

INSIDE E·S·F

Winter 1997



The magazine of the SUNY
COLLEGE OF ENVIRONMENTAL SCIENCE & FORESTRY

INSIDE ESF is published four times each year for alumni and friends of the SUNY College of Environmental Science and Forestry.

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On the Cover

Kathy Roberts of ESF's Forest Properties unit, shows off the College's Heiberg Forest in winter

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.

Campus Views

Path a T TheF t e

by James M. Heffernan

One of my favorite quotations these days is "Seek Simplicity. Distrust It." These four simple words of Alfred North Whitehead are good advice—strive to reduce complexity, but know that you'll always miss something. With that in mind, I venture to share a few observations about life at ESF these days, chastened to not overdo the details, chagrined to leave out much worth telling.

Students and Campus Life

We've admitted our largest freshman class in years—116. They are a bright group. Their SAT scores (1165), their high school averages (89), and their class rank (24 percent in the top 10 percent of their class) put them in the top 10 percent of all college freshmen in the US this year. From past experience we know that these new students are quick-starters. "Point me in the right direction and let me at it" appears to be their motto.

Director of Admissions Dennis Stratton notes that freshman admissions is as competitive as some Ivy League schools and major research universities—about one applicant in seven is enrolled. We will expand our freshman class to 160 next year to bring more of these "best and brightest" to campus. Starting next fall, all programs in the College will admit freshmen, including Environmental Studies and the newly renamed Construction Management and Wood Products Engineering faculties.

Transfer students still predominate among our entering students. About 300 or so are admitted per year. More, however, are coming in as sophomores each year, and now roughly equal junior transfers in number.

These are also strong students; they bring an average GPA of 2.99 from their previous colleges. We have seen some decline in transfer applications related to declines in enrollments at the SUNY institutions from which our transfers come. SUNY's new efforts as a system to recruit students, and our Admissions Office's expanded efforts to reach more out-of-state students, however, should have good effects on the size of the transfer pool.

ESF students are as enthusiastic toward campus activities as ever. Director of Student Activities Julie Rawls notes that the Student Council has 33 members, the most ever; clubs like the Forestry Club, Papyrus Club, The Wildlife Society and Honor Society have substantially increased their activities and events. We find our students a delight to work with. Collaboration and fellow support, rather than competition and isolation, typify the ESF student culture. Incidents of academic dishonesty or personal misconduct are uncommon.

Of increasing concern at ESF is the rising cost of attending college. Room, board, tuition, books and expenses were about

\$2,800 in 1972 and \$8,700 in 1990. That figure is now \$12,300—a 41 percent increase in just six years. Students are working at more part-time jobs, are carrying greater debt loads of college loans after graduation. Financial Aid Director John View reports that in 1990 he processed \$1.1 million in college loans for 340 students. This year, 1,100 students—of 1,200 enrolled—borrowed a total of \$5.4 million. Many students are leaving ESF with a "negative dowry" of \$15,000.

When they leave us, where do they go? Tom Slocum, Director of Career and Counseling Services, notes that ESF grads are working or continuing their education at higher rates than other college graduates. Seventy-six percent took jobs by December, and 17 percent went to graduate school.

In our first appearance in its national rankings, Barron's publication, **Best Buys in College Education**, describes ESF to prospective students:

"For students who don't only love the environment but are committed to learning how to preserve it through a highly-specialized and challenging curriculum with plenty of hands-on experience, the answer may be SUNY-ESF. The ingredients for success, students say, are a heart devoted to environmental issues, ahead committed to studying difficult science-based courses, and hands and feet willing to do the work."

A pretty accurate picture, we'd say.

Institutional Advancement

Students of high quality and high enthusiasm are not news at ESF. And their enthusiasm doesn't wane after they leave us. One area where alumni do us proud is in their financial contributions. Last year ESF alumni ranked first in SUNY for alumni giving per student, and, perhaps even more impressively, second in **ta gi i g**—behind only the University at Buffalo. Annual Fund, class gifts, special bequests and deferred giving are among the most popular means for making contributions to the College.



James M. Heffernan

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Energy Secretary Visit Biomass Energy Project

U.S. Secretary of Energy Hazel O'Leary announced a multiyear, \$13.8 million grant to foster renewable energy research on a fall visit to ESF's Genetics Field Station.

The Department of Energy Biomass Power for Rural Development grant was made to the Niagara Mohawk Power Corporation for commercialization by the Salix Consortium of willow biomass as an energy crop of farmlands in the Northeast. Members of the Salix Consortium are ESF, NiMo, New York State Electric & Gas Corporation (NYSEG), and the New York State Energy Research and Development Authority (NYSERDA). The campus-based share of the grant totals \$4.1 million.

The work is a result of more than 15 years of research on biomass crops conducted by Dr. Edwin H. White, dean of Research, and Dr. Lawrence P. Abrahamson of the Faculty of Forestry, who demonstrated fast-growing hybrid willow plantations produce plant matter suitable for feed stock in the production of energy and chemicals. The work gained national prominence in 1994 when it was featured in a front-page *Wall Street Journal* article.

NY Forest Research Center Celebrated

Kevin King, executive director of the Empire State Forest Products Association, New York State Senator John DeFrancisco, and ESF Dean of Research Edwin White chronicled the accomplishments of the New York State Center for Forestry Research and Development September 13 during a brief program in the Rotunda of ESF's Bray Hall.

The Center, established in 1994, is a program of the state Legislature designed to assist the state's forest products industry.

