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# Environment Yale



## The Mastodon Project

*Linking Human Well-Being  
and the Natural Environment*

Inside: *Green Republicans—Quo Vadis?* page 2

# LETTERS

To the Editor,

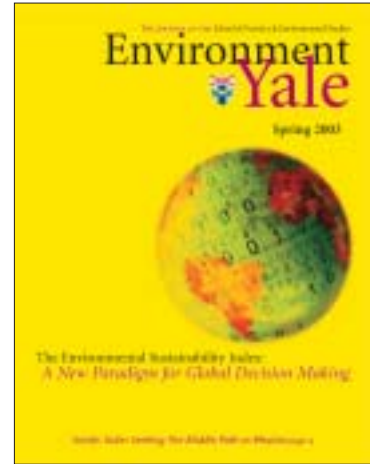
The common bond provided by Yale F&ES brings alums in Bhutan together (Seeking the Middle Path, Spring 2003). We interact on a regular basis on the job, problem-solving and innovating with our Yale thinking caps on. One such problem was the trail to remote Lunana, mentioned in the article and built during my tenure as the first park manager of Jigme Dorji National Park. The people of Lunana wanted and needed the trail. Uncertain of the consequences, we were hesitant. Finally, after many brainstorming sessions with Yale colleagues, the people of Lunana signed an agreement that if we built the trail they would voluntarily curtail poaching of endangered species within their communities. This worked to the advantage of both the park and the people. Also, the trail made possible regular anti-poaching patrols by park staff, which reduced the incidence of poachers from outside of the Lunana community.

TASHI WANGCHUK '99  
THIMPHU, BHUTAN

To the Editor,

First of all I'd like to express my hearty gratitude for your sending me an outstanding journal, *Environment: Yale*, Fall 2002. I find it very helpful for my research work, especially the LMS software. Hopefully, I will receive the next edition. Once again, thank you very much.

MOHAMMED ADILO CHILALO  
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### Environment: Yale

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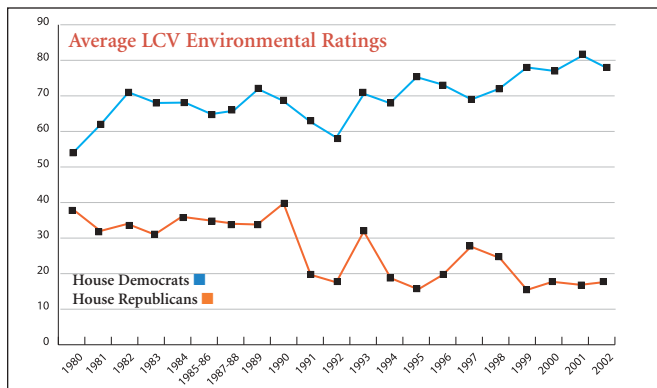


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Dean James Gustave Speth

I have in front of me the “2003 Presidential Report Card” recently released by the League of Conservation Voters (LCV), and it gives President Bush bad marks. To say that the U.S. environmental community is distressed by the Bush Administration is to understate the situation. Environmentalists are alarmed, and they are girding for what may be their largest political mobilization ever.

Though I have been a lifelong Democrat, I have nonetheless begun to wonder: what’s a green Republican to do? The LCV ([www.lcv.org](http://www.lcv.org)) is not allied with the Democratic Party, but it will certainly be supporting a lot of Democrats in 2004. When one looks at the voting record of the two parties in Congress, it is not hard to see why. The divide between the parties on the environment could hardly be wider (See Table). This is not a healthy situation, however it came about.



Deb Callahan, the president of LCV, reports that LCV searches hard for Republicans to support. Often, when they find them and provide support, LCV then encounters the Republican-leaning Club for Growth on the other side, working to beat moderate Republicans. As recently noted in *The New York Times Magazine* (“Fight Club,” August 10, 2003), the Club for Growth’s real passions are cutting taxes and supply-side economics, but Republicans who lack the zealotry favored

by the Club also tend to some greenness, and so the environment gets caught in the cross-fire.

It wasn’t always this way. The halcyon days of American environmentalism were the 1970s. Beginning with the enactment of the National Environmental Policy Act under President Nixon and culminating in President Carter’s protection of Alaskan lands, it was a bipartisan era with Democrats such as Ed Muskie joining with Republicans such as Howard Baker to compile an unmatched record of tough environmental legislation. Within a short span of a few years in the early 1970s, with a Republican president and Republican leaders such as Russell Train, Bill Ruckelshaus and Russell Peterson, the Environmental Protection Agency and the Council on Environmental Quality were created, and a handful of major laws such as the Clean Air and Clean Water Acts began to take effect. It is a fact of profound importance that America’s period of maximum progress on the environment was a period of bipartisanship.

On my trips on behalf of the school and Yale, I meet many Republicans who are concerned by what they see today in Washington concerning the environment. (At the state and local levels there is actually a lot of environmental progress occurring, reversing the historic pattern of Washington leadership.) When we talk, three options come up: they can take back the party; they can decamp for the other side; or they can take the position that environmental concerns are not the fundamental ones at this point and stand pat.

This last option should be rejected in my view. Just one issue—climate change—should be convincing on this score, and I want to explain why. The best current estimate is that, without major corrective action (especially by the principal polluters), global warming in this century could wreak widespread havoc.

For instance, it would make it impossible for about half of the U.S. lands to sustain the types of plants and animals that now inhabit them. A huge portion of America’s protected areas, large and small, is now threatened. In one projection, the much-loved maple, beech and birch forests of New England will disappear in this century.

Another projection shows that much of the southeastern United States will become a huge grassland savanna, too hot and dry to support forest. Heat waves and other extreme weather events, a rise in sea level, coral bleaching and new public health risks are among the other predicted consequences.

There is a number that future generations will focus on the way we follow quarterly economic reports: the amount of carbon dioxide in the atmosphere, measured in parts per million, or ppm. The environmental consequences just noted are what could unfold if atmospheric carbon dioxide concentration rose from today’s 370 ppm to about 700 by 2100. The pre-industrial level was about 280.

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© Brian Sytnyk/Masterfile

# A Project as Big as a Mastodon

By Alan Bisbort

Most environmental studies have, in the past, focused on places where biodiversity was rich and, more often than not, the concentration of plant and animal species included everything but *Homo sapiens*. While such efforts to study and preserve the remaining pristine (read: human-free) corners of the globe are, of course, important, they often overlook the fact that the vast majority of *Homo sapiens*, including in all likelihood those reading this, live in areas where the environment has been dramatically altered by their presence. And people have, in turn, been altered by their immediate natural surroundings, whether they live in urban, suburban or rural areas.

A study, begun in 1998 at the Yale School of Forestry & Environmental Studies, is

attempting to close this gap in environmental research.

“For decades, environmentalists have been trying to understand how the environment works without people,” said Gaboury Benoit, professor of environmental chemistry and co-director of the study. “This study puts people back in the environment. Most of the environments that are of greatest importance to people are the ones they are living in, and so far we have a very poor understanding of how those environments function.”

The scope of Yale’s study is as enormous as its potential impact, given the presence of more than 6 billion *Homo sapiens* on Planet Earth. This explains its nickname—the Mastodon Project—a moniker supplied at the outset by Yale professor of hydrology Paul Barten (now at the University of Massachusetts), reflecting the sense researchers had of having “grabbed onto something very large, unwieldy and perhaps prehistoric. Like the blind men confronting “the great pachyderm, we are groping with

understanding a huge, mysterious, yet very real beast.”

The goal of the Mastodon Project, according to Stephen Kellert, Tweedy/Ordway Professor of Social Ecology and co-director (with Benoit) of the project, is to “ascertain how ecological and social systems shape each other and, more particularly, how the structure and function of natural systems affect human values and socioeconomic behaviors, as well as the reverse.”

The footprints that this “unwieldy beast” have left thus far in Mastodon Project data offer exciting evidence that the condition of the environment where one lives matters for reasons beyond aesthetics. That is, a healthy environment is more than a nice but optional quality-of-life amenity; it is vitally important to the physical and mental well-being of an area’s human population. To wit: urban and nonurban areas characterized by relative health and integrity of the environment were found by Mastodon researchers to be places of higher

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# A Project as Big as a Mastodon

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A Landsat map shows the area of the Mastodon project that included 22 towns and 18 subwatersheds in the Greater New Haven area.

quality of life. Further, relatively healthy environments also helped foster a sense of, and an attachment to, place. Conversely, inhabitants of urban and nonurban areas of lower environmental quality were more likely to report less interest in the outdoors and environmental stewardship, and a lower quality of life.

The area straddled by the Mastodon Project conveniently begins right outside the doors of the Yale School of Forestry & Environmental Studies: the Greater New Haven Watershed. This 250-square-mile (or 400-square-kilometer) watershed encompasses the drainage areas of three river systems (the West, Mill and Quinnipiac) as well as substantial amounts of agricultural, suburban, urban and forest land. It comprises part or all of 22 towns, and is home to approximately 500,000 people. For the purposes of the Mastodon Project, 18 representative subwatersheds of roughly 1.5 square miles apiece were selected to characterize the greater watershed. In each of these, data were collected over a three-year period by teams consisting of more than 30 graduate students led by F&ES professors.

Besides the sheer scope of the Mastodon Project, what makes it unique is that all the participants—staff and student researchers—were from Yale, which increased the project's efficiency and helped integrate its interdisciplinary and multidisciplinary aspects. Though the initial funding came from the National Science Foundation, the Environmental Protection Agency and Connecticut Sea Grant Program, the outside interference on the actual research was minimal. These factors are vital to such a long-term project that embraces a wide array of scientific disciplines, and enlisted the expertise of chemists, hydrologists, botanists, zoologists, economists and social ecologists.

"We have a great natural lab," said Kellert. "We have three different rivers, the Mill, the West and the Quinnipiac within this overall watershed."

For the study, the Mastodon researchers focused on first-order streams, headwater tributaries of the three rivers.

"It was very important for us to know that the condition of a given stream was directly related to a community, so that we could study that variable," said Kellert. "We completely avoided the main stems because we knew that the condition in a community might have nothing to do with the condition of that watercourse. For example, pollution might be coming from far upstream."

The items measured and data collected included water flow volume, water chemistry and quality, aquatic biota (all plant, animal, fungi and microorganisms found in the water samples), types of forest and other vegetation, as well as soil conditions and soil content in each subwatershed. David Skelly, professor of ecology, was, along with Barten, Lynne Bennett (now an economist at Bates College) and Mark Ashton, professor of silviculture and forest ecology, among the original participants in the field studies. Skelly has colorfully described the work in a dispatch that he wrote for the Center for Coastal and Watershed Systems, based at F&ES:

"The Bug Team, as it is known, collected insects from each of the 18 streams targeted this past summer. At the time, I am sure collection seemed tiring and repetitive. That was nothing compared with the activities that dominated our lives over the next months. Each pile of glop (containing mud, sand and gravel from the stream bottom and tiny preserved invertebrates) had to be sorted, counted and identified. A single insect can take several hours to identify. There were over 1,000 to look at. Envision staring through a microscope for minutes, then hours, then days, weeks, months, and you get an idea of the job."

Skelly's group, he said, "developed a strong identification with Sisyphus, the character of Greek legend whose job was to push a huge rock up a hill, only to have to repeat the process the next day."

To determine the economic and social factors involved in the Mastodon Project area, field researchers were also given the daunting task of obtaining survey responses from at least 100 inhabitants of each subwatershed. The survey, designed to quantify the values, beliefs and behaviors

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“... We also concluded that valuing nature was not a function of educational or income level.”

*Gabe Benoit*

of the human inhabitants, contained 25 variables. Some were collected by direct observation (household quality, neighborhood quality, number of households per hectare) while others gauged the value residents placed on water quality, natural appearance of the area, biological diversity and their willingness to pay for conservation of these values.

This would assure that the project would have interdisciplinary input across the scientific spectrum: biologists, chemists, hydrologists, economists and social scientists.

“To say that an environment is healthy or has integrity is somewhat of a controversial notion, because an ecosystem is not a species or a single organism like you and I,” said Kellert. “We therefore decided to use a lot of different measures of ecosystem health. So, for example, there are hydrological, chemical and biological measures, and we used all three, as well as combinations. The hydrologist might talk about the frequency of flood flows or dry stream conditions. A chemist might talk about the presence of fecal coliform or the amount of dissolved oxygen or phosphate. An animal biologist might talk about the number of species or the number of organisms within various species groups, or the number of exotic species. We had an *a priori* notion that certain indicators and measures were better than others.”

But certain things evolved as the Yale research teams went along.

“A biologist knows that biodiversity is a reliable measure,” said Kellert. “Whereas if we’re trying to measure humans’ quality of life, it’s an elusive phenomenon so you tend to collect data on a lot more indicators.”

The initial phase of the Mastodon Project has been completed, and some interesting conclusions reached, some expected and others not. For example, species diversity, in general, declines as residential and commercial development increase. Less easy to predict were correlations, such as people who live in areas with the highest diversity of tree species have the highest affinity for nature.

Other findings were completely unexpected. “The thing we found a little surprising,” said Benoit, “was that the human attitude and values measures that Steve was employing seemed independent of where people lived. You might think that people who value and like nature would live in the country and people who live in the city don’t really care about it. But actually people in the city value it just as much as a precious resource that they don’t get nearly enough of. We also concluded that valuing nature was not a function of educational or income level.”

Working with human subjects and relying on real, unmanipulated study sites pose special challenges. “We were hoping to find sites that were relatively developed that still had comparatively high environmental quality,” said Benoit. “And though we did look very hard we

couldn’t find any in our region. ... This is not to say that it would be impossible to have heavy development and a healthy environment, but the way that development has been done in the past tends to work against it.”

All of the data collected so far were, in a sense, a prelude.

“Phase One was a massive correlational and observational attempt to look at the connections between natural systems and human systems,” said Kellert. “We were examining a single point in time to see what the correlations could be between these two systems. The problem with this ‘slice-of-time’ approach is that correlation does not give a good idea of causation. We might find



Above: Gaboury Benoit, left, and Stephen Kellert are co-directors of the Mastodon Project.

## New Haven ‘Emerald Necklace’ Still Attainable

“We have produced these fantastic maps and we laid out the original Olmsted plan and overlaid our vision. We took the original plan and modified it to 21st-century realities.”

*Stephen Kellert*

Frederick Law Olmsted (1822-1903), the pioneering landscape architect who designed New York’s Central Park, Boston’s Back Bay Fens and New Haven’s East Rock Park, has long been an inspiration to Stephen Kellert. Olmsted, writes Kellert, “possessed an intuitive understanding of the relationship between the health of natural systems and human physical and mental well-being.” Olmsted himself remarked that “the charm of natural scenery is an influence of the highest curative value. ... tending, more than any single form of medication we can use, to establish sound minds in sound bodies.”

