a-half acres that surround their home in the hills of southeastern

Onondaga County. They dug a pond, planted a vegetable garden and fruit trees, and constructed a waterfall and retaining wall. Myrna cultivated a lush flower garden in a sunny spot.

As a professional team, their work is high-tech ecology.

Charlie Hall, a professor in ESF's Faculty of Environmental and Forest Biology, is a systems ecologist and computer modeler. Myrna, a visiting EFB instructor, is a geographical information systems specialist who is fluent in French and Spanish.

Together, they teach university students and professors, government officials, and environmental leaders in Central and South America how to make computer models that incorporate geography, population, agriculture, economics, and whatever other factors the programmer chooses to plug into the database.

"We're invited to help teach them the tools so they can do good analyses of their own ecosystems, their own agricultural systems, their own forest systems. They want to increase their productivity but they also want to protect what they have. It all leads to sustainable use," Myrna said. "We try to give them the tools and not tell them what to do."

Geographical modeling has a wide variety of applications. Government agencies can use it to analyze a river, taking into account water flow, fish populations, and the effect of a dam on the river above and below the dam. Developing countries can use it to plan development, land use change, and population growth.

Myrna's master's thesis was a model of glacier melt in Glacier National Park. It resulted in a 3-D visualization of the glacier's movement up the mountain during the last 100 years, and a prediction of what is likely to happen in the future to both glaciers and vegetation if the climate changes.

Charlie produced a model of Costa Rica a few years ago. When he runs the program, his computer screen displays a map of the country, with forested areas in green

and non-forested areas in yellow. Above and below the map are graphs that chart such factors as human population, agricultural yield, the amount of food needed to feed the population, the number of cows in the country, the amount of fertilizer used and the amount of foreign exchange produced.

The model shows how the country has changed over some 50 years. As the computer runs, Costa Rica's green areas steadily give way to yellow, and the population line climbs on the accompanying graph.

Charlie Hall calls the model a tool for analysis, not a prescription for action. He provides the information. Leaders and educators in Costa Rica can do with it what they wish.

"I give them the tools to do their own analysis of whatever they deem important," he said.

The Halls bring a wider range of professional experience and vastly different personal styles to their joint venture.

Charlie has worked in the field of systems ecology for more than 25 years. He is widely published and taught at Cornell University and the University of Montana before arriving at ESF nine years ago.

ESF Dean of Research Edwin H. White describes Charlie's style as "damn the torpedoes, full steam ahead."

"Charlie's great. You can't not like him. But Charlie is fortunate to be at a major university," White said. "He's sort of freelance, he shoots from the hip. He'd probably never survive in industry. The diversity of a major university allow him to fit in very well."

While Hall is outspoken, one of his former students, now an associate professor at Boston University, said Hall's opinions are based squarely on scientific data.

"His opinions are well-rooted in his research and the research of others. It's not some crackpot opinion," Robert Kaufmann said. "People in general respect what he does, even if they don't oftentimes agree with him."

"He has done a lot of good science," Kaufmann said. "He has a lot of respect, perhaps begrudgingly, from a lot of people he's come in contact with."

Hall takes a head-on approach to life, White said.

"He'll walk into a meeting when he's got something he wants to say. He'll wait for 20 minutes, then get up and make a statement and leave."

While he can irritate his colleagues with his forceful style and alienate other academics by merging ecology and economics, Hall is popular with his students.

"Students love him," said Robert L. Burgess, former chair of the Faculty of Environmental and Forest Biology. "It's because of his knowledge and his ability to present it and the time he spends with them."

Kaufmann, who teaches in BU's Center for Energy and Environmental Studies, credits Hall for much of his own success. Hall was Kaufmann's adviser at Cornell in the late 1970s.

"I have a lot of respect for what he's done," Kaufmann said. "Whatever I've done as a scientist, he gets a lot of credit for. I was just another undergraduate and he spent a lot of time with me. When it comes to being good to students, there's no one better than Charlie Hall."

Myrna has been in the field for about four years. She gave up a career as a French teacher to pursue her master's degree in forest resources management at ESF. She is more soft-spoken than her husband and quicker to smile. Where Charlie laces his conversation with caustic criticism and unsettling predictions about the planet's future, Myrna describes the wonders of their recent visits to Central and South America.