DeFrancisco, King and White discussed the Center's role in enhancing communications between and by forest-based industry in the state, promoting research and technology transfer on critical issues, and the commitment by the Legislature and state government to aid New York businesses in this important area.

Hannu Makkonen Named ESPRI Director

Dr. Hannu P. Makkonen was appointed director of ESF's Empire State Paper Research Institute.

Makkonen, who holds a Ph.D. from the University of Washington in Seattle, joined ESPRI as a senior research associate in 1993. He previously held positions with the Finnish Pulp and Paper Research Institute (KCL) at Espoo, Finland, and with Kajaani Oy at Kajaani, Finland, as research director. He also was the founder and president of the companies Kajaani Inc. Automation, Sensodec Inc., and Tapio Technologies Inc., in North America.

Membership includes companies from 11 different countries.

Abrahamson Award Westbrook Earned Chancellor's Award

Dr. Lawrence P. Abrahamson, senior research associate, and Christopher L. Westbrook, director of the Ranger School, received 1996 Chancellor's Awards for Excellence in professional service and teaching, respectively.

A specialist in the ecology and the biological chemical control of forest insect pests, Abrahamson also serves as the College's extension officer. In addition to teaching and research, he carries out a significant number of public and community service efforts annually for ESF.

He joined the College faculty in 1977 following employment with the U.S. Forest Service, and worked initially with ESF's Applied Forestry Research Institute (AFRI). He now holds a joint appointment in the Faculty of Forestry and Faculty of Environmental and Forest Biology, and directs the Northeast Petroleum-Forest Resources Cooperative.

Westbrook, a 1973 Ranger School alumnus, was a surveyor in Idaho and West Virginia and an assistant professor of land surveying at Glenville (W.Va.) State College, before returning to the Ranger School
continued on next page

Campus Update



U.S. Energy Secretary Hazel O'Leary and ESF's Edwin White, right, tour the Genetics Field Station in Tully with Congressman James Walsh.



Christopher L. Westbrook

Campus Update, continued

in 1989. He developed the new elective surveying concentration that has helped spur enrollment in the 85-year-old forest technology program.

Each Chancellor's Awards recipient receives an inscribed certificate and a cast bronze medallion. Abrahamson and Westbrook received theirs at ESF's Fall Convocation in September.

ASLA, Pa i g A c. Cite Y T P g a

An ESF program that helps rural towns plan their futures received a 1996 Communications Award from the American Society of Landscape Architects (ASLA). It also won the 1997 Public Education Award of the American Planning Association.

Established in 1990, "Your Town: Designing Its Future," has ESF professors and students work with elected and appointed officials and civic leaders in communities around the country, helping them devise ways to protect the character of their towns while allowing for development.

ESF is the home the Northeast Regional Center, one of five 'Your Town' centers in the U.S. and the effort here is directed by S. Scott Shannon, associate professor of Landscape Architecture. Richard S. Hawks, chair of the Faculty, is the national Your Town co-director with Shelley Mastran, director of the Rural Heritage Program at the National Trust for Historic Preservation.

Ne Ha hie F e te Fete Dece be G ad ate

Jane A. Difley, president of the Society for the Protection of New Hampshire Forests, was the keynote speaker at ESF's December Convocation on December 6.

Ninety-nine students received bachelor of science or bachelor of landscape architecture degrees. Sixteen students received master's degrees in science, landscape ar-

chitecture, or professional studies, and 11 students received doctor of philosophy degrees.

ESF's mid-year Convocation was established in 1985 to recognize the growing number of students who complete their degree requirements and leave campus to work or pursue further education, which makes it impossible for them to return for May commencement ceremonies.

A i E ect Ne Office ;Na c Ma e 71, P e ide t

Nancy A. Mayer '71, a manufacturing consultant with Donald J. Mayer & Associates of Jamesville, NY, was elected president of the ESF Alumni Association at the association's annual meeting this fall.

C ie S. Webb Na ed Vice P e ide t f Ad i i tati

ESF President Ross S. Whaley named Connie Stewart Webb vice president for Administration effective August 19, 1996.

Webb, manager of laboratory operations for Lockheed Martin's Electronics Laboratory, replaced Nick J. Paradiso, Jr., who retired in July.

In her position at Lockheed Martin (formerly GE Aerospace), Webb planned and executed annual budgets of \$5 million and was responsible for some 150,000 square feet of building and laboratory space, including maintenance, facilities planning and construction, environmental health and safety, information resources and personnel.

She received the Jefferson Cup Award for outstanding leadership and personal contributions toward improving compliance and ethics performance at the Laboratories, which was presented by Lockheed Martin CEO Norm Augustine in June 1994; the Technology

Also elected to positions on the Alumni Association Board of Directors were Robert Sand '50 of Odessa, NY, first vice president, a retired forester with Cotton-Harlon, Inc.; C. Alan Baker '53 of Baldwinsville, NY, second vice president, retired vice president and news director for the Brown Newspapers; and Mary W. Clements '82 of Syracuse, NY, secretary-treasurer, a landscape architect with the state Department of Transportation.

Also serving on the Board Executive Committee is Stuart Hosler '52 of Baldwinsville, immediate past president, retired owner of the Hosler Agency, Inc.

Alumni Association members also elected class group directors and directors-at-large to serve on the board. Board of Directors members serve at two-year term.

Outstanding Achievement Award from Martin Marietta Corp., also in 1994; the Outstanding Alumni Award from Syracuse University's School of Information Studies in 1992; and the GE Management Award for innovative and inspirational leadership in 1990.