Kellert, a member of the Yale faculty for 25 years and author of more than 100 publications about the interaction of humans and the natural environment, has helped bring to prominence the concept of “biophilia.” He co-edited, with renowned Harvard entomologist E.O. Wilson, *The Biophilia Hypothesis*, which posits that humans have a biologically based urge to connect with the natural world that is manifested in nine basic values. It is perfectly natural, in other words, to desire a healthy environment.

Though Kellert has earned numerous honors for his work, including a place among the 300 individuals listed in *American Environmental Leaders: From Colonial Times to the Present*, he has yet to realize one of his biggest dreams. With the results of the Mastodon Project and a century-old game plan from Olmsted himself—the “Emerald Necklace”—he hopes to get the opportunity.

In the 1880s, Olmsted designed a seven-mile-long park system for the city of Boston that became known as the Emerald Necklace. A similar idea was drawn up for New Haven, though it wasn’t proposed to New Haven’s City Improvement Commission by Olmsted’s office until 1909 (Olmsted himself died 6 years earlier). New Haven’s “Emerald Necklace” would be composed of linked open spaces, much of the green space set in the three-river watershed researched by the Mastodon Project. While Boston built Olmsted’s “necklace”—to that city’s everlasting delight—New Haven did not.

Nonetheless, most of the open space proposed by Olmsted’s plan still exists in New Haven’s city limits, in the watershed area as well as in long-established parks and large parcels of water company lands. Kellert wants to parlay the Mastodon Project into a reconsideration of Olmsted’s original “Emerald Necklace” design for New Haven.

“The Emerald Necklace definitely touches on the Mastodon,” Kellert said. “Once you say that there is a linkage between human well-being and the natural environment, you naturally ask how we can restore the linkages, especially in an urban context, and in a way that is meaningful ecologically and meaningful to people. The beauty of Olmsted’s notion for New Haven is that he had this idea of a continuous corridor and it was in easy reach of people in the city.”

To Kellert’s astonishment and delight, the design concept is still viable.

“He was so far ahead of his time,” said Kellert. “We have produced these fantastic maps and we laid out the original Olmsted plan and overlaid our vision. We took the original plan and modified it to 21st-century realities.”

Resurrecting the emerald necklace will, of course, necessitate some extensive ecological restorations focusing on three major areas: New Haven harbor and waterfront; the greenbelt along the three river systems; and open space in selected communities, neighborhoods and school systems. It will also necessitate political courage and municipal vision.

“We’ve got a great plan and we’ve got to push buttons to get people on board,” said Kellert. “It’s bold and it would take the kind of vision and courage you don’t normally find in politicians, but I think it would light a fire under some people.”

Benoit echoed Kellert’s sentiment.

“People who live in many different kinds of environments, including the inner city, have a similar appreciation and value for nature,” he said. “There’s that core of political capital and human will to make improvements. You don’t have to re-educate the people in the inner city in order to make them willing and able.”

“We have this great opportunity,” said Kellert. “We have the third largest natural harbor in New England. It’s there and it’s not going to change. Second, we have these three river systems and this riparian corridor is still there. Third, we have 18 to 20 percent of the city already devoted to parks and open spaces, which is better than in many cities. Fourth, we have land that was set aside for the surface water supply back in the 19th century that is still there. With that and the corridors that we’ve created in our modified plan, it’s definitely possible.” **EY**



# A Project as Big as a Mastodon

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correlations between the health and integrity of the natural system and human physical and mental well-being, and we might find it among different classes of people and urban and non-urban environments, but this doesn't demonstrate causality. We did, to some degree, demonstrate this relationship, which is an exciting indication that people's state of being is affected by their natural environment even in a modern society where most people don't rely on the local environment for their basic livelihood, but again this doesn't provide definitive proof."

Phase Two will attempt to transcend the first phase's "slice of time" by including various forms of experimentation designed to show cause and effect. This phase could take years but it could also result in profound and

"The bottom line is that people's physical and mental well-being is affected by the health of the environment."

*Stephen Kellert*

"Quasi experimental" opportunities would be conditions created by a natural phenomenon, such as a flood or a man-made disaster, like a large pollution spill, that offers such clear distinctions between "before" and "after" that measurements can be made and compared, much as scientists in a lab have experimental groups and a control groups of, say, fruit flies. Or, as Benoit cited, conditions in an environment might see a rapid and dramatic improvement due to large-scale ecosystem restoration, which can be used essentially as a natural experiment.

"One good candidate would be a salt marsh restoration," said Benoit. "A lot of salt marshes along the Connecticut coast have been tide-gated for different reasons, including agricultural."

Many of these gates have been opened to restore the natural flow in these marshes and the ecosystems are returning to their natural pre-agricultural state. Several of these former gated marshes are in the watershed area of the West River, within the boundaries of the Mastodon Study.

"At the large scale we're talking about, the only kind of feasible experimentation would be to take an ecosystem restoration and use that as essentially a natural experiment. The ideal would be one in which there's a rapid and dramatic improvement in a system you're altering," said Benoit, citing a number of salt marsh restorations that have occurred in recent

positive changes in the New Haven area, including a resurrection of a century-old "Emerald Necklace" plan created by Frederick Law Olmsted.

"Of course, with a real time situation that involves real people, Yale scientists can't conduct the sort of experiments they would normally do in a laboratory with, say, mice," said Kellert. "However, what they can do is be vigilant for any 'quasi experimental' opportunities."

years along the coast of Long Island Sound.

"We can study a portion of the watershed that has been restored and look at how people interacted with it before and after," said Kellert. "No one would purposely degrade a watershed and see what happens, but sometimes a natural experiment occurs, a big natural calamity, or some sort of pollution occurs that you didn't introduce. You can look at that area both before and after such an event."

Ultimately, Kellert would like to use the findings of the Mastodon Project to create a natural experiment of his own. Specifically, the project's promising start has him dreaming of his ultimate goal of an "Emerald Necklace" for New Haven.

For now, what is important about the Mastodon Project is that it is the first attempt to quantify what has been an intuitive or common-sensical notion: that humans and natural systems are linked, that the environment has positive impacts on the mental and physical health of the human beings who live in it.

"The bottom line is that people's physical and mental well-being is affected by the health of the environment," said Kellert. "Once you say that there is this clear linkage between human well being and the natural environment, the next challenge is how to restore the linkages, especially in an urban context and do it in a way where it's meaningful ecologically and socially to people."

What Kellert is doing with the knowledge gleaned from this specific Mastodon Project, as well as in his more wide-ranging studies in biophilia, is to "find out how do we harmonize the natural and human-built environment, particularly in an urban context, through a more what I call restorative environmental design. If you tell people that you are going to have to limit their quality of life and economic well-being they obviously will object. You need to harmonize the natural and human built environments rather than suggest that you need to favor one over the other."

Kellert, who calls himself "an optimist," senses a change in the way people are interacting with their immediate natural environment and in their "looking at positive alternatives." He cites things like the U.S. Green Building Council, which came up with something that is "a quantum leap from what we had," called Leadership in Energy and Environmental Design, or LEED.

"It was just initiated a few years ago and there were just a handful that tried to get enough points to be qualified as LEED-certified," he said. "Now there are 500 registered buildings across the U.S. trying to get LEED-certified. It has become something that an individual designer might do because they believe in it, but it's actually become desirable, a marketing tool.

He also cites what some of the big oil and auto companies are doing, almost completely below the media radar. "They are investing huge amounts of money into alternative power because they can't afford not to. The potential to revolutionize our energy production and all that that means in our society is so huge that if a corporation is left out it'll be forgotten." **EY**

# Yale Team Obtains Million Dollar NSF Grant to Study Life Cycles of Iron, Steel

By James McElroy

Countless financial institutions and government agencies track the flow of money as it cycles from the world's mints to consumers, corporations, banks and back again. We take the necessity of such monetary monitoring for granted, believing that our vast global economy would collapse if we don't keep a careful accounting of it.

Why then, asks Thomas Graedel, Clifton R. Musser Professor of Industrial Ecology, do we not track our planet's resources as they cycle through our lives, from mines to factories to cars, houses, offices, computers, TVs and stereos, and then back to factories or into landfills? Aren't the metals that make up so many of the things in and with which we live as important as the money used for their purchase? Money may make the modern world go 'round, but our world would not exist as we know it without all the metals devoted to its construction and operation.

Graedel believes that we cannot afford to take for granted the efficiency of the flow of metals out

of the earth and into our lives any more than we can take for granted the efficiency of the flow of money from person to person, corporation to corporation, country to country. That's why he has spearheaded the study of how we consume metals, what he calls the "life cycles" of metals. Recently he, together with Robert B. Gordon, professor of geophysics and applied mechanics at Yale, and Reid Lifset, associate director of the Industrial Environmental Management Program at F&ES, completed a four-year study of the life cycles of copper and zinc. And now the team, along with Timothy Considine, professor of natural resource economics at Penn State, has just been awarded a \$1 million dollar grant from the National Science Foundation to conduct a similar study of the life cycles of iron and steel.

Before Graedel and his colleagues, no one had taken accurate stock of how the world uses its store of metals. There is, of course, a great deal of information about

how much metal ore is mined, refined and sold into the economy, but the use, recycling and disposal of those resources is not nearly so well documented. And, therefore, no one had any idea how wasteful or efficient our consumption of metals tends to be, nor had anyone reflected much about the long-term costs of our ever-increasing consumption of metals.

Such collection and analysis of the available data on the life cycles of metals has important applications today. For instance, since the blackout that crippled the American Northeast this summer, there has been talk of "rewiring the grid" by completely overhauling the North American electrical system. But has anyone considered whether there is an adequate supply of copper necessary to produce all the electrical wire required for such an overhaul? And how will putting all that copper to use at once affect its market price? And in turn, if the price of copper goes up, will new-home builders, for example, need to turn to alternative materials for things such as plumbing?

Graedel doesn't know the answers to these questions, but he believes that our policy makers should be considering them, and he hopes that his research will offer some much-needed perspective when they do.



© Michael Doolittle

l-r: Robert Gordon, Reid Lifset and Thomas Graedel at the H. Dixon Scrapyard in New Haven.

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## DEAN'S MESSAGE: GREEN REPUBLICANS—QUO VADIS?

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The central goal of the international climate protection treaty signed 10 years ago is to prevent this number from rising to a “dangerous” level. An important effort to define “dangerous” was recently undertaken by Brian O’Neill and Michael Oppenheimer at Brown and Princeton Universities, respectively. Published in the journal *Science*, their article concluded that it would indeed be dangerous to risk catastrophic sea level rise associated with melting of the West Antarctic Ice Sheet or disruption of major ocean currents such as the Gulf Stream.

To contain these risks, O’Neill and Oppenheimer say nations should prevent carbon dioxide concentrations from exceeding about 450 ppm. In a business-as-usual scenario, we are scheduled to reach this level by about 2030.

To achieve the ambitious goal of halting the buildup of carbon dioxide at 450 ppm or below, the authors suggest that compliance with the Kyoto Protocol would be enormously helpful. The protocol, which Bush rejects but which Europe, Japan and Canada now support, would require that U.S. carbon dioxide emissions be reduced by 7 percent below the 1990 level by 2010.

Conventional wisdom holds that complying with Kyoto’s goals would be prohibitively costly. Full compliance would, indeed, come with a significant price tag at this late date. But in an earlier era the United States did one thing that is now needed. In the 1973-1986 period, as a result of oil price shocks and energy efficiency policies, overall energy efficiency in America improved by an annual rate of 2.5 percent. It is often thought that these were years of poor economic performance. Yet from 1970 to 1988 the U.S. economy expanded at a real rate of 3.3 percent per year. Comparable efficiency gains in the future, together with switching to natural gas, afforestation and emissions trading, would allow the United States to participate meaningfully in the Kyoto process.

But moving this agenda forward will require presidential leadership and bipartisan cooperation in the Congress. Given what we’re up against, we can no longer relegate the environment to secondary status.

Taking back the GOP is the goal of REP America ([www.repamerica.org](http://www.repamerica.org)), a group that supports Republican elected officials and candidates who share environmental values and concerns. “Help us ‘green up’ the GOP!” they say, and they have given awards to such outstanding Republican legislators as Chris Shays, Sherwood Boehlert, Nancy Johnson and Jim Jeffords (in 2000, before Jeffords became an Independent). Representative Jim Leach and Senator Lincoln Chafee, both Republicans, serve on their Honorary Board.

REP America’s website mentions that Ted Roosevelt gave their keynote address in 1999, and Ted (a friend) is one of the Republicans on LCV’s board. I called him this summer and caught him just as he was headed down the Missouri River in Montana. Ted was clear about the message he wanted to convey. “I’m disappointed with the anti-environmental position of our Republican leadership today,” he said. “It’s bad public policy and bad politics. It’s shortsighted in both ways and will come back to haunt the party unless it changes soon.”

Ted is the great-grandson of President Theodore Roosevelt. In my office there is a photograph of Theodore Roosevelt inscribed to our school: “To the Yale Forest School with the heartiest good wishes. Theodore Roosevelt, April 14th 1906.” I am reminded of a statement President Roosevelt made, given to me by my mother-in-law some decades ago:

*Here is your country—*

*Do not let anyone take it or its glory away from you.*

*Do not let selfish men or greedy interests skim*

*Your country of its beauty, its riches or its romance.*

*The world and the future and your very children shall*

*Judge you according as you deal with this sacred trust.*

I think I’ll send REP America a contribution. LCV too.

*Jim Antaw Speth*



Inscription: “To the Yale Forest School with the heartiest good wishes. Theodore Roosevelt, April 14th 1906.”

AT PRESS TIME DEAN SPETH WAS REAPPOINTED TO A SECOND, FIVE-YEAR TERM AS DEAN OF THE SCHOOL.



# AT 81, An Environmentalist Looks Forward

By Stacey Stowe

It has been more than 40 years since Frederick Herbert “Herb” Bormann began using a small watershed in New Hampshire to change the approach to studying ecosystem ecology. His work, with his research partner Gene Likens, revealed the relationship between fossil fuel use in North America and acid rain, providing the impetus for the federal Clean Air Act. In October, he and Likens traveled to Tokyo to receive the Blue Planet Prize, the annual award for a major contribution to the conservation of the global environment. It carries the same prestige as the Nobel, but Bormann doesn’t really want to talk about prizes.

