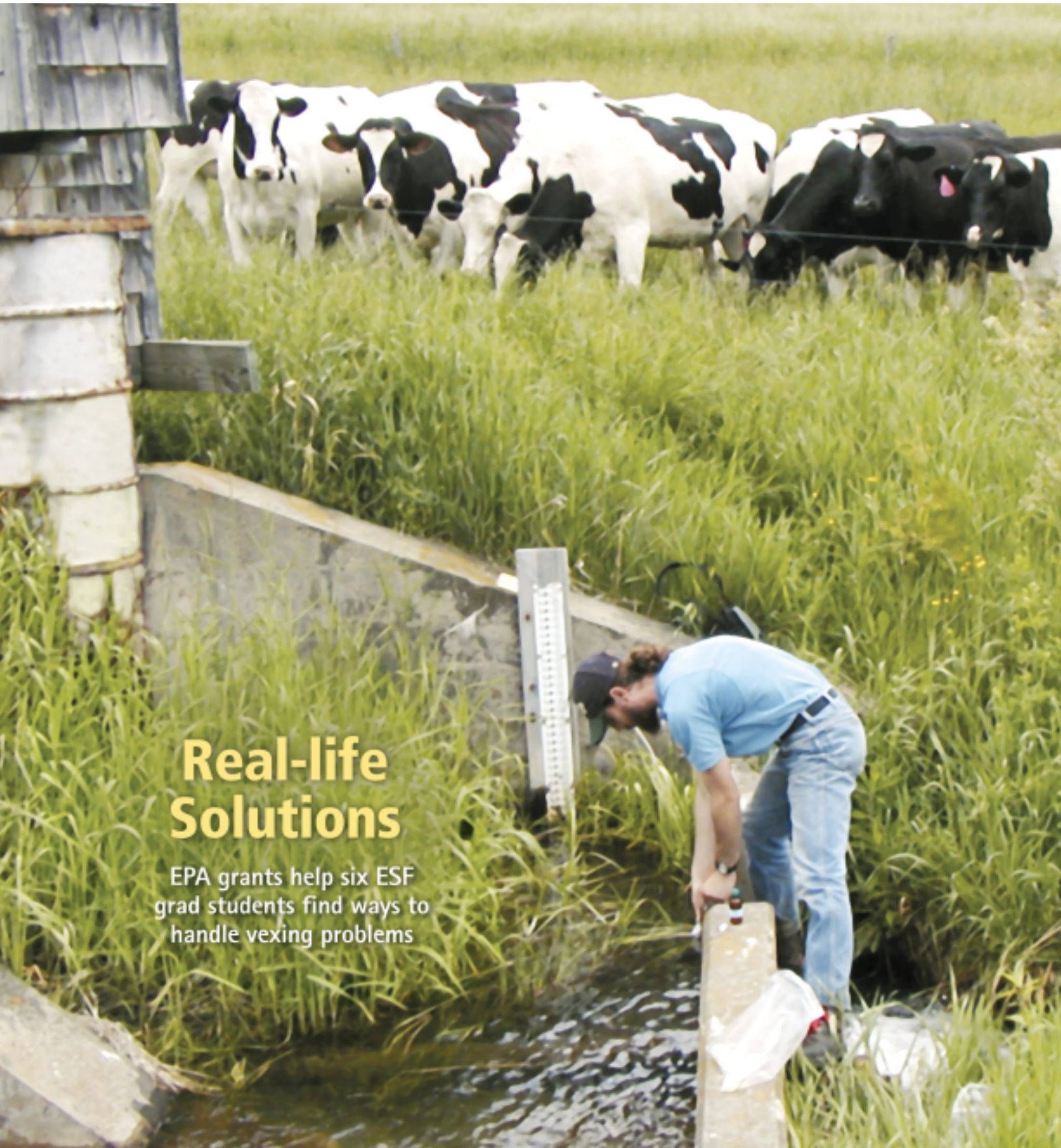
Spring 2007

InsideESF

The Magazine of the SUNY College of Environmental Science and Forestry



Real-life Solutions

EPA grants help six ESF grad students find ways to handle vexing problems

ESF President Cornelius B. 'Neil' Murphy, Jr., led hundreds of marchers through downtown Syracuse in the city's annual St. Patrick's Parade. Murphy, the parade grand marshal, was accompanied by his wife, Joanne, and members of his family. Scores of ESF students and staff members marched behind a banner that stated, "We Bleed Green." ESF's environmentally friendly bio-diesel bus was decorated in keeping with the parade theme — "Irish Trailblazers" — with posters telling the story of the College's pioneering work.

Contents

On the cover: ESF grad student Stephen Sebestyen works on his research project at the Sleepers River Research Watershed in Vermont. Photo courtesy of Stephen Sebestyen

ESF graduates gather for the Convocation ceremony in Syracuse's venerable Landmark Theatre. For more coverage, see page 23.

InsideESF

SUNY College of Environmental Science and Forestry

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Campus Update

George W. Curry, honored as a Landscape Architecture Educator of the Year, works on a project with ESF students.

LA Ranks with the Best

The Department of Landscape Architecture has, for the second year in a row, been ranked among the nation's top programs in that discipline.

In rankings compiled by DesignIntelligence, the undergraduate program at ESF was ranked 12th in the United States. The graduate program was ranked ninth.

When the survey results were broken down by region, the ESF undergraduate program did even better, with employers in the northeast ranking the College second in the region.

The study ranks programs accredited by the Landscape Architecture Review Board, based on the participation of leading landscape architecture firms and public practitioners.

DesignIntelligence also named ESF's George W. Curry, a SUNY Distinguished Teaching Professor and the William Munsley Kennedy Distinguished Faculty Chair, a 2007 Landscape Architecture Educator of the Year.

SUNY-ESF Earns High Marks for Scholarly Work

ESF has been ranked among the nation's top colleges and universities for scholarly work.

The ranking system, called the Faculty Scholarly Productivity Index, lists ESF fifth among colleges and universities in the category of "Specialized Research Universities – Applied Sciences." ESF is also ranked eighth in the subcategory of "Fisheries Science and Management."

"We're pleased to be recognized for the scholarly activities that our faculty is involved in," said Dr. Bruce C. Bongarten, ESF provost and vice president for academic affairs. "It highlights the work and the passion of the faculty and it places us among some other highly respected universities. This is a benchmark that shows the level of scholarly activity at ESF ranks well when compared with other high-quality institutions."

The scholarly productivity index is partly financed by the State University of New York at Stony Brook and produced by Academic Analytics, a for-profit company.

HSBC Supports Ranger School

The ESF Ranger School has received a $25,000 grant from the HSBC in the Community (USA) Foundation Inc. and will use the funds to develop the arboretum at The Ranger School campus in the Adirondacks.

F. Mathew Zlomek, HSBC senior vice president and ESF College Foundation, Inc., board member, and Paul Pichoske, HSBC senior vice president and district executive, presented the grant to ESF President Cornelius B. Murphy, Jr., and Ranger School Director Christopher Westbrook on the ESF campus.

The arboretum is a collection of living trees and shrubs, used to complement The Ranger School students' field experience and classroom study. The arboretum was established in 1940 and expanded to about 10 acres in 1995. It includes about 60 species common in the northern hardwood and boreal forests of the Northeast, particularly in the Adirondack region. Some non-local species, such as ponderosa pine, pitch pine, and tulip poplar are also present.

In addition to Ranger School students, the arboretum is used by local school groups and by visitors with an interest in learning about trees and shrubs.

The HSBC grant is earmarked for trail improvement, procurement of new species, soil improvements, and landscape design.

This is the second year in a row The Ranger School has received a grant from HSBC.

Barron's: ESF Is a 'Best Buy'

ESF is listed in the ninth edition of Barron's Best Buys in College Education.

ESF is one of 247 colleges and universities listed, and one of only five SUNY institutions in the book.

"For students who not only love the environment but are committed to learning how to preserve it through highly specialized and challenging curricula with plenty of hands-on experience, the answer may be SUNY-ESF," the book states.

"When the financial experts at Barron's pick only 247 colleges to include in their 'Best Buys' guide book, you have to be pleased to be among the schools selected," said Dr. Robert C. French, ESF's vice president for enrollment management and marketing. "What we especially like about this ranking is that Barron's surveys current students in the process and asks them about the quality of each college and not just the cost."