As ESF's vice president for Administration, Webb oversees the College's business and finance, environmental health and safety, forest properties management, information technologies, institutional planning, personnel and affirmative action, physical plant, and public safety operations. Additionally, she serves as the College's representative to several State University of New York, Syracuse University, and public and private community agencies and groups.

Webb received both her baccalaureate and master's degrees from Syracuse University and has been an adjunct faculty member in SU's School of Information Studies. Additionally, she has served as a member (1984-1989) and president (1988-1989) of the board of directors of the Regional Learning Service Career Center.

Heiberger Tree Initiative Sails

by Claire B. Dunn

Sixty-six years ago, a Civilian Conservation Corps crew worked on a ridge in Tully, NY, planting evergreen trees to help prevent soil from washing into the valley.

Today, four of those trees bear the weight of sails that help propel a 42-foot sailboat on the Potomac River.

The trees, which grew in ESF's Heiberger Forest, were donated by the College to the Alexandria Seaport Foundation of Virginia. The foundation used the four Norway spruce trees to make the masts and booms for a replica of a Potomac River dory boat, the traditional workboat that was used on the river for a century.

Dubbed the **Potomac**, the vessel will be used as a floating classroom where children can study marine science firsthand.

Richard A. Schwab, director of forest properties at ESF, said the trees were part of a plantation established by the CCC in 1931. They became ESF's property in 1948, when the College acquired Heiberger Forest.

The trees' move to the Potomac River came about after the Seaport Foundation's chairman, William H. Hunley, learned through a relative on the College staff that

ESF has forests that serve as outdoor laboratories for its students. Schwab invited Hunley to Heiberger in October 1994, when some of Dr. Joel R. Howard's students in the Forestry Faculty were conducting a thinning exercise.

Hunley came to Heiberger and looked over the trees. He selected five Norway spruce trees that Howard's students had marked for removal. Two of the trees were for masts, two for booms, and one was a spare.

"They grew up very straight and clean, no crooks in them and very few knots," Hunley said.

Such trees are hard to find. Trees in Virginia tended to be too heavy for the **Potomac's** masts.

Hunley wanted spruce trees that had grown in a thick stand because they would be straight and springy. They wouldn't snap under pressure. And they would be strong enough to support their own weight. On a dory boat, there are no cables to hold up the mast.

"It stands alone, just like it does in the forest," Hunley said.

The Seaport Foundation got the trees to Virginia with the help of another donation. An assistant boatbuilder has a relative who is a contractor in upstate New York. The contractor had a project in Washington and hauled the trees south during a trip to the worksite.

In Alexandria, the trees were honed into two masts that measure 44 feet and 39 feet, and two booms that measure 23 feet 9 inches and 17 feet one inch.

The trees and the transportation were among the last in a series of donations that allowed the **Potomac** to be constructed by



The Potomac in full sail.

the foundation, a non-profit organization that promotes awareness of Alexandria's maritime heritage.

Hunley drew up plans for the boat in 1944. Foundation members figured they could build it if they raised \$100,000. When a fund drive brought in \$2,000, they reconsidered their strategy. Donations turned out to be key.

"People gave us just about everything it took to build a boat," Hunley said. "In the end, we had built a \$100,000 boat for less than \$15,000."

Two years after Hunley selected the trees, the **Potomac** was commissioned on Oct. 12, 1996, at Waterfront Park in Alexandria.

One bit of work remained. Schwab said that in exchange for the trees, ESF had one request for the Seaport Foundation: The College asked that a plaque be placed on a mast, bearing ESF's name and noting that the College had donated the trees.

Hunley said it will be done.

He had this to say about ESF's role in the creation of the **Potomac**: "They aren't responsible for putting it in the water, but they're certainly responsible for making it sail."



Volunteers help raise the mast.



ESF I n t e r d i c i p l i n a r A c a d e m y
WATER

By Rod Cochran

Water—that quicksilver gift of nature—has been called the single most crucial ingredient making life on earth possible. Water is so pervasive in our environment—occurring in many forms and in many places—that we take it for granted. Poets and scientists have described and quantified water. Yet the principles and ramifications of water resources management remain as elusive to most Americans as a handful of rain—except when there is a drought or a flood. Only then are we of a single mind toward water. Most of the time we give little thought to water. Although we do treasure it, we also pollute it. We conserve it and waste it; we treat it and mistreat it. And while most of us can appreciate a cooling summer shower, or even the beauty of a winter snowfall, both are disdained by weekend weather forecasters.

In the water-rich Northeast, as long as our household taps do not run dry, we use water freely without realizing its true value. In the arid West, water disputes are a way of life. In all regions of the United States, however, our standard of living depends heavily upon having plenty of inexpensive, clean water available, and an inexpensive, safe, way to dispose of it after use. To produce a hamburger, french fries, and a soft drink, for example, takes about 1,500 gallons of water—enough to fill a swimming pool. To grow the cotton in a pair of jeans requires about 1,800 gallons of water. To produce the finished steel in an

automobile requires about 32,000 gallons of water. Now, recycling techniques are reducing that amount. Households and industry both use vast amounts of water. Syracuse learned a lesson during the summer of 1995 when, in the midst of the worst drought in 30 years, water demand by customers of the Onondaga County Water Authority grew to 64.5 million gallons a day. Voluntary restraints requested by local officials dropped the daily use to 43.6 million gallons, a more normal level.

Although there is plenty of water on earth, it is not always at the right place, at the right time, or of the right quality. According to the Universities Council on Water Resources, we face record consumption today, uncertain supplies, and the continuing need for protection from flooding and pollution. “The health and economic effects of a shortage of clean water are matters of great concern,” the Council stated in a recent publication. “By the year 2000, it has been estimated that 17 out of 21 water resources regions of the United States will suffer from inadequate surface and underground (groundwater) water supplies, flooding, erosion and sedimentation problems, as well as pollution of both surface water and groundwater.”