Bormann, whose accomplishments would fill a book as thick as a hometown telephone directory, is interested less in what has been done than in what needs to be done. He is concerned that environmental stewardship is often in the hands of corporations. He is worried about the growth rate in the use of natural resources and the cultural emphasis on growth. He wonders whether environmentalists are preaching to the choir. A child of the Depression who shoveled snow and polished cars to earn money and fed a hungry curiosity about social justice by reading the muckraking journalists of the 1930s, Bormann is nothing if not a realist. But don’t mistake his unvarnished assessments as pessimism; they are more in the line of a wake-up call, the kind his writing and teaching have elicited throughout his career.

“I’m not a Luddite,” Bormann, 81, said during an interview. “I recognize the use of fertilizers, pesticides and genetic engineering as being important components of how our society works. But it’s just the notion that there’s no limit to it—and if we get in trouble we’ll fix it—that concerns me.”

Bormann, Oastler Professor Emeritus of Forest Ecology, taught at the Yale School of Forestry & Environmental Studies for 26 years. Before New Haven, he held professorships at Dartmouth and Emory. He is the kind of man who talks about himself by listing the influence and assistance of others. In his writing and in spoken discourse, his philosophy of “always anticipating the question” gives him the uncanny ability to make the complex conversational.

The Blue Planet Prize will honor the impact of the Hubbard Brook Ecosystem Study, with which Bormann and Likens developed an understanding of the human impact on ecosystems through long-term measurement of flows of water and chemical substances in watersheds. The study, now in its 40th year, is the model for the study of ecosystems, either whole and intact or experimentally manipulated.

In 1960, Bormann contacted the United States Forest Service, which was conducting hydrological studies at Hubbard Brook in New Hampshire, with a proposal to study mineral cycling there. The site included a well-defined watershed with water-tight bedrock overlain by glacial deposits. There, measurements of incoming rainfall and outgoing stream water and its chemical content would be unaffected by deep seepage losses out of the bottom of the watershed, making it a perfect venue for biogeochemical studies. Bormann partnered with Likens, then a young Ph.D. from the University of Wisconsin, and now the president and director of the Institute of Ecosystem Studies in Millbrook, N.Y.

Bormann divided his time between Hubbard Brook and Dartmouth College, where he taught and lived with his wife and four small children. He and Likens worked with scientists, doctoral students and senior technicians, who lived together on a 200-year-old property known as Pleasant View Farm. In between supervising research, analyzing data and writing, he and his colleagues played softball, volleyball and bocce, at Bormann’s urging. Indeed, his belief in mixing work, sports and outside pursuits continues. He is an avid tennis player who has only just begun taking lessons to improve his game, and he gardens with his wife in Branford and at their New Hampshire vacation home.

CONTINUED on next page



© Bruce Kominz

Herb Bormann, right, with Gene Likens at the entrance of the Hubbard Brook Watershed.

“There can be growth in our use of natural resources, both renewable and non-renewable, but it has to happen with wisdom.”

*Herb Bormann*

By 1980, almost 20 years after the biogeochemical studies at Hubbard Brook began, a half-dozen governmental agencies and private foundations supported the research. The project yielded an impressive roster of work: 373 papers, 169 abstracts, 36 Ph.D. dissertations, 28 masters and honors theses, two audio tapes and two books. Research productivity has continued at a strong pace to this day. But what, as Bormann would ask, did the work mean to the rest of the world? In short, it changed environmental study and environmental policy.

Discoveries at Hubbard Brook helped Bormann achieve a dream elusive to many environmentalists: positive change—the fruits of his labor—within his own lifetime. For instance, a study by Bormann and Likens documented the heavy loss of nutrients from an experimentally clear-cut forest. Environmentalists used the study to illustrate the danger of clear-cutting, then a nationwide practice. Another study, a 1974 paper that appeared in *Science*, “Acid Rain: A Serious Regional Environmental Problem” prompted a front-page story in *The New York Times*, led to the recognition of acid rain as an international problem and sparked policy change.

Always, Bormann saw his students, his research and the environmental lecture series he initiated at Yale as opportunities to influence people

outside the scientific community. When he retired from Yale in 1992, the blaze of wildflowers on New England highways gave him the notion to take a “heartfelt issue, the lawn, and change attitudes toward it.” From this emerged *Redesigning the American Lawn*, a book he wrote with Diana Balmori, a landscape architect and visiting F&ES professor, and Gordon Geballe, associate dean for student and alumni affairs. It challenges homeowners to consider a “freedom lawn,” composed of a variety of grasses and plants and requiring few or no synthetic fertilizers and pesticides, rather than the more popular chemically treated, heavily irrigated, closely cropped green squares that surround most homes.

This is the second consecutive year that the Blue Planet Prize will recognize a member of the F&ES community; Dean Speth was last year’s recipient. It is an award that marks achievements in worldwide conservation efforts. It is a career-crowning laurel, but don’t expect Bormann to rest on it. His life’s work has gone a long way to fostering an environmental consciousness, but, he states briskly, much more work lies ahead.

“There can be growth in our use of natural resources, both renewable and non-renewable, but it has to happen with wisdom,” he said. “Some serious regard for what I would call the mystery of nature is in order.” **EY**

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## Faculty, Students Participate in Forestry, Parks Congresses

**Faculty and students of the School of Forestry & Environmental Studies participated in two world congresses on parks and forestry in September.**

Twelve students and two faculty members attended the Fifth World Parks Congress in Durban, South Africa, and 15 master’s students, as well as doctoral students, faculty and staff, attended the XII World Forestry Congress in Quebec City, Canada.

Most students participating in the Fifth World Parks Congress were enrolled in a protected-areas course taught in the spring by Lisa Curran, associate professor of tropical resources, and Gordon Geballe, associate dean for student and alumni affairs, with the assistance of Lisbet Kugler ’01. As part of the course, the students conducted a survey of young people around the world about their attitudes toward land conservation, and published their results in July as a paper for discussion at the congress. Views drawn from the paper and discussion session were incorporated in both the Durban Accord and Action Plan—two key documents produced by the congress. The Durban Accord recognizes that protected areas are an intergenerational asset and expresses concern about the limited capacity of younger generations to participate in the new protected-areas agenda.

In addition, Susan Matambo ’04 represented the younger generation on the Durban Accord and Action Plan Drafting Team, and received the Fred M. Packard International Parks Merit Award with Boitumelo Rampeng, a young South African park ranger, on behalf of all young conservationists. The following students either presented papers or participated in workshops: Keely Maxwell ’98, Ph.D. ’04, Marc Stern ’02, Ph.D. ’06, Charles Brunton ’03, Kelly Levin ’03, Andres Luque ’03, Timothy Northrop ’03, Carla Short ’03, Misa Andriamihaja ’04, Leigh Baker ’04, Elizabeth

Petruska ’04 and Daniela Vizcaino ’04.

At the World Forestry Congress, the Yale student chapter of the Society of American Foresters was represented by Melissa Aikens ’04, Beth Egan ’04, Arcady Kropov ’04, Megan Mattox ’04, Jeremy West ’04, Heather Wright ’04, Ines Angulo ’05, Rafael Bernardi ’05, James Cronan ’05, Rob Lamb ’05, Michelle McCarthy ’05, Michelle Murdock ’05, Amina Soud ’05, Ben Urquhart ’05 and Maria Teresa Vargas ’04. Also participating were Chad Oliver, Pinchot Professor of Forestry and Environmental Studies; Florencia Montagnini, professor in the practice of tropical forestry; Benjamin Cashore, assistant professor of forest policy; Graham Auld Ph.D., research assistant in the Program on Forest Certification; Gary Dunning, executive director of the Global Institute of Sustainable Forestry; Mary Tyrrell, director of the Program on Private Forests; and Kath Schomaker, director of alumni/ae affairs.

Montagnini presented a paper on tropical plantations; Cashore organized and participated—as did Auld—in a side event on forest certification; Oliver organized and participated—as did Jeffery Burley ’62, Ph.D. ’65, director of the Oxford Forestry Institute—in a side event on sustainable forestry; Dunning participated in an “International Panel on Forestry Education,” was a member of the United States delegation and organized Yale’s role as Secretariat for a meeting of The Forest Dialogue at the congress; Megan Mattox presented a poster on the Landscape Management System; Mary Tyrrell presented a poster on Forest Fragmentation; and Kath Schomaker organized a reception for alumni and friends. **EY**

# Yale Team Obtains Million Dollar NSF Grant to Study Life Cycles of Iron, Steel

CONTINUED from page 8

“We have a motto regarding our work,” says Graedel. “This is never correct. This is never finished.’ But even with its limitations, it is enormously useful in evaluating the potential for resource availability, assessing the energy required at different stages of the metals cycles, considering possible environmental impacts and offering a framework on which to base resource policy initiatives.”

Already, Graedel and his colleagues have shown that a significant proportion of the copper that currently winds up as unused, polluting waste could be fairly easily salvaged and recycled. The Yale team found that more than 70 percent of the copper discarded throughout the world exists in electronic products and automobiles. If recycling programs became devoted to recovering the copper from those specific products, our worldwide copper waste stream would dry up significantly.

Furthermore, Graedel has demonstrated that if within the next 50 years the average Chinese person’s consumption of copper manages to equal the average European’s consumption of copper, 7.4 kilograms (16.3 lbs.) annually, then three times as much copper, about 30 million metric tons, will have to be extracted from the ground than is extracted today. And if the world’s production of copper were to triple, its price would rise dramatically, as would the energy and environmental costs associated with digging and drilling deeper and deeper into the world’s copper reserves.

“According to this potential scenario,” says Graedel, “all the common uses of copper may be under threat because much higher prices would pressure users to move to substitute materials, whether they perform as well as copper or not.”

Tracking all this metal as it makes its way from mines to factories to useful products and then back into the production stream or into landfills is a cumbersome business of culling records, determining typical uses of the metals being tracked, and sometimes making what Graedel calls “informed estimates.” Such estimates are, he says, “a lot better than guesses, but a lot less satisfying than carefully documented information.”

As important and helpful as the Yale team’s work on the life cycles of copper and zinc have been, it now seems like merely a warm-up for his new study of the life cycles of iron and steel.

“Around the world, we use about 40 times as much iron and steel as the next-used metal,” says Graedel. “We use a fair amount of copper, aluminum and others, but it pales in comparison to our consumption of iron and steel.”

Determining the life cycles of iron and steel throughout the world is a daunting task because of the enormity of their use as well as the complications that come into play when accounting for the various metals, such as nickel and chromium, that are commonly alloyed with iron to make steel. For the project, a team consisting of one postdoctoral fellow, three doctoral students, two master’s students and two undergraduates will work long and hard over four years to pull together all of the various records and information needed to estimate the amount of iron and steel being mined, manufactured, used, recycled and discarded throughout the world. Already, one student spent two months of his summer making sense of the records Graedel’s team received from the Nickel Development Institute in Toronto. Nickel is only one of at least five iron-alloying metals that will need to be tracked so as to accurately depict the life cycle of steel.

The team’s research, according to Graedel, directly addresses a key topic, “Reinventing the Use of Materials,” called out for study by both the Grand Challenges committee of the National Research Council and the National Science Foundation Advisory Committee on Environmental Research and Education.

“This research has implications well beyond its focus in that it can serve as a basis and framework for broader research studies on materials and the environment by the national and international research community as a whole,” he said. **EY**



# AT THE School

## **F&ES Buys Wind Power**

To encourage the development and use of alternative energy sources, the School of Forestry & Environmental Studies (F&ES) has purchased \$3,500 of “renewable energy certificates,” ensuring that 20 percent of the school’s electricity is generated from wind power.

The purchase supports the “20 percent by 2010” campaign in Connecticut, initiated by Hartford-based nonprofit SmartPower Connecticut. The program encourages businesses and residences to commit to purchasing electricity from renewable sources.

“As an environment school, we should be setting a good example,” said Dean Gus Speth. “Supporting the development and use of clean, wind energy is compatible with this goal.”

F&ES purchased the certificates through the NewWind Energy’s program of Community Energy in Wayne, Penn., a company that markets and develops wind-generated power from the Fenner Wind Power Facility in Fenner, N.Y.

“By buying NewWind Energy’s certificates, F&ES ensures that more clean, renewable energy gets delivered into the system, and displaces conventional power generated from polluting sources such as coal or oil,” said Jeffrey Keeler, the New England Director for Community Energy, Inc.

Keeler noted that F&ES is the first customer in Connecticut for Community Energy, and the purchase will generate more business throughout the state and region. “Supporting the new wind energy projects sets an example for other schools, businesses, governments and individuals in Connecticut and New England to follow.”

Another aspect of F&ES’ commitment to enhanced environmental performance is its plan for the construction of a complex that will include a “green” facility. The complex will be a model of energy conservation and efficiency, and it will employ systems for efficient waste management while restoring the surrounding area’s ecology. The complex is at the center of the school’s current \$60 million capital campaign, for which \$40 million has been raised.

## **Executive Education Program Launched in China**

An executive education program that will help Chinese leaders understand and meet the challenges of sustainable development has been established by the Yale School of Forestry & Environmental Studies and the Department of Environmental Science and Engineering of Tsinghua University.

The Environment and Sustainable Development Leadership Program (ESDLP) will provide training for Chinese city mayors, government leaders, corporate executives and nongovernmental-organization managers who are responsible for urban planning and development. The program consists of a one-week seminar at Tsinghua University and a two-week, field-based training experience in the United States or Europe.

Through seminars, workshops, case studies and field experiences, the ESDLP will focus on three major areas of environmental and science-based decision making and problem solving: trends, challenges and opportunities in environment and sustainable development; concepts in urban and industrial ecology and their implications for urban planning

and policies; and applications of the concept of sustainable development to specific urban concerns such as water supply and quality, energy, pollution reduction, waste management and other urgent urban environmental issues.

The joint program is sponsored by the France-based company Veolia Environnement, and two of its divisions, Onyx Asia and Veolia Water Asia, with core funding to cover the first three-year phase from 2003 to 2005.

Tsinghua University, a renowned university in China, is considered the leading national center for training top-quality engineers and scientists. Its Department of Environmental Science and Engineering is a leader in Chinese higher education for the environment and has trained over 5,000 environmental professionals, managers and leaders throughout China.

## **Rising Cloud Base Over Northeast Could Disrupt Appalachian Forests**

The base height of clouds that form over the Northeastern states has been rising for 30 years, and this could disrupt forests at the northern end of the Appalachian Mountains, according to researchers at the Yale School of Forestry & Environmental Studies. Their study appeared in the June 15 issue of the *Journal of Climate*.