Study Shows Natural Chinook in the Millions in Salmon River

Fisheries managers are excited but cautious about the finding that five to 10 million chinook salmon were naturally reproduced in the Salmon River in 2005. The report comes from a New York Sea Grant-funded project by ESF graduate student Dustin Everitt.

New York Sea Grant Fisheries Specialist David B. MacNeill says the finding comes after a litany of meaningful research conducted on the Salmon River by ESF, the New York State Department of Environmental Conservation (NYSDEC), the U.S. Geological Survey (USGS) and New York Sea Grant since the late 1970s.

ESF Dean of Research Dr. Neil H. Ringler said, "The calculations are actually quite conservative, and the number of juvenile chinook for 2005 could easily have been close to 10 million fish." Everitt worked under the guidance of Ringler, assisted by former ESF staff assistant Michael Connerton, and with hydroacoustic analysis expertise from Cornell University's Dr. Lars Rudstam.

"Because of the stabilized flows in the Salmon River, the magnitude of reproduction is far higher today than during our initial studies (30 years ago)," Ringler said. "The recognition that wild fish matter will greatly enhance future management decisions in Great Lakes fisheries."

The researchers all say the next step is to collect adult chinook from Lake Ontario, the Salmon River and the Hatchery to assess their survival rate. At Cape Vincent, NYSDEC Lake Ontario Unit Leader Steve LaPan says the NYSDEC and ESF are now cooperating on another Sea Grant project using microanalysis of fish scales to distinguish the wild Chinook from stocked salmon in Lake Ontario, a technique also being assessed by Canadian fisheries managers.

Another of Ringler's ESF students, Mary Penney, is finishing her master's thesis on the Salmon River's critical habitat factors for wild salmon survival. Penney, the Stewards Program Coordinator with New York Sea Grant, says analysis is underway on such factors as water depth, temperature, velocity, and river bottom substrate.

Doctoral student Haowen Xu, a student in the Department of Paper and Bioprocess Engineering, works in Walters Hall.

What's in a Name?

ESF has changed the name of its Department of Paper Science and Engineering to the Department of Paper and Bioprocess Engineering to reflect the addition of a new bioprocess engineering major.

The first and only program of its kind in the northeastern United States, the bioprocess engineering program seeks to train engineers who will work in the emerging bioprocessing and biofuels industry to produce energy and related chemical products from renewable resources.

Students in this program master a variety of subjects that are normally found in a chemical engineering program, and supplement those studies with advanced courses specific to bioprocess engineering. The program focuses on the use of wood and other renewable biomass materials to replace petroleum in energy and industrial product applications. Examples of this technology include the bioprocessing of ethanol, acetic acid, polymers, and other chemicals that have traditionally been produced from fossil fuels such as oil, coal and natural gas.

In addition, all the academic units that had been known as "faculties" have been redesignated as "departments," effective July 1. The change was made in an effort to make ESF's organizational structure more easily understood to those who are new to ESF.

NY's First Lady Visits Campus

New York First Lady Silda Wall Spitzer visited the ESF campus March 21 to learn how the College is working on sustainability issues and at the same time battling the problem of "brain drain."

Mrs. Spitzer spent about 90 minutes on the campus, first meeting with President Cornelius B. Murphy, Jr., and Provost Bruce C. Bongarten to learn about the College's mission and get an overview of its research projects. She then heard from several students about their work on a broad range of sustainability projects. The students' presentations ranged from designing a community garden with input from neighbors to constructing sustainable buildings and developing alternative energy sources.

Mrs. Spitzer then toured part of the Walters Hall paper science laboratory as the students were in the midst of a full-scale paper-making operation. Dr. Thomas Amidon of the Department of Paper and Bioprocess Engineering showed the first lady aspects of ESF's extensive work in developing cellulosic ethanol as an energy source.

The stop at ESF marked Mrs. Spitzer's first trip to Syracuse. She returned home to Albany with a bottle of ESF's Heiberg Forest maple syrup in hand.

New York First Lady Silda Wall Spitzer, Dr. Shijie Liu and Dr.Thomas Amidon share a laugh during Mrs. Spitzer's visit to ESF this spring.

Pataki Announces Major Grant for Ethanol Plant

During his last visit to ESF as the state's elected leader, then-New York Gov. George Pataki announced a $10.2 million grant to ESF and three commercial partners to develop the first biorefinery in N.Y.

ESF will work with Catalyst Renewables Corporation headquartered in Dallas, Texas, the engineering firm of O'Brien and Gere based in Syracuse, and New Energy Capital, one of the country's leading energy venture capital companies, to develop and construct a pilot commercial cellulosic ethanol facility in Lyonsdale, N.Y.

Catalyst Renewables is a renewable energy company that currently owns two biomass-to-energy plants in New York. The new biorefinery will be constructed adjacent to the company's existing wood-to-energy plant in Lyonsdale, located in Lewis County.

Previously, ESF worked with Catalyst Renewables to establish the first commercial willow plantation in the United States in the Tug Hill area of Jefferson County. In addition to willow, the Lyonsdale facility will use low-grade timber from surrounding North Country forests to produce an estimated 130,000 gallons of cellulosic ethanol per year and other bio-based energy products. The plant also will generate electricity.

The state grants will be matched by the companies involved resulting in a significant private investment in the facilities. The projects are expected to initially create 48 permanent jobs, with the potential to generate more jobs in the years ahead. In addition, the facilities will create new markets for 45 tons of biomass per day, which will generate approximately $10 million in the local economies over the next three years.

ESF President Cornelius B. Murphy, Jr., commented, "By endorsing this project, the Governor has solidified Central New York's reputation as a center for renewable and sustainable energy and provided for a tremendous future economic development activity for the people of the North Country."

George Pataki

In Memoriam

Dr. Robert M. Silverstein

ESF's 'Milt' Silverstein Dies at 90

Dr. Robert M. "Milt" Silverstein, a longtime ESF faculty member who was known internationally for his pioneering work in the chemistry of insect communication, died Feb. 26.

Dr. Silverstein, 90, was elected in 2000 as a member of the National Academy of Sciences, one of the most prestigious awards that can be bestowed upon a scientist. He was famous for his study of bark beetles, which began in 1964 and led to several scientific breakthroughs, including the first identification of an aggregating pheromone, a substance released by an insect that attracts others of the species to a given location. He was a co-founder and longtime co-editor of the *Journal of Chemical Ecology*.

Dr. Silverstein was born in Baltimore, Md., and moved to Staten Island at a young age. He received his bachelor's degree from the University of Pennsylvania in 1937 and his master's degree from New York University in 1941. He served with the U.S. Army during World War II. He then earned his doctorate from New York University.

He worked with the Stanford Research Institute for 21 years, during which time he wrote the first edition of his textbook, *"Spectrometric Identification of Organic Compounds."* The book has been updated several times over the years.

Dr. Silverstein joined the faculty at SUNY-ESF in 1969. He taught chemical ecology in the Faculty of Chemistry until his retirement in 1986.

He is survived by his wife, Olive; his son Paul; three grandchildren; and a great-grandson.

Dr. Craig J. Davis Dies at 57

Dr. Craig J. Davis, a member of the Faculty of Forest and Natural Resources Management since 1987, died April 7, 2007, after a battle with thyroid and lung cancer.

Dr. Davis earned his associate's degree in forest technology from Williamsport (Pa.) Community College in 1978. He earned a bachelor's degree in forest engineering in 1982 from the University of Maine. He earned his master's degree in 1984 and his doctorate in 1987, both in the field of forest economics and operations, from Purdue University.

Dr. Davis began his career in 1978 with Union Camp Corporation as a supervisor in its kiln and mill operations in Meldrim, Ga. He worked as an independent logging contractor in Pennsylvania.

At ESF, he achieved the rank of full professor and taught courses in forest management. He served as coordinator of undergraduate programs in the Faculty of Forest and Natural Resources Management since 2001.

Surviving are a brother and sister, and a niece and nephew.

Contributions may be made to the Craig J. Davis Scholarship Fund, E.S.F. College Foundation Inc. 214 Bray Hall, Syracuse, NY 13210.

Former Dean Sidney A. Whitt Dies

ESF Professor Emeritus and former Dean Sidney A. Whitt, 98, died Jan. 25 in Bozeman, Mont., where he lived after retirement.