Realizing the crucial importance of these trends, ESF faculty members have traditionally offered courses dealing with water management and ecology, carried out in nu-

merable research projects, and conducted an active public service outreach program dealing with these problems. All of these programs are being refocused and emphasized, frequently across classic disciplinary lines, in response to continental (and some cases, international) water management and pollution control problems.

Water Resources Management, Hydrology: Students Attracted To Challenging Careers

As water needs become more pressing, the interest in water resources management as a profession has grown, according to Dr. Peter E. Black, professor in the Faculty of Forestry. The result is a new Water Resources Management Option first offered last fall for undergraduate students. "The Water Option builds on the existing Forest Resources Management Curriculum providing a wildland management base with emphasis on the manipulation of natural resources for the development of high quality water sources," Black explained. Nine students were registered in the new option this fall. For the first two years they will follow the Resources Management Curriculum, devoting one elective to geology. Students then may choose an emphasis in soils, geology, ecology, mathematics, or chemistry, and will have the opportunity to take general water courses.

"ESF faculty members offer a tremendous breadth and depth of interest and expertise dealing with many aspects of water," Black said. "This interdisciplinary approach allowing students to follow their interests is one of the great strengths of the College."

The Water Option features, for example, the protection, rehabilitation, maintenance, and enhancement of the lands producing water for domestic and industrial uses, irrigation, navigation, recreation, and hydropower production. An understanding of water in natural and disturbed environments is fundamental to the new Water Resources Option offered to ESF students.

Courses in watershed hydrology, hydrologic processes, and related topics are available. Within the Option, building on the basic sciences and hydrologic background, students elect courses in computer applications, forest influences, geographic information systems, global modeling and change, hydrology, limnology, non-point source pollution control, soils, water resources administration, or wetlands ecology and hydrology.

Increasing numbers of graduate students at ESF pursue master's degrees in Watershed Management and Hydrology, which develops an understanding of technical, social, and institutional aspects of water resources management. Individual students may emphasize scientific or social subject areas, but all study in both areas. Scientific aspects include the basic physical, chemical, and biological interactions occurring in water resources systems. The social aspects are concerned with planning, regulation, law and

institutions, and management of water resources. Water serves as a focus for graduate study in related land resources management, and water pollution and water quality control.

Wetland ecosystem studies offer additional opportunities for graduate students interested in the physical, chemical, biological, and social management processes applied to wetlands. In general terms, wetlands are areas where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and in its surface. "Wetland studies are integrative because they draw on at least six of the eight ESF faculties," explained Dr. Richard C. Smardon, professor and chair of the Faculty of Environmental Studies.

New careers in water resources management and hydrology develop all the time to meet the increasing demand for clean water and pollution control. The Universities Council on Water Resources has identified more than two dozen interesting and challenging career areas including:

- water supplies and waste management systems development for industries;
- well drilling and testing;
- resource development for large firms such as oil and gas companies;
- water supply development for electric power utilities;
- consulting for industry;
- analytical laboratories specializing in water chemistry;
- nonprofit research organizations;
- college and university instruction and research;
- many federal agencies such as the Army Corps of Engineers, Bureau of Mines, Bureau of Land Management, Bureau of Reclamation, Environmental Protection Agency, Forest Service, Geological Survey, Peace Corps, and Natural Resources Conservation Service (formerly the Soil Conservation Service);
- a variety of state and local government agencies with responsibilities for public health, water and sewage management, highway and land drainage, fish and wildlife, irrigation districts, environmental protection, and conservation districts.

Water Problems Old And New: Searching For Answers

In a recent message to readers of the *New York State Conservationist*, former Commissioner of Environmental Conservation Michael D. Zagata wrote of the beautiful but ecologically fragile Adirondack Mountains. "Some of the lakes of the Adirondacks are in trouble, threatened by pollutants that rain down from the sky," stated Zagata. "...A decade ago, New York State adopted a landmark law to limit the amount of pollutants released through the burning of fossil fuels within New York's borders.... And yet, the acid rain continues to fall upon the Adirondacks and other parts

of the Northeast, borne on westerly winds that carry the residue of smokestacks to us. Just as New York was in the forefront among the states to control its own sources of acid rain, the Empire State now takes the lead in urging federal standards to limit sulfur and nitrogen emissions from distant points that continue to rain down upon our land, forests, and lakes."

The knotty problem of atmospheric deposition is typical of the complex ecological puzzles facing water researchers. The search for new knowledge and solutions goes on, even though it is rather like peeling the layers of an onion—there is always another problem lying underneath. Although ESF faculty members were among the first in the country to carry out landmark atmospheric deposition research, similar work continues today with no end in sight. Drs. Dudley J. Raynal and Donald J. Leopold, for example, are engaged in a project in the Catskill Mountains to assess the role of vegetation in processing and sequestering nitrogen, both from man-made and natural origins. The four-year study, on the U.S. Geological Survey research site on the West Branch of the Neversink River, is of great interest to New York City officials because nitrogen-rich Catskill waters do not meet EPA drinking water standards.



A graduate student for John P. Hassett, Chemistry, samples Onondaga Lake.

The variety of water and wetlands projects being carried out by ESF researchers is truly mind-boggling. A brief sampling:

- A two-year study of Onondaga Lake by Dr. John P. Hassett discovered organic chemical contaminants never before described from the natural environment, naphthalene and diphenylethane. He deduced they came from a by-product from industrial operations around the turn of the century. The contaminants make up the major part of the so-called tar beds found in the lake.