“This has implications for the high-elevation forests of the White Mountains, Green Mountains and Adirondacks, where the transition from deciduous hardwood forest to coniferous spruce-fir forest is thought to be controlled by the cloud base,” said Andrew Richardson, a member of the Yale research team. The other members of the team are Xuhui Lee, professor of forest meteorology and micrometeorology, Thomas Siccama, professor in the practice of forest ecology, and Ellen Denny, a research assistant.

The rising cloud ceiling, if it continues, could enable broad-leaved deciduous trees, such as sugar maple and yellow birch, to move up the mountainside, replacing the red spruce and balsam fir which grow at the highest elevations. Some bird species, such as the blackpoll warbler, specialize in coniferous forest habitat and may be indirectly affected by this change in forest composition. In addition, at high elevations, a significant amount of water comes annually from cloud-water deposition—a rising cloud base should result in drier forests and soils, which could have negative consequences for moisture-loving, forest-floor amphibians such as toads and salamanders.

The researchers examined data from 24 airports, which routinely measure the cloud ceiling because it is important to pilots. The team discovered that in the 18 most northerly airports, the cloud ceiling has climbed an average of 20 feet per year, or 600 feet, since 1973. “It is pretty stunning,” said Richardson.

The study does not suggest what may be causing the upward shift in the cloud base, but Richardson speculates that a variety of factors may be at work. One possibility is cleaner air—in particular, reductions in sulfate aerosols—which has resulted from the implementation of the Clean Air Act. Small, airborne particles can act as condensation nuclei around which cloud droplets form—fewer nuclei would make it harder for clouds to form at lower altitudes. Other studies have documented greater reductions in sulfate aerosols in the Northeast than in the Southeast. This

# AT THE School

CONTINUED from page 13

fits in with the pattern that Richardson observed: changes in cloud base height at the northern airports were larger at the more northern airports and negligible at the most southern airports. Other factors may also include urbanization or changes in atmospheric profiles related to larger-scale global climate change.

## Study Says Agricultural Lands May Store More Carbon Dioxide in Rivers Than Forests

A new study demonstrates a decades-long increase in the export of dissolved alkalinity from the Mississippi River—a process that removes the greenhouse gas carbon dioxide from the atmosphere—and also suggests that agricultural lands may sequester more atmospheric carbon dioxide in rivers than forests.

The study, conducted by researchers at the Yale School of Forestry & Environmental Studies and the Institute of Ecosystem Studies in Millbrook, N.Y., appeared in the July 4 edition of *Science*.

Atmospheric carbon dioxide (CO<sub>2</sub>) dissolved in rain and water in the soil acts as an acid, reacting with subterranean rocks to form dissolved carbonate alkalinity, which is then transported to the coastal ocean. Peter Raymond, assistant professor of ecosystem ecology at F&ES, and Jonathan Cole, an aquatic biologist at the Institute of Ecosystem Studies, show that dissolved carbonate alkalinity emanating from the Mississippi River, which is the largest river in North America, has increased dramatically over the past 47 years. They argue that the increase in dissolved alkalinity export is linked to increases in precipitation, which are documented for the Mississippi watershed. Scientists believe that the atmospheric buildup of carbon dioxide is contributing to climate change.

“These findings have two important implications,” said Raymond. “First, they demonstrate the ability of a large watershed to sequester more atmospheric CO<sub>2</sub> in response to increases in rainfall, itself a projection of global warming. Second, previous researchers have argued that reconvert agricultural fields to forests increases the removal of atmospheric carbon dioxide by locking it away in living trees and soils. But we show that agricultural lands export more dissolved carbonate alkalinity than forested lands and, therefore, may sequester more atmospheric carbon dioxide than forests through this pathway.” Raymond and Cole are not arguing that agricultural fields are more valuable than forests with respect to atmospheric CO<sub>2</sub> concentrations, but are advocating the development of complete carbon budgets, including stream export, when determining the United States carbon balance.

## Professor Awarded Guggenheim Fellowship

David Skelly, associate professor of ecology, has been awarded a Guggenheim Fellowship to write a book on the decline and conservation of amphibians.

“Dave Skelly’s work is enormously important,” commented Dean Gus Speth. “We are all delighted to see Dave’s achievements recognized with the Guggenheim Fellowship.”

Professor Skelly’s book will focus on the patterns and causes of population losses and deformities that have been reported from around

the world. He will highlight the plight of amphibians as a means of telling a broader story about the ways in which scientific information is generated and used to solve conservation challenges.

The winners of the John Simon Guggenheim Memorial Foundation’s 79th annual United States and Canadian competition were selected from over 3,200 applicants for awards totaling \$6,750,000. Guggenheim Fellows are appointed on the basis of distinguished achievement in the past and exceptional promise for future accomplishment. The newest cohort of 184 Fellows includes writers, painters, sculptors, photographers, filmmakers, choreographers, physical and biological scientists, social scientists and scholars in the humanities. Many of these individuals hold appointments at colleges and universities, with 89 institutions, including Yale, being represented by one or more Fellows.

## Experts in Energy and Public Health, and Top Practitioners Join Faculty

Experts in energy and the environment, and public health and the environment, have joined the faculty of the Yale School of Forestry & Environmental Studies. Arnulf Grübler, professor in the field of energy and technology and a native of Austria, will teach every fall semester, and Michelle Bell, assistant professor of environmental health, will join the faculty in January.

“The school is very fortunate to have these two extraordinary people join our resident faculty this year,” Dean Speth said. “There are few people in the world who know as much about energy systems and technologies as Arnulf Grübler. Michelle Bell, much younger, is already breaking new ground.”

In addition, a leading businessman from Brazil and a top legal scholar from Singapore will join the visiting faculty. John Michael Forgach, a Brazilian who launched the first for-profit biodiversity investment fund in Latin America, is teaching this fall as the Dorothy S. McCluskey Visiting Fellow, and Lye Lin Heng, an associate professor of law at the National University of Singapore (NUS) since 1975, will arrive next spring.

Grübler received a master’s degree in engineering and a Ph.D. from the Technical University of Vienna. He also holds a Habilitation degree (the highest degree that can be awarded in academia in Europe) with *venia legendi* (qualification to teach) in the systems science of environment and technology from Mining University in Leoben, Austria, and has been appointed guest professor in energy systems at the Technical University Graz, also in Austria. He also received the academic distinction of being elected as a foreign member to the Russian Academy of Natural Sciences in Moscow.

In addition to teaching, he serves as a senior research scholar at the International Institute for Applied Systems Analysis (IIASA), an international, nongovernmental think tank located in Laxenburg castle, Austria, where his research focuses on the long-term history and future of technology and the environment with an emphasis on energy, transport and communication systems.

Grübler is lead author of the Second and Third Assessment Reports of the Intergovernmental Panel on Climate Change, and is also editor and lead author of the joint IIASA-WEC (World Energy Council) study on Global Energy Perspectives. He serves on the editorial boards of Technological



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above left to right: Arnulf Gröbler, Michelle Bell, John Michael Forgach, Lye Lin-Heng

Forecasting and Social Change and the Journal of Industrial Ecology.

Gröbler has published widely as an author, co-author, or editor of five books, three special journal issues, over 50 peer-reviewed articles and book chapters and some 30 additional professional papers in the areas of technological change, technology diffusion, long-wave theory, energy and transport systems, climate change and resource economics. He co-edited the book *Technological Change and the Environment* (with Nebojsa Nakicenovic and William Nordhaus, Sterling Professor of Economics at Yale), which was published in 2002 by IIASA and RFF Press. In 1998 he co-edited the books *Global Energy Perspectives and Technology* and *Global Change*, both published by Cambridge University Press. Tsinghua University Press is publishing a Chinese translation of *Technology and Global Change* this year.

Bell's research and teaching focus on how air pollution affects human health. Her research integrates several disciplines, such as environmental engineering and epidemiology. Specific interests include meteorological and air quality modeling of common air pollutants (which connects emissions and weather to air quality) and the statistical analysis of the health impacts of air pollution (which connects air quality to health). She is also interested in related policy issues and air pollution control strategies.

Bell holds a B.S. in environmental engineering science from the Massachusetts Institute of Technology, an M.S. in environmental engineering and science from Stanford University, and an M.S.E. in environmental management and a Ph.D. in environmental engineering from Johns Hopkins University.

She has been involved in a wide range of research projects, including analysis of the health impacts of historical air pollution episodes, compliance with air quality standards, the effect of changes in emissions on air quality,

environmental decision-making strategies and the integration of air quality modeling with human health research. She has received grants and awards from the National Science Foundation, the Environmental Protection Agency and the Air & Waste Management Association.

Forgach, a former international banker with Chase Manhattan Bank and others, has received a number of environmental awards for his innovative approach to environmental banking, including the 2001 Rainforest Alliance Green Globe Award and the 2000 BRAVO Business Award as Latin American environmentalist of the year. He is the founder of the Brazilian Institute for Education in Sustainable Business, which is a nongovernmental organization (NGO) dedicated to management capacity building in Latin America. He also helped establish Swiss and Brazilian NGOs for the preservation of endangered South American wildlife.

"At Yale I intend to transmit to the students some of the lessons learned in my real-life efforts to create investment models that preserve the environment and promote social responsibility," Forgach said. "I also want to work with the students and faculty on new solutions to multilateral funding"

Lye Lin Heng is leading the development of a master's-level environmental management program and is the deputy director of the Asia-Pacific Centre for Environmental Law at NUS. She has served as vice dean and director of graduate programs at NUS and as a member of the International Union for the Conservation of Nature and Natural Resources Commission on Environmental Law, was chair and editor of the *Malaya Law Review* (now the *Singapore Journal of Legal Studies*) and has published several papers and publications on environmental law in Singapore.

"She will teach in a new field—comparative environmental law—when she is here for the spring term," Dean Speth said. **EY**

## Exercising Your Will Power

Thanks to the ongoing generosity of alumni/ae and friends, the tradition of excellence that marked your years at the Yale School of Forestry & Environmental Studies is alive and well. You can help safeguard this tradition by remembering the school in your will or trust. You can create a scholarship, endowed chair or special-use fund. Such bequests, small or large, will have a powerful impact on generations of students to come.

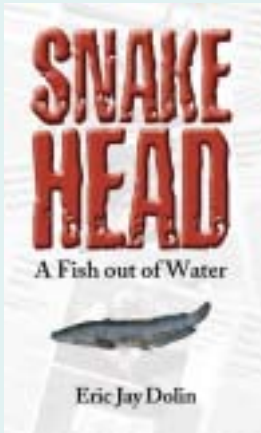
The deduction you may receive for the gift to the School of Forestry & Environmental Studies will help offset the cost of a gift to support the school. To learn more about establishing a lasting legacy at the school, contact the Development Office today.

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# BookShelf

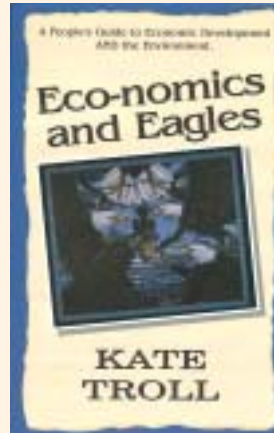


## Snakehead: A Fish out of Water

The northern snakehead, a species native to Asia, was released into a suburban pond in Crofton, Md., sometime around the year 2000. They multiplied rapidly, and when anglers caught two adults a few years later, natural resources officials from the state and federal government responded aggressively with swat teams of biologists—and a media frenzy to cover the story quickly ensued. Many people feared that the sinister beasts, with big teeth and bigger appetites, would move into local rivers and then on to the Chesapeake Bay, devouring all creatures in their path. Making the seemingly unstoppable snakeheads scarier still were their reported abilities to walk on land and breathe air. Even the U.S. Secretary of the Interior pronounced that snakeheads were “like something from a bad horror movie.”

Many of the dangers posed by the snakeheads were exaggerated. But the efforts to eradicate them continued, as did the public’s fascination with the story. Media across the country and around the world covered every step in the battle against the slippery foreign invaders, transforming the summer of 2002 into the summer of the snakehead. The pond that gave birth to the snakehead phenomenon was eventually sealed off and poisoned until it looked as if finally the dreaded snakeheads had been slain.

Eric Jay Dolin '88 tells the story of the snakeheads' meteoric rise to international celebrity while delving into the larger issue of invasive species in America. To order the book, e-mail [info@sipress.si.edu](mailto:info@sipress.si.edu) or visit [www.sipress.si.edu/](http://www.sipress.si.edu/).

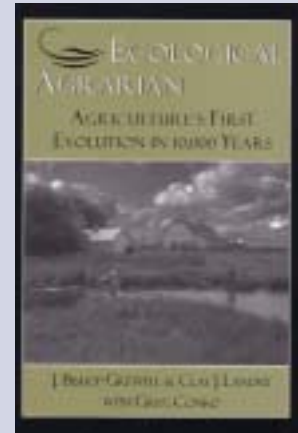


## Eco-nomics and Eagles

In the *Eco-nomics and Eagles: A People's Guide to Economic Development and the Environment*, Kate Troll '77 has formulated a pragmatic philosophy aimed at turning the jobs *versus* environment script into jobs *and* environment.

Troll describes nine economic principles to guide the process of melding the objectives of economic development and environmental protection into a practical, cohesive platform. These principles are useful for government officials, environmentalists, citizen activists and students of resource management and environmental policy. She also describes her process of discovery—of through real-world scenarios—the “special synergy between economic development and environmental protection” that led to the principles, while explaining how to find more of this synergy.

The book is published by Xlibris. To order a copy, call 888-7-XLIBRIS or visit [www.Xlibris.com](http://www.Xlibris.com).

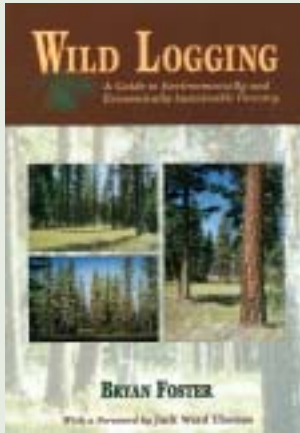


## Ecological Agrarian: Agriculture's First Evolution in 10,000 Years

When Malcolm Forbes decided to open his 180,000-acre Colorado ranch to outside hunters in 1986, it was a moneymaking decision. Little did he know he was a new breed of rancher. David Letterman recently supported a real estate deal that saved a 215-year-old, 300-acre farm on Martha's Vineyard from development. He, too, is part of a new era in farming. Both represent a shift in agriculture, according to *Ecological Agrarian*, a book that suggests that farmers have evolved into environmentalists.