He came to Syracuse in 1968 to serve as professor and director of the production systems engineering option. In 1972, he was named as the first dean of the new School of Environmental and Resource Engineering. He served for four years before retiring.

In recent years, he was writing a personal memoir that he hoped would inspire young people to enter the engineering profession.

Dr. Whitt was born in Russia, and moved with his family to the United States in 1924. He earned his bachelor's degree from the University of Alabama, his master's degree from the Massachusetts Institute of Technology and his Ph.D. from New York University.

He was employed with the York Corporation, Nash-Kelvinator, and Fedders Manufacturing Company before serving on the faculty at Montana State University. Dr. Whitt's wife, Millicent, died in 1996. He is survived by his two sons, Gregory and Ward.

International Flavor

Streetscapes and delicacies from distant places showcase LA students' off-campus experience.

Top row: Silhouettes of bulls decorate the Festival of Places.

Second row: Michelle Madonna, left, and Julie Russotti prepare for the festival; a "welcome" sign marks the Belize exhibit.

Third row: Houses line the street in Holland; members of the ESF campus community mingle in the evening.

At left, students Nicole Formoso, Elizabeth Kaczynski, and Derek Bryan, all of whom studied in Amsterdam, Netherlands, work on the scenery.

A Spanish-themed streetscape grew in one corner of ESF's Alumni Lounge as Hadrian's arch was constructed a few feet away and a Dutch canal ran under a bridge near the back wall. Artwork was created, walls were constructed and myriad props both practical and fanciful were brought in for atmosphere.

It was time for the Festival of Places, the Department of Landscape Architecture's annual re-creation of the points around the globe that have served as sites for the students' Off-campus Experiential Studio semester.

"This is kind of our last huge thing before we leave school," said Derek Bryant of Suffern, who had spent at least 30 hours constructing an Amsterdam streetscape with some of his classmates.

The group had fashioned a plastic-lined canal with a pump, and sketched and painted canal houses on a paper-lined wall.

The Festival is the culmination of a two-semester program in which fifth-year seniors in landscape architecture's five-year degree program select an off-campus research topic and plan their itinerary. During the fall semester of their fifth year, the students travel to their off-campus destination, where they delve into their topics and immerse themselves in the culture of the place.

Since its inception in 1970, more than 1,457 students have participated in the program, living in more than 185 locations, including more than 39 different countries.

The festival has become a campus community event. Scores of people attend the evening festivities to socialize and sample the food, prepared by the students, that is representative of the cuisine in the countries they visited.

The event is also linked to the annual George F. Earle Lecture. This year's lecture was presented by Ricardo Dumont BLA '76, head of landscape architecture at Sasaki Associates of Boston and San Francisco. Dumont is also the author of *Mission and Place: Foundations for Campus Renewal and Innovation*, which outlines the role universities must play in the context of an urban environment.

George Curry, Distinguished Teaching Professor and Kennedy Distinguished Faculty Chair in Landscape Architecture, said the off-campus semester is educational in several ways.

"Most students not only learn about a new culture and new ways of looking at the physical environment, but also learn new things about themselves. Many have returned and said that their off-campus experience had a profound effect on their lives both professionally and personally," he said. "As a faculty member it is wonderful to see the change when students return to campus. I am very proud to be part of a program that offers to each student such an important experience."

Photos by Wendy P. Osborne

Sky Woman illustration by Bruce King

New Center Focuses on Native American People and the Environment

ESF has established a Center for Native Peoples and the Environment that will focus on developing connections between traditional ecological knowledge (TEK) and western scientific approaches.

The Center is the only one of its kind in the Northeast.

The center's goal is to create programs that draw on the wisdom of both indigenous and scientific knowledge to address environmental protection and restoration. Center programs will include efforts in education, research and public outreach.

The center director, Dr. Robin W. Kimmerer, said the path to achieving those goals is to integrate multicultural perspectives into courses across the broad spectrum of ESF's programs.

"What makes this center unique is the bridge between western, scientific knowledge and traditional ecological knowledge," Kimmerer said. "This is a way to increase our ability to learn from each other and work together to solve environmental problems."

The College plans to expand its curriculum to include courses that highlight the importance of TEK as a complement to Western science. These courses will include ethnobotany, plants and culture, indigenous issues and the environment, and a seminar in traditional ecological knowledge, as well as integrating TEK into courses across the curriculum to create a minor in Native Americans and the environment.

Kimmerer is a botanist of Native American heritage who is an enrolled member of the Citizen Potawatomi Nation. She is a professor in ESF's Department of Environmental and Forest Biology. Kimmerer is the co-founder and past president of the TEK section of the Ecological Society of America and a member of the editorial board for the Society for Advancement of Chicanos and Native Americans in Science.

The Center is guided by an advisory board consisting of ESF environmental scientists, environmental leaders from Haudenosaunee communities and indigenous educators from around the country. Kimmerer said the bridge between western knowledge and traditional ecological knowledge is what makes the ESF center unique among academic programs that focus on Native Americans.

"The intent is certainly to incorporate indigenous perspectives and knowledge for the benefit of native students, and to encourage them to incorporate indigenous thinking into their education and research," she said. "But the intent is also to educate the mainstream students in a cross-cultural context. ESF trains a large number of successful and influential environmental professionals, who, at this time, have minimal exposure or understanding of native issues in the environment. I'd like to see a time when familiarity with treaty rights, environmental justice and native science are part of the training of every environmental scientist we graduate."

Dr. Robin Kimmerer

In addition to broadening the education of ESF students, the center will include a significant outreach element focused on increasing educational opportunities for Native American students in environmental sciences, research collaborations, and partnerships with Native American communities to address local environmental problems.

Harvest Time

The cutting of willow at the Solvay Settling Basins marks a milestone in the quest for sustainable energy.

ESF has begun harvesting shrub willows from land that was once considered an industrial waste site, with the wood headed to an upstate New York biomass plant for use in its electric power facility.

The harvest marks a milestone in the generation of a new source of sustainable energy.

"We're using society's castoffs, residuals such as biosolids and yard waste mulch, to improve the quality of the soil," said Douglas J. Daley, director of the ESF-based SUNY Center for Brownfield Studies in Syracuse, N.Y. "This is a system that helps close the loop, using waste products to improve the soil and benefit both the economy and the environment."

ESF has worked at the site, known as the Solvay Settling Basins, in partnership with Honeywell International, which owns the land. The basins contain the by-product of soda ash production conducted by a previous industrial operation.

The harvest conducted this winter marks the first time productive willow shrubs have been grown on a site where former industrial operations resulted in soil with a high ph content, meaning it is unusually alkaline. Honeywell fertilized the site several years

Photos courtesy of Honeywell International

At top: The harvest in progress.

Above: Dr. Douglas J. Daley, director of the ESF-based SUNY Center for Brownfield Studies, explains the harvest to a reporter from a Syracuse television station.

"This is a system that helps close the loop, using waste products to improve the soil and benefit both the economy and the environment." — Douglas J. Daley

ago with biosolids that were the by-products of a wastewater treatment operation, said ESF's Dr. Timothy A. Volk, who helps lead ESF's short-rotation woody crops program. He said the fertilization enhanced the growth of the willow shrubs, which typically do not thrive in such conditions.

"These beds have growth rates as high as we have on agricultural land," Volk said.

Daley said the healthy willow crop demonstrates the long-term success of using biosolids and yard waste mulch in brownfield redevelopment projects.

In the days immediately after the harvest, the shrubs were cut, stacked, weighed, sampled for moisture and energy content, chipped and transported to the Lyonsdale Biomass Plant in Lyons Falls, N.Y., for use in its 19-megawatt electric power facility.

The rapidly growing shrubs were planted in spring 2004 as part of a pilot project to develop a living cover for the Solvay Settling Basins. More than 35,000 willows have been planted. Based on the success of the pilot, future biomass crops would have several benefits. They would:

- reduce the amount of salt and runoff from the Solvay Settling Basins carried by normal regional rainfall that sinks into the groundwater, which flows into nearby Nine Mile Creek and Onondaga Lake;
- increase the diversity of vegetation and wildlife on the settling basins;
- and turn the settling basins into an area that could produce sustainable woody biomass for the production of renewable "green" energy and biofuels.

Preliminary modeling also shows that the shrub willows can substantially reduce the amount of water that percolates through the settling basin and into the groundwater and Onondaga Lake.