She tempers her husband's outspokenness, even when he talks about himself. For example, she mentions their fondness for Argentina, where they worked last winter: "The thing about Argentina that we both like is it's not jammed up with people."

Charlie interjects: "Mostly, I don't like people."

"Oh, it isn't true he doesn't like people," she said. "He likes people as individuals. He just doesn't like people jammed together."

"Myrna's probably a calming influence," White said. "She'd almost have to be."

Myrna teaches Introduction to Geographical Modeling at ESF during the spring semester. She also runs her own consulting business and has done GIS work for the South Florida Water Management District and the U.S. Forest Service.

This summer, she is working with Atlantic States Legal Foundation in Syracuse, doing a computer visualization of the history and problems of nearby Onondaga Lake. Her work is funded through an EPA grant to Atlantic States.

For Charlie Hall, computer modeling is the latest twist in a career that began after he got his doctorate in 1970 at the University of North Carolina. He studied under famed ecologist Howard Odum.

Hall spent 13 years teaching at Cornell University and left because he was denied tenure. He says he doesn't know the reason for the denial, other than criticism that he spent too much time with his students. He offers a guess, however: "I was known for shooting my mouth off. Maybe that's part of the problem."

"I like it at ESF much, much better," he said. "It's a much more humane place to be. It's a much friendlier place."

He uses computer modeling to study the ramifications of development, which he contends cannot continue indefinitely, and population growth, which he believes is causing severe problems in Latin America. Economics also plays into it.

"A hundred years ago, this was for the most part a sustainable society. But you can't support this number of people, especially at this level of affluence, indefinitely," he said.

"Sustainable development is an oxymoron. All of this is based on a bubble of cheap

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Profile: Charlie And Myrna Hall continued

oil that won't last a generation," he said. "It's all based on using up resources. Perhaps half the soil that was here in 1700 is gone. Soil is the most important resource we have. People treat it like dirt."

He tried unsuccessfully to refrain from smiling at his own pun.

"A lot of what we're trying to do here is redefine economics. Can we make our economy sustainable? Sure. You know how to make it sustainable? Get poor. Have no babies and get poor. You want to run for president on that one?"

The Halls met in the summer of 1988. He was working at the University of Montana Biological Station on the Flathead Indian Reservation. As a French teacher at a Seattle prep school, she was in Montana attending an intensive summer workshop for French teachers.

One night, she played hooky from the program and slipped out before the screening of a French-language film.

"I just couldn't sit any more," she said. "I went for a swim."

"She swam right past my lab," Charlie said.

"I paddled right out in that canoe out there," he said, pointing to where a green canoe floats on their backyard pond. "And I asked her to go for a canoe ride."

"I said yes," Myrna said.

Then in unison: "And here we are."

They were married less than a year later in a Native American ceremony at the biological station.

Myrna left her home state, uprooted her two children from a previous marriage, then ages 11 and 13, and came east. She spent a year teaching at Christian Brothers Academy and decided she wanted to do something else.

Charlie's work had already taken him to Costa Rica, China, and Argentina. He saw in the developing world a need for people with environmental expertise.

"I said to her, 'It seems to me if you wanted to learn this sort of thing there would be great possibilities for you to use your language.'"

It was a pivotal discussion.

"She was lying in the hammock at the time so it became known as 'the hammock conversation,'" he said.

Myrna took Professor Rainer Brocke's introductory ecology course and her husband's systems ecology course. Charlie let a teaching assistant grade Myrna.

"She ended up with the highest grade in the class. But that's what she does all her life.

"She's a very proud person," Charlie said. "It was hard for her to come into a situation where I'm so well known. But now we're at least equals."

Myrna interrupts him. "Oh no, no, no. I don't have the Ph.D."

Charlie doesn't budge. "But when we go and teach these courses, we're equals. She's as well known as I am."

Her end of the work involves linking computer programming with geographical information systems, teaching in Span-

ish, helping translate Charlie's presentations and interpreting students' questions.

"I do the modeling and she does the GIS stuff and we make a team doing it," Charlie said.

They have worked together in Bolivia, Argentina, and Costa Rica, and twice in Mexico.