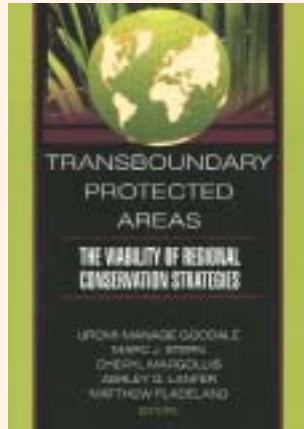
Authors Bishop Grewell '03 and Clay Landry, with Greg Conko, discuss how agriculture shaped history. The authors explain that we are entering an unprecedented era in which the race to feed the planet is no longer the lone driving force behind agriculture. That battle, they argue, has largely been won. Cleaning up the battlefield while continuing to meet new environmental demands is agriculture's evolving task. This new breed of farmer as eco-entrepreneur is not only greening the planet, but pocketbooks as well. To order a copy, call 1-800-247-6553.

# BookShelf



## Wild Logging: A Guide to Environmentally and Economically Sustainable Forestry

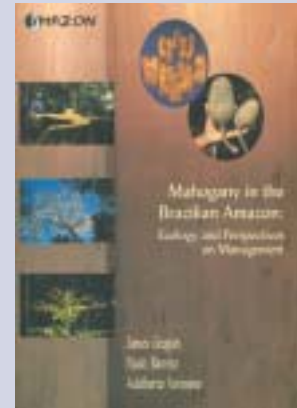
In the Intermountain West, private, nonindustrial forests—typically wood lots of 15 to 150 acres—constitute as much as one-third of the forestland. Yet the owners of these forests commonly do not have forest management plans or the assistance they need to create such plans. In *Wild Logging*, author Bryan Foster '96 covers the rudiments of forest management: inventorying your forest and establishing management goals; developing appropriate timber-harvesting methods and hiring a logger to implement them; and managing your forest estate for the future. In interviews, owners of Western forestland share their practical experiences. Technical sections cover such basics as how to develop a management plan, protect your property from wildfire and write a timber harvest contract. The book, published by Mountain Press Publishing Company in Missoula, Mont., includes a forward by Jack Ward Thomas, former chief of the U.S. Forest Service. To order a copy, call 800-234-5308.



## Transboundary Protected Areas: The Viability of Regional Conservation Strategies

*Transboundary Protected Areas* examines strategies used by governments and NGOs to protect wild areas that cross national borders and cultural, linguistic and socioeconomic boundaries. In addition to presenting case studies from five continents, the book, published by Haworth Press, provides several theoretical overviews that suggest viable approaches to conserving biodiversity in difficult-to-protect areas. Specific cases that are examined include the public reaction to the Yellowstone to Yukon (Y2Y) Conservation Initiative; the ways in which the establishment of southern Africa's existing and proposed Transfrontier Conservation Areas can help conserve biodiversity, aid socioeconomic development and promote international peace; development and conservation efforts in the Maloti-Drakensberg mountains of southern Africa, which straddle the borderlands between South Africa and Lesotho; and the cultural aspects of protected-area management in Venezuela and Guyana.

The contributors include social and natural scientists, resource managers, policy makers and community leaders. Among the editors are four F&ES graduates: Uromi Goodale '01, Marc Stern '02, Cheryl Margolis '02 and Ashley Lanfer '01. To order a copy, call 1-800-HAWORTH.



## Mahogany in the Brazilian Amazon: Ecology and Perspectives on Management

Mahogany's extraordinary commercial value has fueled intense extraction pressure across its natural range in Brazilian Amazonia since the early 1970s. As the logging industry approaches the last natural stands of mahogany in south Pará, southeast Amazonas and Acre, Brazilian regulatory agencies have responded to public concerns about mahogany's commercial future by steadily reducing export quotas since 1990; freezing authorization of new forest management plans for mahogany since 1996; and prohibiting the transport, processing and commercialization of mahogany within Brazil following detection of widespread illegal logging practices in south Pará in October 2001. Assuring mahogany's future as a renewable natural resource now requires translating available technical information into rational forest management guidelines that are concordant with public interests, affordable to industry and enforceable by federal and state regulatory agencies. To order a copy, which is co-authored by James Grogan, a postdoctoral associate at F&ES, and Paulo Barreto '97 M.F.S., visit [www.imazon.org.br](http://www.imazon.org.br).

# An Early Opportunity

## Inspires a Lifelong Commitment to Reaching Out

By Christine Woodside

**R**obert Stanton's career began in 1962 with an experiment in affirmative action that proved the value of a good opportunity. He was offered a chance to work as a park ranger in Grand Teton National Park, as part of an integrated staff, with a supervisor who paid thoughtful attention to his charges.

Thirty-five years after his first summer in the mountains, Stanton had worked his way up the ladder of the U.S. National Park Service to the top job. In August 1997 he was appointed by then President Clinton as director of the National Park Service, and became the first African American to serve in that position since the agency was established in 1916. His term ended when President Bush took office in January 2001.

Now a research affiliate at the Yale School of Forestry & Environmental Studies, and last year's Dorothy McCluskey Visiting Fellow in Conservation, Stanton is working on recommendations for the school to reach out to minorities in the way that made the difference to him.

In September, he served as the first congress ambassador, assisting in fund raising and raising public awareness, for the Fifth World Parks Congress in Durban, South Africa. This forum, held once each decade, drew 2,500 representatives from 170 countries. The 10 days of meetings and presentations focused on the world's conservation lands and how to protect them.

A course on national parks, which Stanton taught while the McCluskey Fellow, and a course on protected areas and the World Parks Congress which Lisa Curran, associate professor of tropical resources, Gordon Geballe, associate dean of students and alumni affairs, and Lisbet Kugler '01, teaching assistant, taught last spring, resulted in a survey of younger World Parks Congress attendees about their attitudes toward land conservation. The survey, conducted by a group of students, asked 138 people from 52 countries for their ideas about managing protected land. The summary of their findings can be found at the following Web address: [www.yale.edu/forestry/downloads/World\\_Parks\\_WEB\\_FINAL.pdf](http://www.yale.edu/forestry/downloads/World_Parks_WEB_FINAL.pdf)

Stanton said he was pleased that the World Parks Congress had attracted international leaders, including Her Majesty Queen Noor of Jordan and former South Africa President Nelson Mandela, who served as patrons for the congress. His

own role made him reflect: "I must say, with humility, that the United States was the first country to establish a national park—Yellowstone—in 1872. Many other countries have looked to the United States for help in establishing parks." While he was director of the National Park Service, Stanton established a dozen agreements to help other countries with parks, and he hosted an international meeting of park and reserve leaders that resulted in the establishment of the International Protected Areas Leadership Forum.

He was proud of F&ES faculty, staff and participation at the congress. "The survey report," he said, "was particularly useful in shaping the discussions on youth in conservation as part of the congress' overall theme, "Benefits Beyond Boundaries." Mandela underscored in his remarks during the opening ceremony the importance of engaging youth. He said that "the future is in the hands of the youth, and if we do not involve them in conservation management, we will not succeed in our efforts



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Robert Stanton, former director of the National Park Service, in Lincoln Park, which is located on Capitol Hill in Washington, D.C., and maintained by the Park Service.



“We have to have more Hispanics, Native Americans and African Americans involved in natural resource conversation.”

*Robert Stanton*

to save nature and humanity.”

Stanton has used his retirement to promote equal opportunity for minority members and their participation in conservation programs. He has recently served as a consultant to the Natural Resources Council of America, producing a report on “Opportunities and Actions for Improving Cultural Diversity in Conservation Organizations and Programs.” He serves on the board of directors of several national conservation organizations, which have set major goals for increasing the diversity of their workforces and strengthening their engagement with diverse communities.

“I will always be honored by the opportunity to serve at Yale, and remain grateful to Dean Speth and Mrs. Dorothy McCluskey,” Stanton said he applauds the representation of international students and wants to help F&ES encourage American minority students to apply.

“If you take a look at the results of the 2000 census, you’ll see that the population of our nation has changed and will continue to change drastically—the makeup of racial and ethnic populations,” Stanton said. “We have to have more Hispanics, Native Americans and African Americans involved in natural resource conservation and cultural resource preservation programs. I see some improvements, but I will submit that there is a great deal yet to be done.”

In 1962, Stanton was a junior at Huston-Tillotson College in Austin, Texas. A recruiter came to the campus looking for students to work as summer rangers for the Park Service. “It was a new day, if you will. I think there were about 50 African American students who worked that first summer in various parks.” This employment opportunity was made possible through the executive direction and leadership of the Secretary of the Interior, Stewart Udall, who during the Kennedy-Johnson administrations wanted to improve the diversity of the National Park Service’s workforce.

His first boss, the superintendent of Grand Teton in 1962, was Harthorn “Spud” Bill, a 1935 graduate of the then Yale School of Forestry. Spud Bill went on to become deputy director of the National Park Service, serving under Director George Hartzog Jr. in the late 1960s through the early 1970s.

Working on a racially integrated staff (and living in an integrated bunkhouse), in a place where people spent their vacations, was new to Stanton. “I grew up in segregated Texas. All the local parks were segregated,” he said. “I came from a low-income family, and we didn’t have the resources for vacations or travel. We worked in the fields in the summer. I grew up in a rural area, so I was no stranger to the out-of-doors, but I had never gone into an integrated work situation. There was no one in my family with whom I could confer, to ask, ‘What might I expect as an employee in a national park?’ I had no frame of reference.” His hometown was Mosier Valley, a small community founded shortly after the Civil War by African Americans.

Not content to be a tourist on his days off, Stanton worked at a Wyoming ranch to make extra money. After he graduated from college, he worked briefly at his alma mater in public relations and alumni affairs, and then returned to the Park Service in 1966. His early jobs included park superintendent in Washington, D.C., Maryland and St. John, U.S. Virgin Islands. He held regional and national management posts for the Park Service in Atlanta and Washington, and served as regional director of the National Capital Region for eight years, until 1997.

As director of the Park Service, Stanton—who was the first to undergo confirmation hearings before the U.S. Senate—oversaw 384 natural and park sites spread out over 83 million acres and attracting 228 million visitors each year. His duties also included overseeing national trails, such as the Appalachian Trail, and cultural programs such as the Underground Railroad network. His employees numbered 20,000.

He devised a “diversity action plan” to increase the numbers of women minorities and disabled citizens working for the Park Service. Part of the plan involved agreements with minority colleges and other organizations. Always, he remembered his early opportunity to work in the parks, which inspired him throughout his National Park Service career to provide opportunities for young people to participate in park conservation and educational programs.

The difference that summer in Grand Teton, he said, was working with people who were “comfortable in their own professionalism, and had the courage to reach out.” **EY**

# Farmers Abroad Find Their Livelihoods Threatened by Trade, Economic Pressures

By Kathleen McAfee

Assistant Professor of Geography and Sustainable Development

Farming is by far the greatest user of land and freshwater resources worldwide. More forests are felled for the expansion of farm plots, pastures and plantations than for timber harvests. Does that mean that farmers are the enemies of forests? No, according to six F&ES graduate students.

The F&ES agroecology team returned in September from doing research in several Latin American countries and India, where they studied farming, livelihoods and conservation in biologically rich but economically poor regions. They have found that while agriculture and conservation can be at odds, they can also support each other. At present, most government and international aid and trade policies encourage environmentally destructive forms of agriculture. The agro-eco team findings suggest that better alternatives are possible and that they have strong support from farmers in the developing world.

Elizabeth Shapiro '03 and myself interviewed indigenous Mixtec farmers in the highlands east of Oaxaca, Mexico, where overgrazing has created an eroded, desertlike landscape. Poverty and underpopulation have made things worse: as people leave the area in search of jobs, families lose the people power to maintain their traditional, terraced farm plots. But today, in a region studied by F&ES students since the 1990s, communities are transforming these barren zones into havens of oak, pine and mixed forests, where wildlife is returning and dry springs have come back to life.

To these farmers, farming and conservation are inseparable. By “building” forests, they are also rebuilding their own livelihoods. In the words of Jesus León Santos, president of one local farmers’ organization, *the Mixtec Farmers Integrated Development Center (CEDICAM)*:

*Being a campesino is a vocation as important as any profession. We produce the food and are responsible for conservation of most of the natural resources: without us, they'll be exploited and sold off. . . . Our land has been abused, but we're planting many more trees: 200,000 this year alone. Land that was so sad to look at is now green and beautiful again. These forests aid the climate and the water for our own fields and for people in the city. They give us craft and construction materials, fuel wood, fodder and organic matter. But our people eat maize, not trees, so we are conserving agricultural land, too, for our survival.*

CEDICAM is encouraging its members to phase out chemical fertilizers in favor of animal and green manures and compost from leaves shed by the regrowing forests. Josefina Jiménez Lopez explained that, after taking the value of their labor into account, the organization calculated that the extra work that was required to use organic fertilizer costs no more than purchasing and transporting the synthetic kind. Fidel Cruz Pablo, whose own bountiful farm demonstrates the wisdom of his words and the skills of his wife, Fidelity, told us:

*Chemicals seem like a miracle at first, but we soon see the decline of the soil. After only five years, you can't grow anything without them. Then it takes a while to rebuild the soil. . . . We also are using crop rotations, planting more varieties and encouraging beneficial insects. We live in a healthy place and we have to care for the health of our soil, because it's reflected in the health of our plants and ourselves.*

Mexican small farmers perform another vital service to society by conserving agricultural genetic resources. CEDICAM members have names for at least 14 locally planted wheat varieties, 31 types of beans and pulses, 10 groups of maize varieties and more than 200 horticultural and medicinal plants that they cultivate or collect. Families prize their red, blue, yellow, white and multicolored strains of corn, some of which are remarkably productive and drought-tolerant and might provide plant breeders and other farmers with valuable traits for hardier strains of corn.

Farmers in Oaxaca are struggling to maintain their crop and livestock genetic resources, however, because of the effects of trade liberalization and the integration of their region into transnational agro-food systems. The flooding of Mexican markets with cheaper, imported U.S. corn—considered vastly inferior in taste and cooking quality by these farmers—has meant that they cannot sell their maize harvests in nearby towns at a price high enough to recover their production costs. They face similar problems with their livestock and their beans, which are now undersold by “Michigo” (Michigan) black beans grown in the United States. According to the farmers, buyers affiliated with an international grain-trading firm are demanding more standardized products, such as single-colored maize varieties, which

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they then mix with imported corn and sell with a deceptive “local” label.

These villagers are not passively accepting the fate—extinction as agriculturalists—that the Mexican Ministry of Agriculture envisions for them. They are joining with other Mexican campesinos in calling for the reversal of North American Free Trade Agreement rules that favor the products of the heavily subsidized U.S. industrial farming system.