Similar to common shrubs, cutting the shrub willows every three years is a pruning process that allows them to resprout with new growth in the spring. Each shrub can be harvested at least seven times before replanting.

Prior to harvesting the shrubs, willow chips were tested at an independent New York State certified laboratory. There were no detections of mercury, chlorobenzenes or other hazardous compounds.

Honeywell and ESF plan to plant additional willow shrubs on the Solvay Settling Basins.

Lyonsdale Biomass, LLC, is a biomass wood-fired energy plant. The facility receives more than 260,000 green tons (wood chips, lumber scraps, etc.) and produces electricity for delivery to the New York Independent System Operator and steam flow to Burrows Paper Corporation. The Lyonsdale facility consumes an average of 700 tons of wood chips per day for fuel.

"Honeywell and ESF have a long history of partnering in Central New York," said John McAuliffe, Honeywell's Syracuse program director. "The sustainable and renewable shrub willow biomass project illustrates the creative and innovative projects that we can bring to the communities around Onondaga Lake."

The settling basins are located in the town of Camillus, a few miles west of Syracuse.

New York State Department of Environmental Conservation Region 7 Director Ken Lynch, Camillus Town Supervisor Mary Ann Coogan and Camillus town officials toured the shrub willow site with ESF President Cornelius B. Murphy, Jr., and McAuliffe to observe the harvesting process.

ESF participates in a number of alternative energy initiatives. The College is involved in a project with three commercial partners to develop the first biorefinery in the United States. The plant will produce cellulosic ethanol.

'Rustic Elegance'

Late Prof's Paintings Depict a Rare Moment in AEC History

A bit of Adirondack history that had been tucked away for decades on the ESF campus is headed for display at the Adirondack Ecological Center's Huntington Lodge.

Three oil-on-canvas paintings by the late Dr. Justus F. Mueller, who taught at ESF during the 1930s and '40s, were recently given to AEC Director William F. Porter. They had been in storage at ESF's Syracuse campus until Porter got them from Ronald J. Giegerich, curator of the Roosevelt Wildlife Collection at ESF.

"These paintings represent a wonderful treasure and we intend to hang them in Huntington Lodge when we complete the restoration of that building," Porter said. "The paintings will add to the rustic elegance we are seeking for the lodge."

Mueller was a vertebrate ecologist and the most famous American parasitologist of his time. His research under the auspices of the Roosevelt Wild Life Station led to a publication on the parasites of Oneida Lake that is still in use.

Mueller was also a colorful figure on campus: a world traveler whose detailed, hand-written journals of trips to South America and Asia are still on file in Giegerich's office; a gifted artist who used his creative talents during his career in science; and a prolific researcher who published more than 300 scientific papers during his career. He left ESF in the 1940s to take a position teaching parasitology at what is now Upstate Medical University.

"He was a very unusual person," said ESF Professor Emeritus Maurice Alexander, who was a student of Mueller's. "He had tremendous skills in many respects. He would go to the blackboard and draw a picture of some invertebrate, working with chalk in both hands. He would actually be drawing with both hands on the blackboard."

Alexander offered a string of intriguing memories:

- Mueller wanted to use models of the organs that he taught about but he couldn't find models that satisfied him, so he made his own. Eventually, they were marketed by a company in Rochester and became known as Mueller-Ward models.
- Mueller introduced a parasite into his own arm to learn more about it (and later removed it).
- He kept a colony of rhesus monkeys in a campus laboratory, much to the consternation of some co-workers, so he could observe the way they reacted to parasites. Rhesus monkeys, the same species that is often used in circuses and portrayed as organ-grinders' monkeys, are native to India and Nepal. They have been used in research projects because they are physiologically similar to humans.

Giegerich recently dug out old files that recorded the purchase of "three small rhesus monkeys (about 3½ pounds)" from Henry Trefflich of New York City in 1937.

by Claire B. Dunn

Mueller left ESF in the 1940s and his paintings received little attention for several years.

Trefflich was instructed to send the bill to W.W. Chipman, the College treasurer. There is no mention of how much the monkeys cost.

But despite their value to biological research, someone at the College must have objected to their presence: In October 1941, Ralph T. "Terry" King, then-chair of the Department of Forest Zoology, wrote to Mueller: "It may not be necessary to bring up the matter of the monkeys, but just in order to keep the record clear and avoid embarrassment in the future, it is perhaps just as well to inform you now that they cannot be kept in any of the rooms in the Department of Forest Zoology or the Roosevelt Station, either permanently or temporarily."

The old files are dotted with other telling references to Mueller's era: a request for someone at the College to send him the cushion to his rumble seat during a stint at the University of New Hampshire; a memo to King requesting $7 for purchase of a dozen preserved pigeons and $9 for a dozen preserved rats; and an order for 100 white mice "in first-class condition." Mueller informed the seller that, "Poor mice will not be accepted."

Alexander said Mueller was a very effective, if demanding, teacher. During his years at ESF, Mueller taught invertebrate zoology, comparative anatomy, histology and embryology, parasites and diseases of wildlife."He was a brilliant individual and he taught with an iron hand," said Alexander, who remained in contact with his former professor until Mueller died in 1993.

According to the records of the SUNY Upstate Medical University Medical Alumni Association, Mueller was born in Baltimore in 1902. He earned a degree from Johns Hopkins University, majoring in zoology, and studied at two art schools in the Baltimore area. He earned his master's and doctorate in parasitology from the University of Michigan.

One of Mueller's paintings depicts how part of Huntington Wildlife Forest appeared in the early 1940s, when many areas in the forest were more open than they are today. This painting shows the cabin at Wolf Lake and a meadow that is now covered by forest.

Porter said photographs from the same area taken during the 1930s when a CCC camp was located nearby also show a lot of open land.

"The openings along Rich Lake were a result of clearing by settlers attempting to farm. The Wolf Lake Cabin painting is fascinating to me because the ecological change it illustrates was likely to have been natural," Porter said.

In addition to the Wolf Lake cabin painting, Porter has a painting Mueller did of Arbutus Lake and another of a winter scene of an unknown location. None are titled.

Porter hopes to have the paintings professionally restored and reframed before they are displayed at the lodge. Anyone who wishes to help support that effort can make a contribution toward restoration by sending a check, payable to ESF College Foundation, Inc., to 1 Forestry Drive, 214 Bray Hall, Syracuse, N.Y. 13210. A notation on the check of "Mueller paintings" will ensure the gift is appropriately directed.

Dr. Justus Mueller kept meticulous, handwritten notes and detailed lists of expenses during his travels.

TOUGH STUFF

Cellulose helps make plastic stronger

ESF researchers are developing ways to use cellulose from wood to strengthen plastics, providing a lightweight component that has the added advantage of being biodegradable.

The key is pulling nanocrystals of cellulose out of natural materials, ranging from trees and willow shrubs to orange pulp and the pomace left behind after apple cider production, and mixing them with plastics.

"By adding an ounce of crystals to a pound of plastic, you can increase the strength of the plastic by a factor of 3,000," said Dr. William T. Winter, a chemistry professor and director of the Cellulose Research Institute at ESF. "And in the end, in a landfill, it's just carbon dioxide and water, which can be taken up and made into more biomass."

The process provides another use for the one billion tons of biomass that can be produced annually in the United States, according to an estimate from the U.S. departments of energy and agriculture. The term "biomass" refers to any biologically derived material.

"Anything which is made in nature can be destroyed in nature," Winter said.

"All plant materials contain a minimum of 25 percent cellulose," Winter said. "Wood from trees is a little higher, between 40 percent and 50 percent."

In addition to being used as strengtheners in plastics, the nanocrystals can be used in ceramics and in biomedical applications such as artificial joints and disposable medical equipment. Using cellulosic nanocrystals to strengthen plastics has advantages over the glass that is often used: Glass is heavier, harder on processing machinery and therefore more expensive to work with, and it stays in the ground for centuries. The cellulose nanocrystals will break down quickly in a landfill.

"Anything which is made in nature can be destroyed in nature," Winter said. "And these cellulose particles have a lifetime in a landfill of less than 90 days, at which time, they go back into carbon dioxide and water. It can be reabsorbed by other plants that use it to make more cellulose."

Winter and his team work with a reactor that can process up to 500 grams (about a pound) of material at a time, a significant increase over the 5-gram quantities that are typically used in laboratory settings. The next step is to scale it up to a commercial level.