- An on-going project looks at how sunlight regulates the emission of dimethyl sulfide into the atmosphere from sea water. "Dimethyl sulfide produced by algae is the major organic sulfur compound released from oceans," explains researcher Dr. David J. Kieber. "This is significant because part of the gas is converted to sulfuric acid in the atmosphere, which contributes to rainwater acidity, and to the formation of clouds thereby affecting climate. The remaining gas is converted to non-acidic chemicals."

- Several graduate students under the direction of Environmental and Forest Biology's Leopold collaborated on a study to determine if wetlands (mucklands) can be restored after being cleared for agriculture and then abandoned. The Great Lakes states have lost 67 percent of their original wetland base, mainly as a result of conversion to agriculture. A computer model that will assist restoration efforts will be based on the ESF researchers' results.

- A graduate student working with Dr. James M. Hassett is carrying out a study with the National Weather Service office in Binghamton to examine the performance of the WSR-88D Doppler radar for tracking regions of localized snowfall. The information is vital because accurate snow accumulation and snow water equivalent data are needed for short-term hydropower scheduling decisions, intermediate-term flooding forecasts, and seasonal water resource management decisions.

- Dr. Neil H. Ringler is the director of the Environmental Monitoring and Assessment Program (EMAP) at ESF, a four-year project to monitor a sampling of some 11,000 lakes in eight northeastern states in an effort to predict land use changes. Up to 25 student interns are trained each summer at Huntington Forest in sampling protocols, including fish, benthic animals, water quality, and habitat. Teams of interns then collect data on 100 lakes each season. The project is a joint venture among EPA, U.S. Fish and Wildlife Service, and ESF.

- John Hassett recently developed and patented two water contaminant samplers during his studies of Onondaga Lake. One is anchored in place to accumulate data over time, and the other is used from a moving boat.

- Recent graduates Suzanne Wechsler and Hannah Green carried out a project with the New York City Department of Environmental Protection to evaluate the effectiveness of the best management practices (known as BMP) in controlling urban non-point source pollution. The first

phase is monitoring water quality and quantity entering and exiting detention basins—ponds built to accommodate run-off required in new subdivisions. Modeling their findings will conclude the study.

- Graduate student Dean Brammer, working with his major professor Dr. Jeffrey J. McDonnell, traveled to New Zealand to participate in a study of the Maimai watershed. His project involved the use of chemical and isotope tracers to determine the subsurface flow paths on a forested hillside.

- Amy Titus, with McDonnell and Black, is working with the U.S. Geological Survey in the Sleeper River Watershed in Vermont. During snow melt season she recorded hydrometeorologic characteristics such as air temperature, wind speed and direction, and radiation balance—all factors influencing snow melt rate.

- Several Empire State Paper Research Institute researchers explore the reduction, reuse, and cleanup of waste water from paper mills. The resulting technologies may be used to recover valuable products such as lignin and pigments in addition to water, increase the efficiency of the recovery boiler, and reduce the load on the conventional waste water treatment plant.

- An Atlantic salmon restoration study is being carried out by graduate students Christopher Millard and Richard McDonald in the Oswego River basin. Supported by Niagara Mohawk Power Corp., the project aims to determine the ability of streams to support Atlantic salmon after the fish have been absent for more than a century. Results from the first three years indicate that they survive and grow very well from sac fry to the migratory stage.

- Leopold found wide fluctuations in annual flowering and fruiting success of the small white lady slipper, an endangered plant that grows in wetlands. Flowering success was determined by the amount of sunlight received, while the amount of rainfall had no effect.

- Postdoctoral research associate Kyong-ha Kim studied the macropore flow at the U.S. Geological Survey research site at Panola Mountain, GA. He uses grid networks consisting of tensiometers and piezometers to assess the nature of subsurface flow.

- A group of Ringler's graduate students studies the effects of littoral zone modification on fish communities in Onondaga Lake. They built artificial spawning sites and planted aquatic vegetation. The next step is to build an observation jetty to monitor restoration results. The students also are looking at why there are so few zebra mussels



This branch of the Neversink watershed in the Catskills is under study by Donald J. Leopold.

in the lake when the Seneca River harbors incredible numbers.

- A detailed vegetation study of the portion of Cicero Swamp burned by a fire 94 years ago was completed by graduate student Cheryl M. LeBlanc. The old burn area is the preferred habitat of the endangered Massasauga rattlesnake.

Lifelong Learning And Technological Transfer:

Communicating With The Public And Policy Makers

A shower of recent headlines reveal the critical nature of water management policy debates in this country. A random sampling included:

- Hurricane Fran Floods Eastern States
- H.R. 961 Would Make Major Changes In Clean Water Act
- Superfund Hearings Focus On State Assumption Of Responsibility
- Worst Forest Fire Season In 40 Years Hits West
- Questions Of Risk, Standard Setting Hold Up Introduction Of Safe Drinking Water Act Bill In Senate
- Federal Agencies Propose Wetlands Initiatives
- Toll Climbs As Rains Fall.

Many more water issues clamored for attention, and a water headline appears nearly every week in metropolitan newspapers. The publicity is another sign that water management policy decisions affect our livelihoods as well as our daily lives. Communicating knowledge to the public is an ESF tradition of long standing, and programs dealing with water are extensive. A few highlights of public service outreach activities:

- The Office of Continuing Education has offered a variety of short courses in recent months, ranging from Wetland Plant Identification to Wetland Delineation courses, from Identification of Freshwater Fish Larvae to Environmental Forums, according to Dean Robert C. Koeppe.