In the Ecuadorian Andes, Jonathan Cook '04 found evidence that indigenous farmers are continuing a tradition of sustainable agriculture, including the use of local varieties and intercropping, with support from international aid groups and university researchers. However, these smallholders face tremendous economic pressures from abroad. With cheaper food imports underselling locally produced goods and the national economy stumbling under crushing foreign debt, markets for local crops are depressed. Still, many farmers have found niche opportunities by devoting part of their fields to commercial crops while growing potatoes, corn and vegetables for self-consumption and weekly town markets. In the wildly beautiful cordillera west of Latacunga, miles of steep fields are sown with the beautiful violet flowers of chocho, a type of lupine sold in bulk for medicinal use. Despite fears that the proposed Free Trade Area of the Americas treaty could fill Ecuadorian markets with more subsidized crops from the United States, these farmers are working hard to protect and enhance their traditional farming methods and ways of life.

In western El Salvador, Avery Cohn '04 worked with coffee cooperatives whose members help to steward forested, mountain agroecosystems by planting their coffee bushes in the shade of native trees. Livelihoods are not won easily there. A global plunge in coffee prices has lowered the prices farmers get for green coffee beans, while adoption of the U.S. dollar as El Salvador's currency has increased their production costs. Many farmers can no longer afford to apply chemical fertilizers and pesticides. This has meant a temporary drop in yields and hunger for some farm families, but it has also paved the way toward entry into more lucrative organic-coffee markets and more environmentally benign coffee systems. Cohn is working with the Association for Interdisciplinary Research in Rural Development and Conservation to help farmers through this transition.

Small farmers cannot rely solely on export crops, which go through cycles of boom and bust. By intercropping a variety of grains, beans and vegetables with coffee and rain forest trees, they are producing for their own subsistence as well as domestic and international markets. Increasingly, development agencies are turning to these biodiversity-rich agroecosystems as a promising development model. In their determination to remain on the land, the coffee co-ops are resisting a political war against small-scale farming. They feel alienated from both the political left, which has focused on industrial development, and the right, which sponsors trade liberalization and favors wealthier, large-scale farmers.

Similar lessons emerged from the state of Para in Brazil. Corinna Steward '04 found that in Santarém, a region along the Amazon rich in agricultural and natural diversity, fertile soils known as terra preta (black earth) are being transformed into soybean fields. In recent decades the region has been occupied by small-scale farmers, many of whom do not hold deeds to their farms. They have managed to integrate commercial rice and corn crops with native fruit and medicinal trees to meet their subsistence and income needs. Now, the rapid introduction of agro-industry threatens their livelihoods. It is converting a diverse landscape into a grain monoculture in which the smallholders cannot compete. One farmer asked, “What will I do without my land? How will my family survive?”

The spread of soy plantations into Amazonia is propelled by the profitable global soybean market that feeds livestock and produces cooking oil—and our tofu. In addition, Brazil's need for U.S. dollars to pay its debt and meet national development goals encourages the displacement of forests and small farmers by vast acres of soybeans in spite of a world soy surplus. While many smallholders around Santarém have ceded their land to soy farmers from southern Brazil, others say they will never leave. With the support of the Rural Workers Union (*Sindicato dos Trabalhadores Rurais*), they are opposing the expansion of agro-industry for exports and generating local and government support for family agriculture and local products.

Small-scale farmers in Mexico, Brazil and other countries are part of a growing, international movement for “food sovereignty”: the right of countries and communities to produce food and make informed, ecologically sound decisions about where and how their food will be grown.

Some of these farmers will soon be coming to Yale to share their experiences. From April 15 to 17, the agro-eco team will sponsor a working conference titled “Biodiversity, Agroecology, and Food Sovereignty.” Farmers, scholars and student researchers will exchange practical knowledge, debate the pros and cons of new biotechnologies and discuss the challenges of agro-food globalization. **EY**

Avery Cohn, Jonathan Cook and Corinna Steward contributed to this article.



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# Paying It Forward: Yale Alumni Respond to an Urgent Need for Scholarship Aid

By Dave DeFusco

When Jim Leitner was a boy growing up in Elmshorn, Germany, north of Hamburg, he would go on six- to 10-mile hikes every Saturday or Sunday morning through the woods with his uncle, Johannes Fröndt. On these hikes, Johannes taught his nephew how to identify animal tracks and birdcalls and to appreciate the splendor of nature. The woods, Leitner said recently, speak to the German soul.

The woods was also the setting where Leitner was taught values and morals by his uncle, whom he described as a staid, down-to-earth, conservative Lutheran—quintessentially German.

“We walked alone, and we talked about anything I wanted,” said Leitner. “He had time for me—no interruptions. He taught me not to care too much about what people think about you, and to try to do the right thing, have integrity and be self-reliant, thoughtful and helpful to other people. It was a pleasure to grow up with him.”

When his uncle passed away two years ago, Leitner decided to honor him and his aunt by establishing the Edith and Johannes Fröndt Scholarship Fund at the School of Forestry & Environmental Studies (F&ES) with a gift of \$100,000.

“I wanted to honor his name, and supporting the School of Forestry & Environmental Studies was the most appropriate way of doing that. Germans value conservation. Germany is very industrial, but forests get taken care of—I was taught to value, love and cherish them. People respond by being close to nature, and I think my uncle tried to inculcate that in me.”

Before moving to Germany at age 11, Leitner lived with his sister and grandfather for seven years in Turkey. This instilled in him an appreciation for different cultures and points of view, but he says his days as an undergraduate at Yale were an “incredible eye-opener.” He initially considered studying chemistry—his father was a chemical engineer—but instead chose economics, as well as Russian economics and politics, after listening to a Wolfgang Leonhard lecture on Soviet history. After graduating from Yale in 1975, he went on to Columbia to get a master’s degree in international finance, minoring in Russian studies.

“None of this would have happened without stumbling over this one professor who was a fabulous lecturer, a wonderful person who opened my eyes to something I never thought I’d ever be interested in,” Leitner said. The advantage of a Yale education is the ability to broaden one’s horizons without being tied down to one subject. It led me to work in international finance—a far jump from chemistry. It changed my life.”

Leitner is now chief executive officer of the Falcon Management Corporation, an investment firm based in Wyckoff, N.J., that invests for two large clients and, according to Leitner, has performed well despite the bumps in the stock market the past few years. In gratitude for his Yale experience, he enthusiastically shares his success with his alma mater.

“I consider giving to Yale an investment that can make a difference in many ways to faculty, students and the university, in general.”

He is president of the Yale Alumni Association of Bergen County (N.J.) and Vicinity, which is setting up a program for graduates who move into his area and are looking for mentoring opportunities. His main focus is arranging international internships for Yale undergraduates with Jon



Jim Leitner, wearing sunglasses, with Evan, Olivia, Allegra and wife Sandra

“The advantage of a Yale education is the ability to broaden one’s horizons without being tied down to one subject.”

*Jim Leitner*

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Auerbach, Yale class of 1964. Students have worked in places as diverse as Istanbul, Athens, Maputo and across Eastern Europe, and Leitner and Auerbach wish to expand the list of countries offered for internships.

In addition to his gift to F&ES, Leitner established the Leitner International Interdisciplinary Professorship at the Yale Center for International and Area Studies, and made a generous contribution in the spring to the School of Nursing that enabled student nurses to work in community health centers in Mexico and New Zealand.

“Growing up abroad opened my eyes to the value of seeing the rest of the world. I am interested in making Yale a more international place, and having Americans see the beauty of the world and how much they can learn from other cultures. One of my goals is to make it possible for undergraduates to do the same thing.”

This October, he celebrated his 25th wedding anniversary with his wife, Sandra; together they have three children, Allegra, 19, a member of the Yale class of 2006, Evan, 17, and Olivia, 12. “You couldn’t be philanthropic without your family feeling strongly that it’s the right thing to do,” said Leitner.

### F&ES Students a Good Investment

William Waxter, a long-retired investment analyst with T. Rowe Price and now treasurer of the Society for the Preservation of Maryland Antiquities, knows a good investment when he sees one. After reading a story on the appointment of Dean Speth in the October 1999 issue of the Yale Alumni Magazine, he decided to establish the William D. Waxter III Fellowship at F&ES.

“I didn’t know much about the school at all,” he said. “Then I read the cover story on Dean Speth in the alumni magazine, and it made me feel the time was right to establish a fellowship. I was motivated by his vision to make the school the best in the world—he spelled out the things that he needed, and one of them was scholarship aid.”

Since establishing the gift, Waxter has visited the school several times to attend classes and meet with the fellowship’s recipients. “I’ve met each of the three students, and I have had a very favorable impression—they are extraordinary.”

In addition to the fellowship, Waxter, a member of the Yale class of 1945W, made a \$100,000 pledge toward the construction of a complex for F&ES that will be a model of environmental and sustainable design. The complex will include a new “green” facility that will be a model of energy conservation and efficiency, and will employ systems for efficient waste management while restoring the surrounding area’s ecology. “If you attend classes, you have to walk up and down Prospect Street quite a bit,” he said. “It might improve things if people were more concentrated, and a green building is something that we’re very supportive of.” Waxter and his wife of 54 years, Julia, have a cabin in West Virginia that is equipped with a solar hot water heater.

Waxter’s interest in the environment was stimulated by Julia, an alumna of Sweet Briar College, where she is a generous supporter of environmental studies and both of them sponsor an environmental issues forum each year. They also are avid hikers, having hiked together in the White Mountains in New Hampshire, in western United States and throughout Europe. “Most of our vacations are related to hiking,” he said. “It’s good exercise and we love the fresh air.”

When he is not hiking or playing golf, he gives his time to the Society for the Preservation of Maryland Antiquities, having served as head of the grants and loans committee and now serving as treasurer. The society supports the preservation of historic buildings and also supports smaller preservation institutions that don’t have staffs. As an example of the society’s effectiveness, Waxter proudly points to the redevelopment of the west side of Baltimore that encompasses 20 square blocks. “Rather than tear down whole city blocks, over 100 19th century-era buildings have been designated as ‘valuable,’ and they will be incorporated into new structures or rehabbed for new uses.”

Waxter said he has volunteered his time to the society for 15 years because he wants to be part of



William Waxter, right, with his wife Julia

“I was motivated by [Dean Speth’s] vision to make the school the best in the world.”

*William Waxter*

# Paying It Forward: Yale Alumni Respond to an Urgent Need for Scholarship Aid

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an organization that “makes a difference,” which is in no small part the motivation for his investment in F&ES students. “I want to enable the school to get the best students it can. The school has a terrific reputation. Just to make a small difference in making it better is all I’m trying to do.”

## ‘A Joy to Meet Wonderful Students’

John Griswold, a member of the Yale College class of 1937, spent his entire career trying to improve the environment, but not the one filled with trees and wildlife. His focus was on interiors—corporate interiors, to be exact. His firm, Griswold, Heckel & Keiser Associates designed executive offices for banks, law firms and industrial companies, including J.P. Morgan in New York City and International Paper, as well as interiors for buildings for five World’s Fairs and several hundred “liberty” ships during World War II.

“Companies that outlive their quarters eventually decide to move to bigger establishments or build their own building. We would help them do that,” said Griswold, a Pratt Institute graduate and former member of its faculty. “We had a good team.”

Griswold’s firm designed the interiors of exhibits for the following World’s Fairs: 1958, in Brussels, a U.S. federal building that promoted commerce and industry; 1963, Amsterdam, a 150,000-square-foot U.S. Department of Agriculture building that included a supermarket, restaurant and auditorium, and featuring a film of the lives of a Dutch farm family in Michigan for one year; 1964-65, New York, a series of hexagonal buildings, included a rustic country store and a nautical restaurant that featured famous New England dishes, for the six New England states; 1967, Montreal, a circular auditorium with big movie screens that featured a mock heart operation; and 1970, Osaka, Japan, a library, which included a bookstore and art gallery, for Encyclopaedia Britannica.

When Griswold retired in 1975, he stayed active as a member of the board of the International College in Beirut for 10 years. He also served for many years on the national board of the Boys & Girls Clubs of America, and as chairman of the board, for six years, of the Children’s Aid Society of New York City, where he had been a member before pursuing industrial design. He ended up serving 50 years on its board. “It’s a marvelous institution, and I don’t know how New York City would get along without it.”

In 1993, Griswold, a self-proclaimed environmentalist whose son, Evan, graduated from Yale in 1975 with a master’s degree in forest science, established the John S. Griswold Scholarship Fund for F&ES students, and since then has contributed \$500,000 to the fund.

“Several years ago, [former Dean] John Gordon and [Professor] Steve Kellert pointed out the need for and value of a scholarship program. I realized that, whereas the undergraduate program is large enough and comprehensive enough to satisfy the majority of those students who are in need of scholarships, the resources at the graduate level are anything but adequate. The urgency of such support, for a variety of reasons, is immediate and profound. As time went on, I began to enjoy a degree of satisfaction in the results that I hardly anticipated at the beginning. Fulfilling a need was one thing, but deriving the pleasure of seeing the actual results was another.

“What a joy it has been to meet this wonderful group of students, year after year. I have enjoyed tremendously the chance to have lunch with each scholarship recipient and learn about them personally, as well as to share their visions of their futures. I especially realize how fortunate I have been to help worthy young people on their way to careers that could change our national environment for the better. I look at it as a team program—with our nation as the winner.” **EY**



© Don Hamerman

John Griswold at his home in Greenwich, Conn.

“I look at it as a team program—with our nation as the winner.”

*John Griswold*



# Anonymous Gift establishes Apprentice Forester Program

By Christine Woodside

For about 30 years, the Yale School of Forestry & Environmental Studies has hired a summer crew of four to eight master's candidates each year to manage timber sales in the 10,880 acres of its school forests in Connecticut, New Hampshire and Vermont. These jobs give the students practical field experience, but also bring in the funds necessary to maintain the forest roads and buildings, pay taxes and compensate the crew.

Until this year, the crews' responsibilities were more like those of a summer job—of course, a very good one that taught them a lot—than a field study. Their main motivation was to generate timber sales. Now an anonymous donation of \$400,000 from a private landowner has enabled the school to pay doctoral candidates and professors to teach classes in the woods, adding to the crews' learning experience.

"I think it is important that all F&ES students learn about forest dynamics and the interrelationships of ecosystems. Even for those who will become Washington policy makers, 'ground up' knowledge is critical to both effective practice and credibility," says a long time friend and donor to F&ES. "The internship program gives forestry and environmentalists additional learning time to gain the necessary tools in a greatly expanded field of disciplines necessary to protect the environment."