In Winter's process, the cellulose is first purified in the laboratory as substances such as wax and gluey lignin are removed from the biomass. The cellulose then goes through a homogenizing process, similar to the one used with dairy products. The cellulose is shredded into tiny particles under high pressure, rendering nanocrystals, so-called because they are so miniscule they are measured in nanometers, or billionths of a meter.

The result is a viscous, white liquid that goes into a microcompounder, where it is mixed with plastic under high pressure. The unit produces a cord – or a ribbon, depending on the die being used to shape it – of crystal-reinforced plastic that can be tested for several properties.

Winter's team is currently working on refining the surface of the crystals so they adhere better to the plastic, and disbursing the crystals throughout the material to achieve the best results.

In the future, Winter said, the process could be tied to the production of cellulosic ethanol. When hemicellulose is removed from wood for fermentation into ethanol, it leaves behind cellulose that can be treated with enzymes and reduced to the nanocrystals Winter uses in his lab. The value of those crystals in industrial uses represents a significant reduction in the cost of producing ethanol.

And Winter sees possibilities in using the nanocrystals in the bioplastics that are being developed at SUNY-ESF, resulting in strong, lightweight plastics that would degrade in a landfill.

Winter has received more than $1 million in support for the research, mostly from federal sources such as the departments of agriculture and energy, and the Environmental Protection Agency. Other funding has come from Eastman Chemical Company.

Winter is assisted in the research by graduate students Jacob Goodrich and Yae Takahashi.

6 degrees of scholarship

by Claire B. Dunn

Prestigious EPA grants support graduate students in 'cream of the crop' projects

Photos courtesy of Nancy E. Karraker, Sara Scanga, Juilette Smith and Matthew T. Distler

Six ESF graduate students, supported by prestigious U.S. Environmental Protection Agency (EPA) grants, are working in areas ranging from toxins in aquatic food webs to atmospheric nitrogen deposition.

The students' work is funded by two EPA programs: Science to Achieve Results (STAR) and Greater Research Opportunities (GRO).

Both programs offer graduate fellowships for master's and doctoral students in environmental fields.

"These are very prestigious awards," said Dr. Dudley J. Raynal, ESF's dean of instruction and graduate studies, who has participated in the selection process. "These really are the cream of the crop of the applications that are submitted. I'm sure it's very unusual for an institution as small as ours to receive so many."

Raynal said projects like those being conducted at ESF appeal to the EPA because they involve research applications that can be used to solve real-life problems.

Disappearing amphibians

Nancy E. Karraker, who is finishing up her doctorate before heading to a post-doctoral position at the University of Hong Kong, wants to know what might be contributing to world-wide amphibian decline.

"Amphibians are going extinct at an unprecedented rate," she said. "They are declining faster than any other vertebrates."

Her 2004 EPA GRO fellowship supported part of her doctoral research that focused on road salt and its effect on water quality in the vernal pools that serve as breeding grounds for amphibians. She is also studying how management of beaver ponds and vernal pools might affect the amphibian population.

Karraker did a three-year pilot study in which she assessed water quality in vernal pools, measuring the concentration of chloride from road salt. She sampled water from four to six pools within 200 meters of a road, and another 36 pools that were more than 500 meters from a road. She also counted egg masses of wood frogs and spotted salamanders. The success rates of both species declined as the chloride concentrations increased in the water, but the change was more dramatic for the salamanders.

"I'm not surprised road salt is a problem for these species," she said. "Amphibians breathe through their skin and they absorb water through their skin. So whatever's in the water is in the amphibians."

Continued on next page

Rare wetland plants

Sara Scanga, a 2005 STAR fellow who is working on her doctorate with Leopold, searches out a pretty yellow flower while researching the environmental factors that cause certain plants to occur only rarely in wetlands.

In particular, she is focusing on a wetland flower, Trollius laxus, commonly called spreading globeflower. The plant, a spring bloomer that resembles a buttercup to the untrained eye, occurs in only five states: New York, New Jersey, Ohio, Pennsylvania and Connecticut. New York has more populations than the other states, allowing Scanga to do her sampling without harming the plants.

"I'm looking at this one plant and hoping it can eventually be used as a model for conservation of other rare plants," Scanga said.

She expects her work to help wetland managers and researchers make management decisions that help protect rare species.

Nitrogen and water quality

Heather Golden, supported by a 2004 EPA GRO fellowship, is estimating the rate of atmospheric nitrogen deposition into watersheds throughout New York state, and researching its effect on water quality. With the aid of existing data, she is using geographic information systems to do a spatial analysis that examines the situation statewide, not just at established monitoring sites.

Some of her work focuses exclusively on the watershed of Cayuga Lake, the longest of New York's Finger Lakes. She is investigating how deposition and land-based sources of nitrogen in tributaries affect overall water quality and examining the link between land use and the rate of nitrogen deposition.

"We are trying to link multiple factors to see how much nitrogen comes into the lake through these various factors," Golden said.

She began her research under Dr. Elizabeth Boyer, who has since departed ESF for the University of California at Berkeley. Golden now works with both Boyer and Dr. Rene' Germain of the Department of Forestry and Natural Resources Management.

Landscape and stream chemistry

Stephen D. Sebestyen, supported by a 2003 STAR fellowship, is quantifying nutrient sources in an upland catchment using multiple chemical and isotopic tracers. He measured multiple environmental tracers at the Sleepers River Research Watershed, an upland catchment in northeastern Vermont. Using a set of high-frequency stream water samples, he quantified the variation of nutrients over a range of stream flow conditions with chemical and isotopic tracers of water, nitrate, and dissolved organic carbon.

Sebestyen is looking at the question of how stream chemistry is affected as water flows through the landscape, and, in a broader sense, how human activity affects the water quality. He is focusing on how nitrogen from industrial or transportation sources gets deposited on land through rainfall and how it affects overall water chemistry. Nitrogen acts as a fertilizer, stimulating growth and, in some cases, changing the growth dynamic in forests.

"We know that we are increasing the human input of nitrogen into the atmosphere and it rains back into the forest. You can see it causing a lot of problems. It can lead to changes in ecosystem productivity in forests because it changes the types of things that grow there, and it creates changes downstream."

He did his fieldwork in the Sleepers River Research Watershed in northeastern Vermont, near St. Johnsbury, and is now employed as a graduate researcher by the University of California at Berkeley.

His co-advisors are Dr. Elizabeth Boyer and Dr. Russell Briggs.

Toxins in water

2006 STAR fellow Juliette Smith, a Ph.D. candidate in chemical ecology, is researching the presence of microcystins in aquatic food webs and their effect on human health.

Microcystins, a potent liver toxin, are produced by multiple species of freshwater cyanobacteria and have led to the death of animals and humans. Under warm, calm summer conditions, cyanobacteria growth is maximized and blooms or scums result on the surface of freshwater lakes.