- Forestry's Black originated the proposal and continues to assist with planning for "The Water Center," a research and education facility to be constructed in the Harborfront area of Onondaga Lake. A freshwater ecosystem aquarium is to be incorporated into the plan. Other exhibits: The Nature of Water—to explore the physics and dynamics of water in all its states; The Water of Nature—a gallery exploring ways in which water and watery habitats form and influence plants, animals, and geology of the world's waters; and, Water Use Issues—a display providing information and activities about the use of water in society.

- An illustrated article by ESF graduate student Janice McIntosh appeared in the Spring 1995 issue of *Clearwaters*, titled "Students Conduct Research in Water Resources at SUNY-ESF."

- The Great Lakes Research Consortium, a collaborative effort by 10 educational institutions to understand and improve the Great Lakes ecosystem, is headquartered at ESF. Primary goals are to facilitate research and scholarship, educate students on topics related to the Great Lakes ecosystem, and the dissemination of information gathered through consortium-sponsored research, according to Jack Manno, senior staff associate.

- Environmental Studies' Smardon serves on the Council of the Great Lakes Protection Fund, which has been granted \$12 million in New York State, and supports five or six public service and research projects a year for a total of about \$250,000. He also prepared a guidebook for communities, titled *Protecting Floodplain Resources*, that will be used nationally by the

Environmental Protection Agency and the Federal Emergency Management Administration.

- ESF hosted the prestigious Annual Symposium, sponsored by the American Water Resources Association this past summer. Black was general chairperson for the four-day session; McDonnell served as technical program chair. The theme was Watershed Management Restoration. Black and McDonnell serve numerous professional water organizations; they, for example, are associate editors of the *Water Resources Bulletin* and *Water Resources Research*, respectively.

Rod Cochran, ESF assistant to the president and professor emeritus, is a noted free-lance writer focusing on outdoor topics.



Peter E. Black, Faculty of Forestry, developed the water resources curriculum.

Campus Profile

Jamie Savage: On Top Of The World

by Claire B. Dunn



Jamie Savage and Kili Sherpa on Claire Joan Go.

On a mountaintop that towers 17,500 feet in the Himalayas, there is no evidence that any human being has ever stood there. No flag, no T-shirt, no hand-written sign.

But at 4 p.m. November 5, with the sun threatening to slip behind the mountains to the west, an assistant professor from ESF's Ranger School and a native Sherpa companion scaled the peak in Nepal and savored the view. They dug into a bag of M&M's, shared some bread and handed the camera back and forth, snapping pictures. They screamed and waved in the direction of their companions at their base camp, a mile away and 3,500 feet down

the mountain. Their friends couldn't possibly see or hear the pair at the summit.

Then the ESF forester, Jamie Savage, and his friend, Kili Sherpa, ran out of time to celebrate. As Savage puts it, there was no time for profound thoughts.

"It's four o'clock, the sun's going to go behind those peaks," Savage said. "Once you get the pictures out of the way, you start thinking about getting down."

So they gathered everything they had brought to the top and took it back to their temporary camp, some 1,500 feet down the mountain. Although Savage's climb was the first documented ascent of the peak, he felt no need to leave behind any ego-boosting evidence of his feat. On another peak, he had seen a sign advertising a trekking company and it struck him as a tacky intrusion on the scenery.

"We found nothing. We left nothing," he said. "It was a conscious decision. I would like to have had an ESF banner to hold up for a picture, but I wouldn't have left it there."

Savage's climb that day—Election Day '96 for the folks at home—was the high point of a seven-week trip to Nepal. He made the trip with six other Americans, including Bill Widrig, a 1986 graduate of ESF's Paper Science and Engineering program, and Tad Welch, whose father, the late Fay Welch, was a long-time ESF lecturer. With two Sherpa friends and several Sherpa guides, the group trekked 75 miles through the Nepalese countryside, scaled a handful of peaks and helped Kili Sherpa establish a climbing school in his village.

Kili had a special relationship with his American companions. He recently spent some summers working in the Adirondacks at Tanager Lodge, a children's camp established in 1925 by Fay Welch. Welch taught forest recreation at ESF for 40 years before retiring in 1971. He died in 1984.

The camp on Chateaugay Lake is still run by Welch's family. Savage spent summers there as a child and credits the program and the Welch family with instilling his love of climbing and his desire for a career that would get him outdoors.

Savage, 33, spent his childhood in the Fayetteville-Manlius area and graduated from Paul Smith's College in 1984. He got his bachelor's degree in forest resources management from ESF in 1986 and his master's degree in silviculture in 1990.

Several of his companions on the Nepal trip, including Widrig, were also former Tanager campers. With so many connections to the lodge, the group dubbed itself "Team Tanager."

Widrig, who works for Hollingsworth & Vose paper company in Greenwich, near Albany, said the 20-year ties among the trekkers made the trip run smoothly. They trusted each other's ability to handle whatever difficulties they might encounter.

"The best part was having the opportunity to see and experience that culture, to see the mountains, and to share it with friends. I could have gone on a package tour but that would have been a totally miserable experience for me," Widrig said.

continued on next page

Dunn, a veteran newspaper reporter and editor, joined the College staff in December.

Profile: Jamie Savage

continued

During two years of planning that preceded the trip, Savage researched the area. Through a review of information compiled by the American Alpine Club and records kept by *Climbing* magazine, he concluded that the last major, documented climbing expedition into the Rowaling Valley was in 1955, when a group of British climbers explored the terrain. Savage found no evidence any members of the British group had climbed the unnamed peak that intrigued him.