Timber sales have always been an important ingredient in running the school's forests. In the 7,840-acre Yale-Myers Forest, F&ES sells about 500,000 board feet of hardwood each year. In the Yale-Toumey Forest, 1,930 acres in southwestern New Hampshire, the school harvests about half that amount, much of it white pine. These harvests are conservative by commercial standards, because F&ES sets aside much of its land for research and protection of ecologically unique or sensitive areas. Timber sales fluctuate from year to year, but over the past decade the forests' costs and income have balanced each other out, said Mark Ashton, director of school forests and professor of silviculture and forest ecology.

Meanwhile, in the past 10 years research projects have tripled in number, cutting the amount of land available for timber sales. Other programs at the forest, such as "mods," the orientation sessions for new master's students, have increased facilities use, making maintenance more costly.

Without the donor's commitment, Ashton said, F&ES could not have improved the teaching program in the forest, something Ashton has aimed to do since the spring of 2002. With this new emphasis on teaching, the forest crews' efforts are now part of the Apprentice Forester Program. The anonymous donor, a private landowner who has gotten to know the forestry students well while learning methods to manage his land, has donated half of the promised amount so far, and the rest will come over the next two years. The benefits will improve the education of every crew member.

"It has moved from more of a job to an incredible educational experience," said Ashton, who has conducted his own research in Yale-Myers for several years. He did his doctoral work at Yale in the 1980s, joined the F&ES faculty in 1992 and became forests director three years ago.

When the students learn to mark borders, identify timber, evaluate the health of a tree or list the animals, plants and insects that live in an area, it is more likely now that a professor or doctoral student will be there with them. "We now can put in more personal time with students," he said.

Ashton assigned three doctoral candidates to run workshops and exercises last summer. Alex Finkral, who is the year-round forest manager for F&ES, conducted workshops in chainsaw operation and safety, harvesting and working with loggers. He went out with the crew to show them areas where trees have been cut to encourage a healthy oak forest. In the field, he taught them ways to measure and observe trees to determine if they should grow or be cut. He also has explained how to mark trees for loggers, who cut them later in the year.

"The school forest, in order to run itself, has to employ people—so it's a job," Ashton said. "So what we've done is we've changed the job into much more of an educational opportunity. With this fellowship, the school is earning money from the sale of timber and the student is getting a quality education."

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Mark Ashton, left, director of school forests, observes Christopher Riely '04 as he estimates the amount of board feet in a tree.

# Anonymous Gift establishes Apprentice Forester Program

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Another doctoral candidate, Alexander “Zander” Evans, who is in charge of the school forests’ digital geographic database, taught crew members about geographic information system (GIS) software. With the software, it’s possible to make maps that incorporate everything known about a location. For example, using the school forest GIS, the crew can plot data such as timber values, wildlife habitats, or research locations on recent aerial photos or historic land-use maps. During the summer, the crew learns firsthand how to apply this rapidly expanding technology to forestry.

Doctoral candidate David Ellum, who also works as coordinator of research in the forests, lectured on tree identification and wildlife. Ashton taught about ways to mark boundaries, techniques to identify and protect wetlands and vernal pools, and ways to prevent erosion and rain damage on trails and roads. The crew learned how to grade paths and install water bars to improve drainage, as well as other techniques to forestall expensive improvements on these vital routes.

The forest’s overarching management guidelines, Ashton said, are to encourage tree growth in one portion of the land and to thin another portion of the forest. The goal is to maintain a forest that sustains trees of all ages. For many years, New England forests tended to hold large stands of trees of similar age because the forests sprang up on abandoned fields. So the goal to sustain the forest is an ambitious one. The forest must generate revenue. It also must provide education. This year’s difference, he said, was that there was a larger commitment to the teaching component.

This year, the crew worked in a 1,300-acre section of the northwestern corner of Yale-Myers. The season began in the late spring and ran to the end of August. In the spring they learned the boundaries and landmarks of Yale-Myers, where they lived for most of the season. Then they conducted two inventories—a standard forest inventory to plan timber sales and a second biodiversity inventory called a Bio-Blitz. In the Bio-Blitz, the crew joined local conservation groups to record some of the vast array of plants and animal species living in the forest, including big trees—oak, beech, hickory, white pine and red pine—shrubs such as witch hazel, understory plants including ferns and orchids, and all sorts of animals—white-tailed deer, salamanders, frogs, white-footed mice, coyote, bear, beaver, beetles, birds, butterflies and bats.

Finally, and most important, about midsummer, under the close supervision of Ashton they identified the timber that will be cut next season. For this they developed silvicultural prescriptions, beginning with simple thinning treatments to the forest, and gradually over the course of the remaining weeks, progressing to more complex treatments that involved forest regeneration. In August they spent more than two weeks in the Yale-Toumey Forest going through the same exercises—boundary marking, species inventories and timber marking.

Crew member David Hobson worked for six years as a molecular biologist, spending all his time in a laboratory before starting the master’s program last year. He sought out the summer internship because he wanted “a top-to-bottom, comprehensive look at the field component of forestry work.”

Hobson had decided against a summer job researching sudden oak death in California, his home state. “I can honestly say it was the best summer job I’ve ever had.” He learned how to find his way around the forest while observing trees close up to evaluate their condition. This three-dimensional learning struck him as a flow of information he likened to “drinking from a fire hose.”

“From a personal perspective, it cemented my career choice,” he said. The program, and the camaraderie that comes from living in the woods with other students, showed him that the woods is a more stimulating work environment than an office or a lab.

Another intern, Christopher Riely, said his experience this summer reinforced his growing interest in pursuing a career as a practicing forester, as opposed to academic, advocacy groups or government policymaking work. In addition to providing other management services, he wants to help landowners create forest management plans after he earns his degree.

“I felt like it was ‘silviculture class comes to life.’” **EY**

“I can honestly  
say it was the best  
summer job  
I’ve ever had.”

*David Hobson*

# Scholarship Honors David Smith

## Who Taught Generations of Students the Secret Life of Forests



© Michael Doolittle

Dave Smith

“He [Smith] taught us to pay attention to how the forest naturally develops and to adapt our management to the forest, instead of the other way around.”

*Roger Milliken Jr.*

By Richard Conniff

In the parking lot of an assisted living center, a frail, diminutive man sits on a bench at the end of a long garage. He has his cane propped upside down in front of him, one foot up on the crook, his hands folded over the rubber end piece, his chin resting on his hands. His eyesight is impaired, and the effects of a stroke keep him from venturing out into the forests where, not so long ago, he led students much younger than he to a point somewhere between exhaustion and illumination. But even at a distance, even in a parking lot, he still has a characteristic way of closely observing what other people scarcely notice.

“You see that little ridge off to the right there?” asks the man, whose name is David Smith, Morris K. Jessup Professor Emeritus of Silviculture. “That’s a remnant of the kame terrace. A huge chunk of ice got deposited over there as the last glacier retreated 15,000 years ago, and a river of melt water raged around it, dumping sand and glacial till to form the ridge.”

“How do you know all that?” asks a visitor, who has assumed until that moment that the whole thing was put there by a developer in the 1970s.

“There’s a kettle pond formed by the ice over there,” says Smith, “and that tree, the one growing just beyond the dumpster, that’s a scarlet oak. It likes to grow in dry soils.”

Smith, now 82 and recently honored with the establishment of the David M. Smith Scholarship Fund at F&ES, has spent a lifetime observing such details, beginning on his great-grandfather’s woodlot in western Massachusetts. When he announced his intention to become a forester, he recalls, his father allowed that he had gone to college to get out of the woods, then packed him off to the Yale School of Forestry. After earning his doctorate, Smith went on to become one of the most revered and beloved professors in the history of the school, teaching generations of students how to ferret out for themselves the secret details of how forests grow. Through his textbook, *The Practice of Silviculture*, “every forester in the world” also came to know Smith’s methods, says a colleague, with only slight exaggeration. Originally published in 1921 by one of Smith’s mentors at Yale, Ralph Hawley, the book has sold about 125,000 copies, not counting pirated editions in China and elsewhere. It has shaped the management of forests in areas as distant as Tasmania.

This last thought makes Smith proud and, since he is very much a New Englander, also rueful. His book (which he has handed down in turn to be written by students he once mentored) is explicitly about North American forests, and his chief argument is that every forest, and every stand within a forest, is different and deserves its own carefully considered style of management. *The Practice of Silviculture* was never meant to be a cookbook. He is quietly scathing on the topic of forests he has visited in Canada, where the clear-cutting was done according to actuarial yield tables, and the replanting regimen called for 500 seedlings per hectare, whether on rich Pacific coastland or the edge of treeless tundra. “There is no one way to do these things, no dogma,” he says.

On the contrary, Smith’s students describe him as a sort of Sherlock Holmes of the forest, able to analyze a stand of trees and figure out from seemingly trivial clues exactly what it has been through over the past few centuries, what it is likely to do next and what sort of help it could use to get there. A hummock of dirt tells him that the 1938 hurricane uprooted a tree here. A bend in the stem of a spruce records the passing of an ice storm 20 years back. He sees each stand as a unique product of its soils, its microclimate and the animals that live there.

Sitting on the bench in the parking lot, for instance, Smith points to the fork high up in the trunk of a white pine tree, and recounts the life history of a weevil that specializes in eating the terminal shoots of the tallest pines, a diet that seems to him as exotic as “eating hummingbird tongues.” The weevils overwinter in the litter on the ground. “They look like tiny elephants. They have a snout, not that they use it for breathing.” When the weevil larvae devour the six inches of new growth at the top of the pine, the trunk forks and begins to grow again. A careful forester cuts the tallest and most vigorous white pines first, Smith suggests, to put the growth on slower trees that are less susceptible to weevils. The

CONTINUED on page 34



# Scholarship Honors David Smith

## Who Taught Generations of Students the Secret Life of Forests

CONTINUED from page 33

unfashionable economic value of the forest still matters to him, as he thinks it should in a world that gets two-thirds of its energy and much of its housing from wood. Another pine in the parking lot catches his attention because someone years ago trimmed the lower branches, to yield a straight and relatively knot-free 16-foot length of lumber. The senior center could sell that tree now for \$50, he thinks. But wait another 30 years until the trunk thickens to two feet, and it could be worth \$1,000.



*Dave Smith with students on a silviculture field trip in Toumey Forest in 1990.*

Matt Kelty, a former student who now heads the Department of Natural Resources Conservation at the University of Massachusetts. “Then he’d say, ‘Well, we’ve learned that we can smell a rotten egg. Now we have to see if we can learn to lay a good one.’” Chad Oliver, Pinchot Professor of Forestry and Environmental Studies at F&ES, recalls Smith’s description of a colleague who ventured opinions too quickly: “He has a mind like a 10-cent mousetrap. He’ll snap at anything.” Apart from the quaint phrasing, Smith also fit the New England image by being notably frugal, fueling his field trips on Dinty Moore stew, among other practical economies. But Kelty also recalls one time on a field trip when a student stricken with flu was mortified at having to stay back at the camp. At the end of the day, Smith forbore from Dinty Moore, and brought him chicken soup instead. “He worried about people,” says Kelty, who also recalls that the day he arrived at Yale for his graduate teaching fellowship, Smith wanted to write him a personal check to tide him and his bride over until his teaching stipend arrived. E.H. Harriman Professor of Forest Management Graeme Berlyn, who taught a course with Smith, adds: “He unerringly did the right thing for people, provided good counsel, believed in treating everybody fairly. People always felt they could trust the guy, both students and faculty.”

Smith’s New England background was the key that enabled him to open up what he calls in his book “the little world of the stand.” A gypsy moth infestation had ravaged the family woodlot, and in 1946 Smith went up to Massachusetts to organize a salvage sale. It was a “typical seemingly incomprehensible mixed forest,” he says, a layer cake of white pine, oak, maple and hemlock. Foresters then operated on the simplistic premise that big trees were old trees, and small trees young. But Smith knew this stand too well to accept that. He knew, for instance, that the chestnuts had been cut down and sold for lumber after being killed by blight in 1915, a salvage sale that paid his mother’s college tuition.” He also knew that his great-grandfather had run a sawmill there through much of the 19th century, and that the family house had eaten up the rest of the forest for firewood. So everything he was looking at had grown up since about 1880. Big trees and small alike were roughly the same age. The variation among them was a

product not of age but of other less obvious factors, the hidden patterns of growth and shade tolerance of different species. This epiphany helped Smith develop the field now known as “forest stand dynamics,” a major contribution to forestry.

In 1949, the Yale faculty expressed its trust in Smith with the dubious honor of asking him to apply his thinking to the school’s own forests, or as one of them put it: “See what you can do about the mess up in Union.” The 7,800-acre Yale-Myers Forest in Union, Conn., was so hopeless the faculty wanted to get rid of it. Most of it was derelict pasture scooped up by George Myers, a wealthy F&ES alumnus, who prided himself on never paying more than \$15 an acre. The new forest that had sprung up there had also been decimated by the 1938 hurricane. Smith and a small staff of foresters had the unlikely job of restoring Myers and the school’s other New England forests to health and making them pay for themselves in the process.

“We’d walk around looking for something we could harvest without sacrificing the future, and we didn’t have much success,” Smith recalls. “We got a lot of exercise. For the next 10 years, I just sort of stalled around.” At Yale-Toumey Forest in New Hampshire, his ability to thin out branchy, weevil-damaged “cabbage pines” was limited by demand from a local factory making wooden buckets, the only market for such short lengths of useful lumber. While he was thinning the forests and slowly improving the stands of old-field pines, Smith also oversaw the development of research in the forest to help create a more scientific basis for forest management. The Yale forests became self-supporting by 1965, and at about the same time, Smith began advising the Baskahegan Company on management of its 100,000-acre commercial forest in northern Maine.

“He taught us to pay attention to how the forest naturally develops and to adapt our management to the forest, instead of the other way around,” says Roger Milliken Jr., president of Baskahegan. “He told us that in forestry, the trees are both the product and the factory. The key is to keep the trees that are capable of being factories for high-quality stands. It’s the opposite of short-term thinking, where you take the best and leave the rest. You really had the feeling when you were in the woods with Dave that he thought like a tree. He really understood what the trees wanted to do and how we could work with that for both economic and ecological rewards.” Baskahegan is now widely regarded as one of the best forests in Maine.