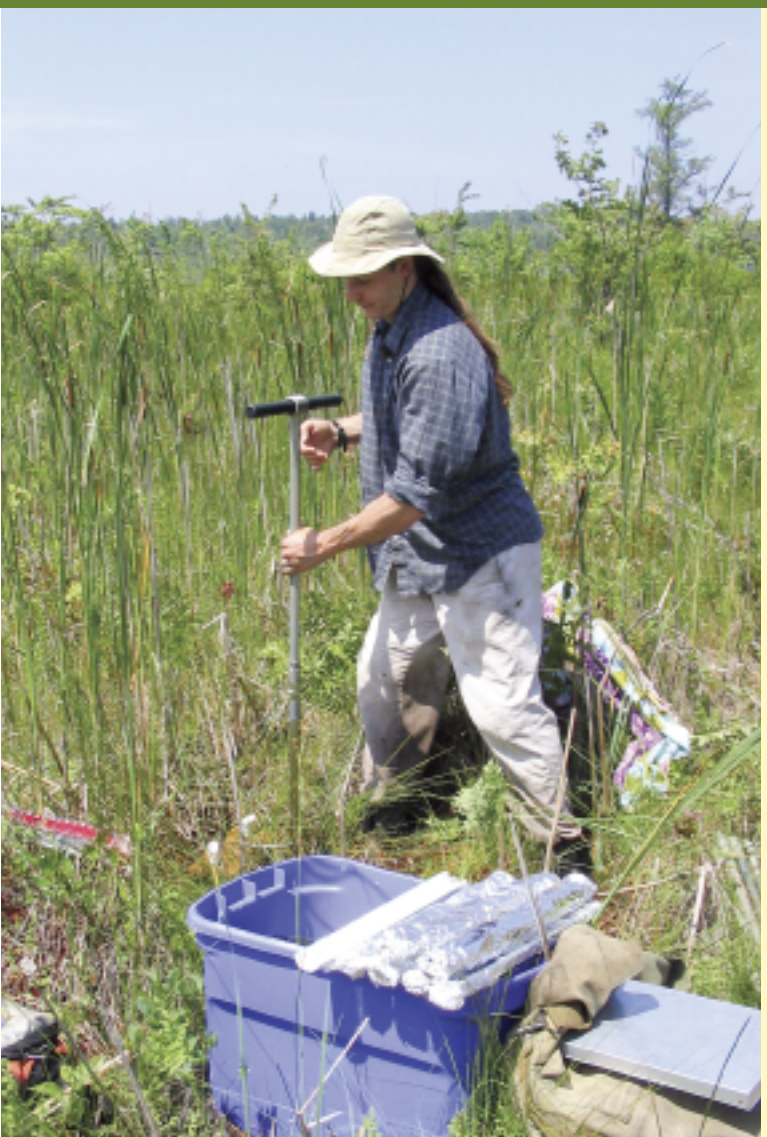
Originally, researchers assumed that the potentially fatal illness occurred when a person or animal ingested the toxin, perhaps by drinking contaminated water or grazing on the cyanobacteria that produced the toxin. They also believed that the chance of transferring the toxin from one animal to another through the food web was minimal, at best.

More recently, however, scientists and managers have begun to question this assumption. Preliminary evidence suggests that microcystins might actually accumulate in organisms that are lower in the food chain, such as fish that feed on plankton, and expose the predator to the toxin through digestive processes.

Smith is studying with Dr. Kimberly Schulz of the Department of Environmental and Forest Biology and Dr. Gregory Boyer of the Department of Chemistry. Her fieldwork entails using gill nets and seines to collect fish, both those that feed on plankton and those that feed on other fish, and cyanobacteria from two lakes in Central New York: Lake Neatahwanta and Oneida Lake.

This allows her to monitor the concentrations of the toxin in different areas of the food web. She will also determine the toxicity of microcystins after digestion.

"I feel that the results of these field and laboratory experiments have the potential to fill a significant gap in the current knowledge regarding microcystin exposure to humans and other organisms," Smith said. "Hopefully, this information can be used in future risk assessments and management plans."



Cattail expansion

Matthew T. Distler, who received a 2006 GRO fellowship, digs through the peat in wetlands along and near the coast of eastern Lake Ontario, where hybrid cattail appears to be spreading as other types of plants become less abundant.

Distler's primary objective is to quantify the spread of cattails over the last 50 years, to describe the effects of the expansion on the plant community in the wetlands known as fens, and to create a long-term picture of the development of these wetlands. He hopes to determine if the cattail expansion is part of a historical pattern or if it represents a novel change, perhaps related to Lake Ontario water level regulation and increased nutrient levels in coastal wetlands.

"The question is why this is happening," he said. "We don't know if it's a natural cycle related to climate flux or if it's caused by human disturbance in the landscape."

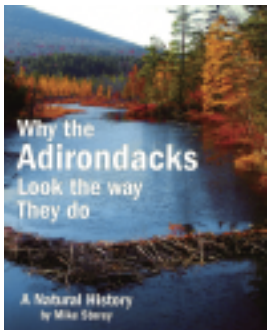
The research began with analysis of aerial photos that show a rapid expansion of cattail stands beginning in the 1960s. His fieldwork indicates that in areas where the cattail has become dominant, plant diversity is lower than in the rest of the fen. He has begun analyzing peat samples to learn more about the long-term development of the wetlands and the impact of historical disturbances such as fire and flooding.

Distler, whose major professor is Dr. Donald J. Leopold, also plans to analyze seeds that germinate in soil from areas that have been dominated by cattails. This will give land managers information about plant communities' ability to regenerate naturally after periods of cattail dominance, which will help researchers assess the long-term impact of cattail encroachment.

He Can Explain The Terrain

by Claire B. Dunn

Mike Storey FOR '66, MS '77



"Why the Adirondacks Look the Way They Do" is available at the Syracuse University book store, or directly from Mike Storey, who can be reached at mjstorey@adelphia.net

If you have ever wondered why the Adirondacks look the way they do, you could ask Mike Storey FOR '66, MS '77. Or you could read his book, with its right-to-the-point title: *Why the Adirondacks Look the Way They Do.*

Storey's book, which he also illustrated with scores of his own drawings and photographs, is an information-packed 162 pages about the natural history that gives the six million-acre Adirondack Park its striking appearance.

"There hadn't been a general natural history of the Adirondacks written in more than 20 years," Storey said from his home in Saranac Lake. "I thought there was a need to give people a broad perspective on what it is that makes the Adirondacks special."

Storey tells his readers how the mountains developed from ancient rock, beginning his tale two billion years ago when life was pretty much limited to blue-green algae and the rock that now provides a foothold for hikers was the mucky bottom of an ancient sea. He moves on to the glaciers that caused lakes to form and then tells his readers about the wetlands and bogs, plants and wildlife found in "the great north woods." He dispenses hints about reading the landscape, including gems of information about how animals, windstorms and fire affect the topography. Storey concludes with a glossary of ecological terms.

He said the book is an outgrowth of more than 24 years as park naturalist for the Adirondack Park Agency (APA). Storey helped the park agency develop an environmental education manual for schoolteachers; he also developed workshops for teachers, learning a lot himself about what the teachers knew and what they didn't know, and how to help them teach better.

When he retired five years ago, he decided to pull it all together in a single book.

Storey's narrative is wrapped around photographs and detailed sketches of plants, animals and landscapes. His art is largely self-taught and he credits his father with passing along his innate artistic ability. Storey has worked art into his career, selling paintings and photographs through the years.

He came to ESF from his hometown of Hamburg, south of Buffalo, where he met a forester who suggested he attend ESF.

"I loved being outdoors. I loved to hunt and fish," he said. "I grew up in the flatlands and my mother and father used to take us fishing in central Ontario, which is similar in part to the Adirondacks. I just loved it."

Storey's first exposure to the Adirondacks was a 1963 trip to forestry summer camp at Cranberry Lake. After graduation, he worked for the National Park Service at Yellowstone and in the Everglades before returning to Central New York to work at Beaver Lake Nature Center near Syracuse. He started work with the APA in 1977, after earning his master's degree in environmental communication at ESF. His first book, *Heartland, a Natural History of Onondaga County, N.Y.*, was part of his master's thesis.

"I took a different route than most foresters," he said. "Being a naturalist put me on the other side of the fence from most of the people who had the same background. Most of my contemporaries wanted to go into forestry positions with the government or private industry. I went into teaching."

He credits some of his own teachers with giving him the tools he needed. In particular, his book mentions two emeriti faculty members who were influential in his career path: Dr. David Hanselman, who taught environmental studies and landscape architecture, and Dr. Edwin Ketchledge, who taught botany and helped lead many College research and education activities in the Adirondacks.

Top photo Wendy P. Osborne, portrait courtesy Mike Storey

Fly vs. Moth

by Claire B. Dunn

Researchers document fly's effect on invasive moth (and lots of other species)

An innocuous-looking fly introduced into the Northeastern United States 100 years ago to control pests did part of its job well, nearly wiping out the invasive browntail moth that defoliated trees throughout New England and plagued humans with an itchy, weepy rash.

But the fly, a bit smaller than the common housefly, didn't stop with the browntail moth. It has also contributed to the decline of several spectacular species of native moths, including the luna and cecropia moth, according to a report in the journal Ecology.

The study, conducted by ESF's Dr. Dylan Parry and colleagues at the University of Massachusetts, is the first to document the link between the fly and the browntail moth's near disappearance. But it also points out that the introduction of a non-native insect as a "control agent" can be both unpredictable and far-reaching. The voracious fly's parasitic young are known to attack more than 180 species of moths and butterflies.