In Nepal, they tried a less formal, but no less effective, method of investigating the peak's history. Their Sherpa companions asked natives in the nearest village if anyone had ever climbed to the summit. The answer was no.

Savage decided to try it.

It took him three attempts to get to the top. The first time, he was alone as he struggled a mile across a snow field, then turned back when he faced the prospect of doing technical rock climbing that requires the use of ropes and other equipment. It wouldn't have been safe alone. He returned to base camp in good spirits, not particularly troubled by his inability to reach the summit.

"I didn't really think too much about it. It was still beautiful. I had some great views," he said.

Two days later he was back with two companions. But in the deep snow, their pace was unusually slow and they had to turn back before they ran out of daylight. That time, he was disappointed because he thought he had picked a good route to the top.

The next day, he and Kili Sherpa made it. Savage's reaction to being the first human being to stand on a peak in the world's highest mountain range is, perhaps, a bit understated: "We got to the summit and we were just really happy. There was a real sense of accomplishment because it was my third time."

When he got to the top, Savage pulled out a picture of his wife of a few months

and named the peak in her honor: Claire Joan Go. Go is the Tibetan word for summit.

Although Savage chose to leave nothing at the summit, Claire Joan Go does bear some evidence of human presence. On their descent, he and Kili Sherpa were forced to leave behind nylon-webbed slings as they rappelled off the summit. There is no way for a mountaineer to go back and retrieve the slings.

"So if somebody goes up there, they'll know someone was at the summit, or darn close, at least," he said.

The Himalayas had long been a goal for Savage, who started climbing at age 13. "It's the roof of the world. They're the highest mountains in the world. I think at some point, every climber wants to get there and see those mountains."

As a forester, Savage also found plenty to see. The landscape, from hot and humid Katmandu to the snow-capped mountain tops, is tremendously varied. And when you travel by foot, you get a close look at it.

"You go from the tropics to the Arctic. You see the associated changes in climate and ecosystems as you go, and you just don't see that anywhere else."

Savage returned to Wanakena with two posters that depict the trees and insects native to Nepal. He plans to hang them in a second-floor laboratory at the Ranger School, where the courses he teaches include dendrology and entomology. A book he bought in Katmandu, *Forests and Forestry in Nepal*, is destined for the Ranger School library.

Savage also came back with a new perspective on the Third World's use of natural resources. He teaches a course in recreational forestry and he took note of a major difference in the way the U.S. and Nepal approach their national parks.

In the Nepalese national park in the Mount Everest region, people have homes and farms. They operate sawmills. Rather than learning about wilderness preservation, a visitor is more likely to learn about the way the natives live and use the forest.

"You experience the culture of Nepal as you experience the wilderness of Nepal. That doesn't happen here. You don't go hiking in the Five Ponds Wilderness to experience the culture of New York, or the culture of the Adirondacks," Savage said.

Ever the forester, Savage trekked through the countryside wondering how the vegetation compares to what grows in the United States.

"A lot of it is similar. I was surprised. I saw plants that reminded me of those you see in the Adirondacks," he said.

"Their pine is much like our white pine but it's called blue pine. It's just like you'd see out here," he said, glancing out his office window in snowy Wanakena.

Nepalese pine, spruce, juniper, maple, and birch don't vary much from what grows in the U.S., he said. Neither does the rhododendron, with a couple of notable exceptions. In Nepal, it's wild and grows into trees to fill the forest with blossoms.

"I know of one rhododendron in Wanakena. Somebody planted it and it seems to be surviving," he said.

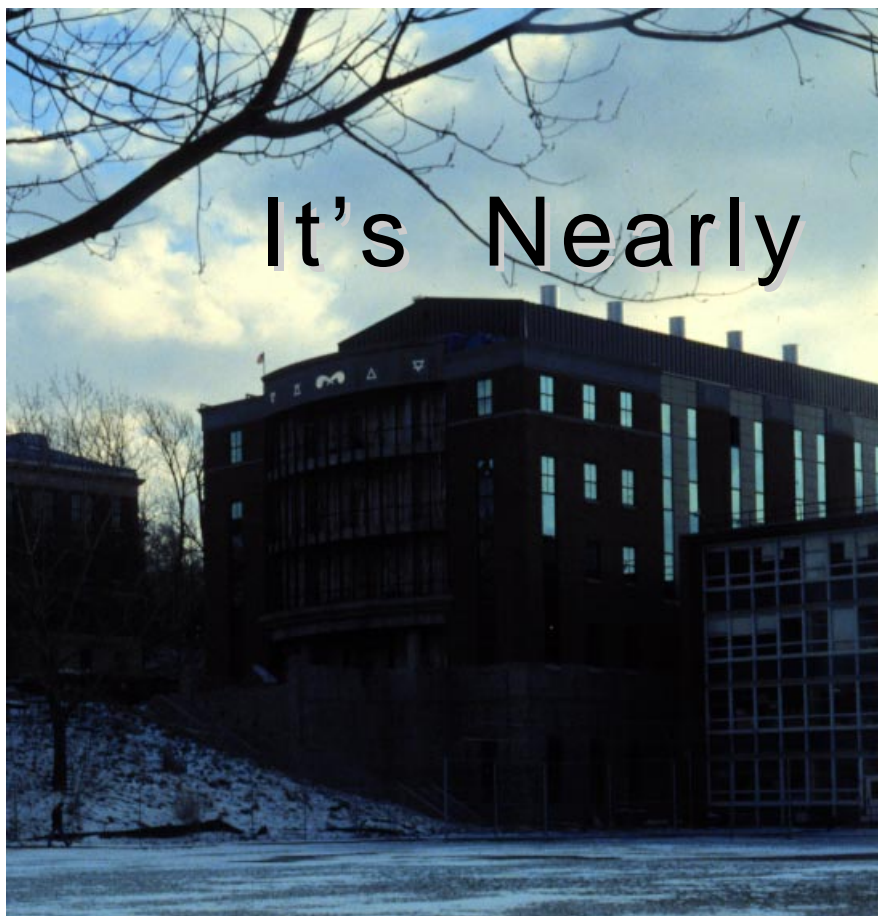
Savage is working on a slide show to present to ESF faculty and staff members. He hopes to do one for students, too. The presentations are scheduled for noon and 7 p.m. March 5 in the Alumni Lounge, Marshall Hall.