Last winter, they taught a seminar at the Universidad Nacional de Rio Cuarto in Argentina. The university presented the Halls with its highest award, "Huesped de Honor," which designates them as highly honored guests.

In May, they taught at the Universidad Autonoma Juan Misael Saracho (UAJMS) in southern Bolivia. They were invited to Bolivia by Mario Nina, who earned his master's degree at ESF and now directs an ecological institute at the UAJMS. Myrna has been asked to return this winter to teach another course. She and Charlie also have an invitation to return to Argentina.

During the summer, with ESF's students gone from the campus, Myrna turned her attention to the problems of Onondaga Lake.

Charlie spent the summer writing his fifth book, about his work in Costa Rica. He works in his cluttered Illick Hall office, surrounded by books and file cabinets that contain copies of his 130 academic papers.

"These are our only products," he said, waving a hand at the documents stuffed into the cabinets, "papers and students, who, we hope, are better educated when they leave than when they came here."

A Note From The ESF Development Office



ESF's Robin Hood Oak

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On Campus

Books and Monographs

Alberti, Gerd and Roy A. Norton, editors, *Porose Integumental Organs of Oribatid Mites (Acari, Oribatida)*. E. Schweizerbart'sche Verlagsbuchandlung, Stuttgart. 1997. 143 pp.

Burgess, Robert L., "American Ecologists: A Biographical Bibliography," in *Huntia, The Journal of Botanical History*, Volume 10 Number 1. Hunt Institute for Botanical Documentation, Carnegie Mellon University, Pittsburgh. 1996. 116 pp.

Felleman, John P., *Deep Information: the Role of Information Policy in Environmental Sustainability*. Ablex Publishing Corporation, Greenwich, CT. 1997. 188 pp.

Hall, Charles A.S., editor, *Maximum Power, The Ideas and Applications of H.T. Odum*. University Press of Colorado.

Manno, Jack, Sheila Myers, D. Schmeltz, and T. Ca, *Incorporating Human Health Considerations into RAPS*. Great Lakes Research Consortium, SUNY College of Environmental Science and Forestry. 62 pp.

McShea, W.J., H. Brian Underwood, and J. H. Rappole, editors, *The Science of Overabundance: Deer Ecology and Population Management*. Smithsonian Institution Press, Washington, DC. 1997. 402 pp.

Awards

Keith, Sara, Best Panel Paper, 51st Meeting of the New York State Political Science Association, April 1997.

Williams, Eva D., Dedication and Support of Multiculturalism at ESF, Baobab Society, February 1997.

Campus Calendar

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| August 21-24 | New Student Orientation Program. |
| August 25 | Classes begin. |
| October 3-4 | ESF Homecoming Weekend. Additional information: Alumni Services, 315-470-6632. |
| October 6 | Society of American Foresters and Tennessee Alumni Reception, Memphis, TN. Additional information: Alumni Services, 315-470-6632. |
| October 15 | Dedication Ceremonies: Edwin C. Jahn Laboratory. Additional information: 315-470-6683. |
| October 15 | ESF College Foundation Board of Directors Annual Meeting. |
| October 16 | Joachim Center Forum. Everson Museum, Hosmer Auditorium, Syracuse. Additional information: Syracuse Pulp and Paper Foundation, 315-470-6592. |
| October 16-17 | Syracuse Pulp and Paper Foundation Annual Meeting. Student Recognition Luncheon: OnCenter, October 16. |
| October 25 | Open House for High School Students. Additional information: Office of Undergraduate Admissions, 315-470-6600. |
| November 6 | Teaching Tools '97, A conference for educators. Schine Student Center, Syracuse University. Additional information: IDEaS, 315-470-6810. |
| November 7 | American Society of Landscape Architects and Georgia Alumni Reception, Atlanta, GA. Additional information: Alumni Services, 315-470-6632. |
| November 12-13 | The Adirondacks and Beyond: Understanding Air Quality and Ecosystem Relationships, A Conference to Explore Science and Policy Linkages. Sheraton Saratoga Springs. Additional information: ESF Continuing Education, 315-470-6891. |
| November 13 | Transfer Student Visitation Day. Additional information: Office of Undergraduate Admissions, 315-470-6600. |
| December 5 | December Convocation. |