"People talk about the down side of biological control," said Parry, an insect ecologist in ESF's Department of Environmental and Forest Biology. "When biological control is effective, it's a wonderful thing. But when you release an organism into an environment, it's really impossible to get it back out of that environment. So I think the fly is here to stay."

The study was reported in the journal's November edition.

The browntail moth arrived from Europe at a Boston harbor in 1896, perhaps in a shipment

At top are portraits of the two combatants. The historic photo at right shows the effect of the invasive browntail moth.

Top photos by Michael Thomas

ESF's Dr. Dylan Parry takes a close look at some foliage while researching the effect of a non-native fly introduced as a control agent.

of roses from Holland. It spread quickly in all directions, affecting most of New England along with New Brunswick and Nova Scotia in eastern Canada. Parry has historic pictures, showing workers perched high in trees along quaint New England streets, pulling out the webs that shelter the moths through the winter. They emerge as larvae in the spring.

"In those days, the browntail moth was viewed as a bigger problem than the gypsy moth," he said.

In addition to defoliating trees, the moth troubles humans with a skin irritation.

Although Parry and his colleagues wrapped themselves in protective, hooded coveralls and sealed the seams with duct tape, he suffered from the rash. He said the caterpillars are covered with barbed hairs that float around with the wind and become embedded in humans' skin. When an affected person scratches at the site, the hollow hair shaft breaks, releasing a toxin that makes the itch worse. People who live in areas still populated by the moth often go on vacation in June, when the likelihood of getting the rash is highest, Parry said.

Researchers call the rash "mobile poison ivy" because the eruptions closely resemble the rash caused by the familiar ground cover. Reports from the early 20th century claimed severely allergic people died from anaphylactic shock caused by the caterpillars.

The fly, a native of Europe lacking a common name and known by its Latin name of *Compsilura concinnata*, was introduced in 1906 by the U.S. Department of Agriculture. It was hoped the fly would also combat the invasive gypsy moth.

The browntail moth's population peaked in 1914. By 1930, it had plummeted and in the 1960s, it reached its current distribution, existing only at the eastern tip of Cape Cod, near Provincetown, and on the islands and peninsulas in Maine's Casco Bay.

Researchers do not know why those very different regions continue to host the moth. And for more than 60 years, no one researched the reason for its decline elsewhere.

Parry and his colleagues transplanted browntail moth colonies into areas that were free of the pests, observed them in the field and took them into the laboratory for a closer look. They discovered that the fly was attacking the moth during its caterpillar stage.

Parry described the process in all its unsavory detail: A female *Compsilura* uses a curved, dagger-like appendage on her back end to slice open a caterpillar. She deposits her young in the caterpillar and goes on her way. The maggots slowly devour the caterpillar, leaving the vital organs until last, effectively stretching the meal as long as the caterpillar lives. When the host caterpillar dies, the maggots crawl into the ground and pupate, emerging a couple weeks later as adult flies.

The fly successfully controlled the browntail moth, Parry said, but had little effect on the troublesome gypsy moth. At the same time, it developed a taste for native species such as the showy mourning cloak butterfly with its distinctive brown and yellow coloring, and many giant silk moths, such as the graceful, pale green luna moth.

Scientists do not understand all of the roles that moths and butterflies play in ecosystems.

"Many people would argue that biodiversity is good for its own sake," he said. "Caterpillars are important food sources for many organisms including birds. And they're a large part of our native heritage. People like to see them and some of them have disappeared."

Researchers estimate that a single forested acre could provide habitat for a million Compislura flies. And at the beginning of the 20th century, no one knew what problems the insects might cause 100 years later.

"At that time, insects in the forests were viewed as pests," Parry said. "There were no biodiversity concerns in those days. Insects that fed on trees were viewed as pests, whether they were native or introduced."

Renaissance Man

by Karen B. Moore

The sound of a Celtic harp seems foreign in a lab full of humming fans, whirling DNA sequencers and buzzing lights until you meet the man behind the music. Then the seamless blending of the sounds of science and music makes perfect sense.

As described by his advisor, Dr. Lawrence Smart, Irony Sade is "a Renaissance man" with varied interests and passions.

A biotechnology major at ESF, Sade grew up in Mexico, N.Y., surrounded by music, in particular folk music. "I started playing the harp in 1997. *Why* I started is harder to remember," Sade said. "The Celtic harp is easier on the hands to play than the guitar and, as opposed to a traditional harp, cheaper to own and carry. For the big concert harps you need a tractor trailer to transport it."

He built his own wire-string harp in 2002 after learning the history of the centuries-old instrument that was all but extinct. Once, the instrument was common among the bards of Ireland.

"In the 1500s, when Queen Elizabeth outlawed Gaelic," said Sade, "that was the beginning of the end for the wire harp."

The instrument has enjoyed a renaissance of its own as musicians like Sade have built their own harps and tracked down the traditional folk music of Ireland. "The problem with the wire harp is that it's come back so recently no one really can teach it," Sade said. "There's a certain amount of muddling about."

He has "muddled" with great skill. He and his brother, Omen, released a CD of harp and flute music, called "Rising Sea," in 2004. The entirely acoustic recording features music from Ireland, Scotland, England and Iceland, and two pieces written by Sade during his Peace Corps service in Tonga. When asked about the

Photo Wendy P. Osborne

To see a video of Irony Sade playing the Celtic harp, go to www.esf.edu/success

Sade brothers' unusual given names, he said only that their father had their names picked out before they were born.

When building his harps, he drew on his years spent working as a carpenter and contractor to choose the appropriate wood, one that was strong yet had some give. His first harp's soundboard was made of spruce but after two years in the tropics with the Peace Corps he needed to build a new one and used laminated craft birch, which is a stronger wood.

It was the carpentry experience that had led him to the tropics. He joined the Peace Corps in 2000 to teach carpentry and serve as a business advisor in the Kingdom of Tonga in the South Pacific. While there he collected songs and tales of the South Pacific, which he has performed and told as a professional storyteller. Sade has also written stories based on life in the South Pacific and his own experiences.

While in Tonga, his knowledge of basic medicine earned him the unofficial role of village doctor. "This is where I conceived the notion to be a doctor," he said.

When he returned to the States, he decided to spend one year working as a nurse to "see if I could stand being a doctor." He entered nursing school in 2002 and subsequently became a nurse at Community General Hospital in Syracuse. His bachelor's degree in ethics from Carleton College in Minnesota didn't meet premed requirements so Sade enrolled at ESF in 2004 to get his premed credits.

"Through ESF's biotechnology program I can study all across the different sciences. It's the most flexible for someone who wants to take a lot of science," he said.

At ESF, Sade again has found ways to combine his interests and passions. He uses the thought process of music to see patterns in DNA sequencing. DNA sequences are grouped in pairs, he explains, which can be compared to musical harmonics, or groups of notes played together. This line of thinking has also gotten him in trouble, he said, when he was working in the laboratory and tried to load gels used to determine the DNA sequence of different willow species based on a musical order rather than the accepted scientific manner. Suffice to say, not all patterns cross disciplines.

Sade also connects his scientific studies to music when he talks about the environment, drawing a parallel between ecosystems and an orchestra. Different species are similar to different parts of an orchestra, he said, and as a species comes and goes so do different instruments playing in an orchestra. "There is no rigid status in ecology, just as there is none in music. Something comes in then something else comes in. You never have a static point."

His studies may focus on science but as a Reformed Druid of North America (RDNA), his spiritual focus is more on the natural world.

Sade describes the RNDA as "elegantly simple," having only two tenets: The spiritual search is universal, important and lifelong; and spiritual truth is discovered through the study and understanding of nature.

The RDNA has its beginnings in a protest of college policy at Carlton College but has since grown into a religion in its own right. One might think the ideals of Druidism are at odds with biotechnology, but Sade states that's not necessarily the case.

"It's not unusual for people who take Druidism seriously to become biologists," Sade said. "They keep nature close to their hearts and apply it to their lives." What does surprise him is that there are not more Druids on the ESF campus. "ESF is a whole campus devoted to nature and figuring out why it does what it does," he said.

Sade credits his Druidism as the tie that binds his varied passions and interests. It connects his Celtic harp, and his studies in medicine since Druids were often healers; his interest in the study of nature and its connection to biotechnology.

"He's very interested in the health of society as a whole, in particular those who are less able to fend for themselves," said Smart. Sade has served as a patient advocate at Community General.