He has three trays of slides and lots of thoughts to organize.

Many of his experiences will be shared through the slide shows. Other information will work its way directly into the classroom as he teaches Ranger School students about forestry.

And some of what he learned will subtly affect his teaching and his own work in the forest. He just doesn't know how yet. After seven weeks in a Third World nation, where people own little more than a cabin, a set of clothes and some yaks to herd, he knows she was affected in ways she has not yet realized.

"It takes a while to digest it all, what you've just been through," he said. "It's so different."



It's Nearly Complete!

Your help
will finish
the job

The \$22 million Edwin C. Jahn Laboratory will be available for use in the fall of 1997. SUNY funding will cover most, but not all, of Jahn Lab construction, furnishings, and equipment.

A total of \$1.1 million is needed to secure a full complement of research instrumentation and special laboratories. Funds are also needed for challenge grants to obtain major equipment and for equipment endowment.

Opportunities for donors are numerous. Specifically, ESF seeks "naming gifts" for any of the following:

- Teaching labs: The large organic chemistry lab; two smaller labs for polymer and analytical chemistry, and for biochemistry and environmental chemistry.
- Research labs: Twenty-four special purpose research labs, and faculty/student space.
- Instrument labs and Support Service rooms: Thirty-four rooms for mass spectrometry, nuclear magnetic resonance, spectrometry, microscopy, computer stations, and controlled environment rooms.
- Meeting and conference rooms, 24 faculty offices, and public areas.

Additional monies are needed to endow fellowships that will increase the number of graduate students ready for the expanded research capacity of the new facility. Endowments also are needed to replace equipment in future years.

Readers are encouraged to contact the Office of Development regarding contributions to the Jahn Lab for "naming gifts," endowment or equipment purchases. Options for individuals and corporations will be described further in a funding appeal this spring.

ADDRESS CORRECTION REQUESTED

Campus Reading

Ne B

Ada , Ki B., A e , D ga C.,
 Ma i , Pa D., Ab aha ,
 La e ce P., *The Stewardship of
 Northern Hardwoods: A Forest
 Owner's Handbook*. *Research Foun-
 dation of SUNY/SUNY College of Envi-
 ronmental Science and Forestry, Syra-
 cuse, NY. 1996. 84 pp.

Bac , Pete E., *Watershed Hydrology*.
 Second Edition. Ann Arbor Press,
 Chelsea, MI. 1996. 449 pp.

Lassoie, James P., Va e ie A.L / adi ,
 and Deborah W. Grover. *Forest Trees
 of the Northeast*. Cornell University
 Press, Ithaca, NY. 1997. 227 pp.

N a d, Ra h D., *Silviculture: Concepts
 And Applications*. McGraw-Hill Book
 Co., New York, NY. 1996. 576 pp.

Pa e , Ja e F., *Modeling Spacious-
 ness in the Dutch Landscape*. Report
 119. Agricultural Research Depart-
 ment, Winan Staring Centre.
 Wageningen, The Netherlands. 1996.
 92 pp.

S a d , Richa d C., J h P.
 Fe e a , S a L. Se eah, Ei a-
 beth M e MS'94 and Ke i L.
 O a MS'97. *Protecting Floodplain
 Resources: A Guidebook for Commu-
 nities*. Second edition. Federal Inter-
 agency Floodplain Management Task
 Force, US Gov. Print. Off./FEMA 268/
 Sept. 1995, 41 pp. (second printing
 1996)

*Available from the SUNY-ESF Office of News and
 Publications.

On Campus

Ma ch 4-6

Undergraduate Student Association Elections

Ma ch 10-14

Spring Break, Syracuse Campus.

Ma ch 14

Meeting of the SUNY Librarians' Association Delegate Council.

Ma ch 20

Eugene C. Farnsworth Lecture, Illick Hall Auditorium, 3:30 pm.

Ma ch 22

Spring Awards Banquet, Drumlins, 6 p.m.

Ma ch 28

Easter Break.

Ma ch 29-A i 6

Spring Break, Ranger School.

A i 14-18

Earth Week.

A i 26-27

Spring Work Weekend, Spaulding Alumni House, Ranger
 School.

A i 30-Ma 1

Reading Days.

Ma 2-9

Exams.

Ma 10

Convocation.

Ma 11

Commencement.

Ma 19-20

Adirondack Research Consortium Fourth Annual Confer-
 ence. Additional information: Dr. Chad Dawson, Faculty of
 Forestry.

J e 11-13

Meeting of the International Union of Forestry Research
 Organizations (IUFRO) Working Party 7.02.04, "Phytoplasma
 and Virus Diseases of Forest Trees." Sponsor: Environmental
 and Forest Biology. Additional information: Continuing Edu-
 cation, 470-6891.