Sade will finish his ESF degree this semester and graduate in May and then attend SUNY Upstate Medical to finish his medical degree.

"He's extremely bright," said Smart, who marvels at how much Sade can pack into his schedule between wife and teen-age daughter, his studies, his work at Community General, and his music.

Sade explains it simply, "You may have noticed I can't ever do just one thing," he said.

Even with his full schedule, Sade has found time to continue his musical education according to Smart. "This semester he's taking violin for non-majors." Smart pauses and checks the paper in front of him before adding, "and biochemistry."

Books & Awards

Books and Monographs

Gibbs, James, *Fundamentals of Conservation Biology*, Blackwell Publishing, October 2006, 497 pp. and *The Amphibians and Reptiles of New York State: Identification, Natural History, and Conservation*, Oxford University Press 496 pp.

Hall, Charles A., editor, *Making World Development Work*, University of New Mexico Press, 576 pages, October 2006

Turner, Scott J., *The Tinkerer's Accomplice: How Design Emerges from Life Itself*, Harvard University Press, November 2006, 282 pp.

Awards

Cohen, Hillary, LA '07, Student Scholarship from the Connecticut Chapter of the American Society of Landscape Architects.

Fox, Steve, EFB '07 and **Neal, Breeanne**, EFB '06, Chancellor's Award for Student Excellence.

Germain, Rene', Karl Connell Watershed Forestry Award for "guidance, wisdom and leadership" in the development and support of the Watershed Agricultural Council's Forestry Program to promote forest stewardship, working forestland, and water quality protection in the New York City Watershed, from the Watershed Agricultural Council's Forestry Program.

Gibbs, James P. and **Teece, Mark**, 2006 Foundation Award for Exceptional Achievement in Teaching, from the ESF College Foundation, Inc.

Goodrich, Jacob D., CHE '03, Ph.D. '07, American Chemical Society's CELL Division Graduate Student Award from the Cellulose and Renewable Materials Division of the American Chemical Society (CELL).

Notas, Tina, ES '08, Women's Leadership Award from the Syracuse University Division of Student Affairs.

Pachan, David, RS '97, FNRM, '99, named Forest Ranger of the Year, by the New York State Sports Education Foundation in Region 1.

Robbins, Virginia C, ESF College Foundation board president, listed in "Best Lawyers in America," 2007

Schulz, Kimberly L., sabbatical fellowship, National Center for Ecological Analysis and Synthesis, Santa Barbara, Calif., August 1, 2007 to July 31, 2008.

Schuster, Rudolph M., Jr., Dwight A. Holder award for outstanding work as a doctoral student sustained achievement after graduation in the management, wise use, and conservation of natural and cultural resources, from the Clemson Parks Recreation and Tourism Management Department.

380 Graduates Join Ranks of Alumni

ESF President Cornelius B. Murphy, Jr. urged ESF's newest crop of graduates to improve the world by helping other people.

During convocation at the Landmark Theatre in downtown Syracuse, Murphy reminded the graduates of words from scientist Marie Curie: "We must believe that we are gifted for something and that this thing must be attained."

He asked the graduates: "What is your thing? This thing that will improve the quality of life; this thing that will help preserve our world's ecosystem; this thing which will help bring education and equality to all people; this thing which must be attained.

"There is nothing more important in life than helping others. This is why you were introduced to community service, and then you embraced it. Helping others leads to inner peace, quiet dignity and a better world," Murphy said.

"Marie Curie knew the 'thing' that had to be attained; she had the belief, confidence and perseverance to achieve it," he said. "You cannot give a better gift to the faculty, staff and administration at ESF than doing your 'thing' and doing it as well as you possibly can.

ESF conferred about 380 degrees upon graduating students during the weekend festivities. Brilliant sunshine and comfortably cool temperatures marked both the annual Commencement ceremony and ESF's convocation activities the previous day.

During Commencement, ESF conferred 294 bachelor's degrees, about 70 master's degrees and some 20 doctoral degrees.

For a list of students who received honors during Commencement, go to:
www.esf.edu/communications/news/2007/05.15.graduation.htm.

Convocation photos by Island Photography

On the Calendar

To see the full ESF calendar, go to http://web.esf.edu/calendar.asp

June 26

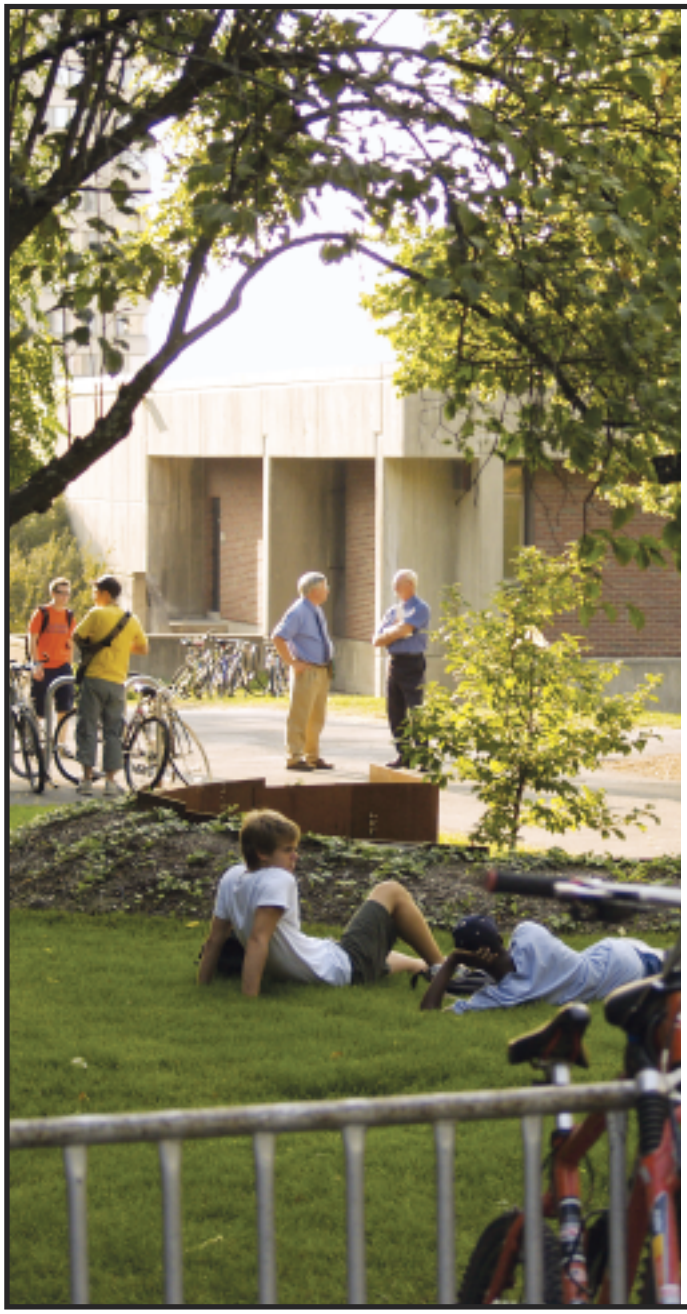
Alumni Gathering in Philadelphia, Pa., Morris Arboretum of the University of Pennsylvania. Additional information: ESF Alumni Office, 315-470-6632, alumni@esf.edu, or www.esf.edu/alumni/philadelphia.pdf

July 5 through Aug. 23

Huntington Lecture Series sponsored by the Adirondack Ecological Center, 7 to 8 p.m. Thursdays, Adirondack Park Agency Visitor Interpretive Center, 5922 Route 28N Newcomb, N.Y. Additional information: C. Demers, 518-582-4551, cdemers@esf.edu or www.esf.edu/aec/instruction/lectures.htm

August 17 to 19

Cranberry Lake Alumni Weekend, additional information: ESF Alumni Relations, 315-470-6632, alumni@esf.edu



We've made it easier to think about the future

The ESF College Foundation has unveiled a comprehensive Internet resource for your charitable giving needs. With a few clicks, you'll learn about the variety of ways in which the ESF College Foundation can help you realize both personal and financial satisfaction from your charitable gift to ESF:

- Cash gifts
- Planned giving programs
- Forest land donations

Whether you're a longtime supporter of the College, or if you are just beginning to think about giving back, we invite you to explore these Web pages and learn how you can maximize your support of ESF today and in the future.

Log on to www.esf.edu/development/ to get started!

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