Good forestry demands patience of its practitioners, and an abiding sense of how small steps can produce profound change over time. At Yale-Myers Forest, the restoration plan now stretches out to 2070, when Smith, his students and even many of his students’ students will be long gone. The thought does not seem to discourage Smith—just the opposite. He points to a hybrid American-Chinese chestnut tree in the parking lot. The trunk bears healed-over lesions, a sign of partial resistance to chestnut blight. He knows the researcher who planted the tree and he talks with her from time to time about making new cross-pollinations in pursuit of even greater resistance. This past fall, Smith took a dozen nuts from the tree on the chance that they could be scattered around Yale-Myers, so they will grow there and give some future teacher a chance to talk about chestnut blight. It will be a little lesson, amid a thousand other possible lessons, many of them devised and passed on by a man named Smith, who took time to know the inner life of the New England forests he loves so well. **EY**



# ClassNotes

## 1935

**Joe Ely** was recently covered in the *Mercury Register* of Chico, Calif., for his role in implementing the system of fighting forest fires from the air in the 1950s; the first airdrop of water occurred in 1955. Then a forest officer in Mendocino National Forest, he oversaw the development and improvement of this method. After retiring from the Forest Service, he went on to teach at Butte College and Chico State University. Currently he contributes a front-page column to the *Village Crier*.

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## 1939

**Art Nelson** sent a handwritten letter detailing his writing projects, one of which is the story of how Herman Haupt Chapman influenced his career choice long before he met him. He recalls that some of his distant relatives, who were second-generation lumbermen, had participated in the cutting of virgin timber from 1903 to 1920 according to Chapman's prescription—"leave seed trees, pile and burn slash." "They were still in the same area going around the second time when I was growing up (1931-34), this time cutting the aspen while the pine was regrowing (covered in my report *Growth and Utilization of Aspen in Minnesota*, 1939)." Art is now 87 and learning to walk with an artificial leg.

## 1942

### CLASS SECRETARY:

**Hamlin L. Williston**

[williston@watervalley.net](mailto:williston@watervalley.net)

## 1946

### CLASS SECRETARY:

**Paul Y. Burns** [pyburns@lycos.com](mailto:pyburns@lycos.com)

**Paul Burns, Ph.D. '49**, phoned **John Gray '42** on July 4, as he does every year. John and Paul were both born on July 4, 1920. Former forestry school heads and tennis partners on various occasions in the past, they reminisced about beating some young players who challenged them a few years ago. Paul is planning to compete in the Louisiana Senior Olympics in tennis, badminton, table tennis and pickleball.

**Dave Smith** ([david.m.smith@yale.edu](mailto:david.m.smith@yale.edu)) and his wife moved recently from their longtime home to Whitney Center, a lifetime-care facility in Hamden, about one or two miles north of Sage Hall (see story on p. 33).

**Howard Coe**, the 1946 class agent (fund-raiser for the school), phoned to say that every member of the class participated this year in the Annual Fund.

The daughter of the late **Robert W. McDermid '37** wrote **Paul Burns** that her mother, Missy, who for many years has been keeping up with Bob's former classmates at Yale, had a surprise 90th birthday party in September.

## 1947

### CLASS SECRETARY:

**Evert W. Johnson**

[swede-doc@mindspring.com](mailto:swede-doc@mindspring.com)

## 1948

### CLASS SECRETARY:

**Francis H. Clifton**

[fhcpsyfor@webtv.net](mailto:fhcpsyfor@webtv.net)

**George Hindmarsh** writes: "I'm as healthy as ever. I'm fishing, golfing and a volunteer at the Charlotte Harbor Environmental Center as a trail and boat guide and exotic-bush eliminator. Janet, my wife, has had health problems but is still with me after 59 years." He is now a full-time Floridian, having sold his place in Pittsburgh in 1999. The Hindmarshes had a big reunion in June, 20 of them in four condos. "All five of my girls and husbands and most of the grandchildren. I have two great-grandsons—Texans!"

**Howard Kriebel** writes: "I'm having to study up on my dendrology. Since I have a forestry background, everybody here expects me to know every kind of tree and shrub; also, being an arboretum, my retirement community has trees from all over the world, as well as all the native species."

**Don Tufts** writes: "Early in 2002, I ruptured a disk in my back while splitting firewood. I spent six days in the hospital for this and other complications. I still have an aching back, but it is gradually getting better. I have been using a lightweight, 12-inch electric chain saw to cut firewood and I walk a little for exercise. In the past, we took a tricontinental tour. We visited Greece, Egypt, Palestine, Turkey and many of the biblical sites. I saw several hundred acres of pine plantations."

**Hap Mason** writes: "I got a new left knee in June. The new one works better than the old one but still not 100 percent. I will probably have to get a new right one. The worst part is the time spent in the hospital. The loggers just started on an improvement cut on about 100 acres of my tree farm. Massachusetts' current-use law requires you to say what the objective of your plan is. The obvious answer is to grow more valuable trees faster. I have enjoyed the experience of being on the executive committee of the Alumni Association but now I want to make room for new blood. Any volunteers? It is an interesting and educational experience."

When **Roy Silen** officially retired as geneticist of the USFS Pacific Northwest Laboratory at Corvallis, Ore., about a dozen years ago, he continued his research with Douglas fir and other species. The Forest Service has recognized his efforts with its National Volunteer Program Award.

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## 1949

### CLASS SECRETARY:

**Frank H. Armstrong**

[farmst1037@aol.com](mailto:farmst1037@aol.com)

**Frank Armstrong** received a Ph.D. from Duke University after 28 years of service in the U.S. Army. He then went on to teach forestry at the University of Vermont for 25 years. Since retiring from that position he has been teaching online through the American Military University; he has military and civilian students all over the world.

**Laurence Walker** was posthumously inducted into the Texas Forestry Hall of Fame, having been for many years dean of the forestry school at Stephen F. Austin State University.

## 1950

### CLASS SECRETARY:

**Kenneth L. Carvell** [kencarvell@aol.com](mailto:kencarvell@aol.com)

## 1951

### CLASS SECRETARY:

**Peter Arnold** [arnoldp@nccn.net](mailto:arnoldp@nccn.net)

## 1952

### CLASS SECRETARY:

**Milton E. Hartley Jr.**

[redheaded@olympus.net](mailto:redheaded@olympus.net)

**John Calhoun** received the prestigious Forester of the Year award at the annual New Hampshire SAF winter meeting held Feb. 14 at Waterville Valley, N.H. A consulting forester for 47 years, he has tirelessly sought to improve markets for low-grade wood and worked to educate loggers in proper forest harvesting techniques. John started work with the St. Regis Paper Co. in northern New Hampshire before beginning his own practice. In 1999, he donated a conservation easement on his 325-acre tree farm to the Society for the Protection of New Hampshire Forests. John and his wife, Helen Livingston, recently moved to Center Lovell, Maine, on the edge of the White Mountains.

## 1953

### CLASS SECRETARY:

**Stanley L. Goodrich**

[smygood@qwest.net](mailto:smygood@qwest.net)

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## 1954

### CLASS SECRETARY:

**Richard A. Chase** [RACHase@aol.com](mailto:RACHase@aol.com)

## 1955

### CLASS SECRETARY:

**Howard A. Spalt**

## 1956

### CLASS SECRETARY:

**Jack A. Rose** [jackrose@iopener.net](mailto:jackrose@iopener.net)

**Patrick Duffy** was on volunteer assignment with the Canadian Executive Service Organization this past





George Furnival, center, J.P. Weyerhaeuser, Jr., Professor Emeritus of Forest Management, with Tim Gregoire, left, J.P. Weyerhaeuser, Jr., Professor of Forest Management, and Harry Valentine

The many contributions of George Furnival, J.P. Weyerhaeuser, Jr., Professor Emeritus of Forest Management, to the field of statistics and forestry drew his friends to a luncheon in his honor on July 1 at the Grand Pacific Hotel in Victoria, B.C. Former students and colleagues reminisced and toasted George, with his wife Gloria by his side. Tim Gregoire '82, Ph.D. '85, J.P. Weyerhaeuser, Jr. Professor of Forest Management, read a letter from Dean Speth that praised George for his nearly 40 years of devoted service to the school and his monumental scientific contributions. He developed the leaps and bounds algorithm for fitting all possible subsets of linear regression models, which has been adopted by all major statistical packages in the world.

Kim Iles presented George with an etching of a totem pole, bearing the inscription: "The totem poles of the Pacific Northwest are meant to recognize and record the lives and contributions of individuals who were important to their tribe. George Furnival, by anyone's reckoning, commands a central position in our vocation, and this chief's pole recognizes the position of George within the biometrics profession."

Catherine Bealle '90, Ian Cameron '85, Anne Camp '90, Bruce Larson '78, Ken Mitchell '64, Ph.D. '67, Harry Valentine '72, Ph.D. '82 attended and shared stories. Unable to attend, Ken Ware '57, Ph.D. '60 nevertheless e-mailed: "Adventures with George," remembrances dating back to 1957 to share with the group. Bill Reifsnnyder, Ph.D. '54, Professor Emeritus of Forest Meteorology, long-time colleague at Yale, told tales of their many years together at Marsh Hall. George contributed the story of how the roll-top desk in his former office was left with the school on condition that it not leave that office.

June to assist the municipality of San Juan, Costa Rica, with an urban forest inventory of its city parks. The fieldwork, done by senior university students, included visits from **Gerardo Budowski, Ph.D. '62**, as the team surveyed Parc Espagne. Duffy and Budowski enjoyed their reunion and visits. One of their visits took place when Budowski hosted the students at the University for Peace; another took place at a reception honoring Budowski (see 1962 notes), where Duffy witnessed the respect and affection extended to Gerardo by his colleagues and the students.

## 1958

### CLASS SECRETARY:

**Ernest A. Kurmes**

[Ernest.Kurmes@nau.edu](mailto:Ernest.Kurmes@nau.edu)

**Herster Barres** has retired from the United Nations while continuing a project authorized by the U.S. and Costa Rican governments to explore the links between U.S. emissions and Costa Rican farms. Of this, he writes: "So I manage a small nonprofit that audits U.S. emissions and designs forests that balance each other. To date we have 200 acres, 40 U.S. participants and eight farmers in the program. We design the forest to be productive for the farmer, friendly for wildlife and with a capacity to process from 10 to 15 tons of carbon dioxide annually in the 25-year contracts (625 tons in total)." The website for this group is [reforestthetropics.org](http://reforestthetropics.org). He lives in Mystic, Conn.

**George Rosentreter** writes from Oxford, Mich., where he is retired with his wife June. He is busy working with hospice, Rotary and a local food pantry, as well as spending time with his three children and 10 grandchildren.

**Bob Barker**, after developing a class on mapping, GIS and remote sensing called "Spatial Information for Resource Management" at the Warnell School of Forest Resources, became the chair of the Athens Community Tree Council, which was established by the county government to make recommendations about urban and rural tree policy. After receiving

three consecutive grants from the Urban and Community Forest Grant Assistance Program through the Forest Service, the group has developed a countywide cover map, which the council will give to various government divisions and private-sector groups. He also enjoys the coffee at his son Bruce's coffee shop in town.

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## 1959

### CLASS SECRETARY:

**Hans Bergey** [hberg16@aol.com](mailto:hberg16@aol.com)

## 1960

### CLASS SECRETARY:

**John G. Hamner** [jgham@bulloch.com](mailto:jgham@bulloch.com)

**Gregory Brown** has been appointed interim dean of the College of Agriculture and Life Sciences at Virginia Tech, where he continues to serve as dean of the College of Natural Resources, a position he has held for a decade.

## 1961

### CLASS SECRETARY:

**Roger W. Graham**

**L. Keville Larson** received the SAF 2003 Presidential Field Forester Award for District X (Gulf States) in recognition of his efforts with private forest management and natural regeneration in the South. He is now chair of the board of the consulting firm Larson & McGowan in Mobile, Ala.

## 1962

### CLASS SECRETARIES:

**James H. Lowe Jr.**

**Larry O. Safford**

[lsaffordnh@earthlink.net](mailto:lsaffordnh@earthlink.net)

**Gerardo Budowski, Ph.D.**, is now professor emeritus of natural resources and sustainable development at the United Nations University for Peace in San Juan, Costa Rica. At the June commencement exercise at the university, President Maurice Strong conferred the title of professor emeritus on Budowski and spoke of his key roles in teaching, research and administration during his 17 years there. Gerardo is also professor emeritus at CATIE, where he served for over 20 years as head of the Department of Natural Resources.

## 1963

### CLASS SECRETARY:

**James R. Boyle** [jim.boyle@orst.edu](mailto:jim.boyle@orst.edu)

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## 1964

### CLASS SECRETARY:

**G. Wade Staniar**

**Ken Mitchell** retired in March as leader of the Stand Modeling Group of the Research Branch, British Columbia Ministry of Forests. His pioneering work in growth and yield modeling started with his doctoral research at Yale and continued while he taught at Yale and the University of Idaho. He returned to the B.C. Research Branch in 1980. His research group in Victoria included several F&ES alumni/ae. He continues on emeritus status and developing the TASSII and TIPSYP models.

Another British Columbia retirement is that of **John Worrall** from the UBC faculty.

## 1965

### CLASS SECRETARY:

**James E. Howard** [jhoward@sfasu.edu](mailto:jhoward@sfasu.edu)

1966

CLASS SECRETARY:

Howard C. Dickinson Jr.

1967

CLASS SECRETARY:

Robert W. Hintze [bclues@aol.com](mailto:bclues@aol.com)

1968

CLASS SECRETARY:

Gerald D. Gagne  
[gerald.gagne@sympatico.ca](mailto:gerald.gagne@sympatico.ca)

**Padraic Joyce** retired from the forestry faculty of the National University of Ireland in 1992 and lives nearby at 29 Linden Grove in Blackrock, County Dublin. He took up that post after seven years of work in the Forest Inventory, Growth and Yield Sections of the Irish Forest Service. From 1949 to 1956 he was in private forestry in Wales. He has remained active in forestry as senior author of two comprehensive accounts of the silviculture and management of the most important tree species used in Irish forestry, *Sitka Spruce in Ireland* and *Growing Broadleaves*. He says the latter was occasioned by an upsurge of interest in the subsidized planting of trees on some of the better soils, to take them out of agriculture. Previously plantings had been limited mostly to poor soils on which only conifers would grow well.

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1969

CLASS SECRETARY:

Davis Cherington

**Harry Haney**, Garland Gray Professor and Extension Specialist in the College of Natural Resources at Virginia Tech, is the recipient of the 2003 Distinguished Service Award of the Virginia Forestry Association (see story on p. 39).

1970

CLASS SECRETARY:

Whitney A. Beals  
[wbeals@neforestry.org](mailto:wbeals@neforestry.org)

1971

CLASS SECRETARY:

Harold T. Nygren [Tnygren@juno.com](mailto:Tnygren@juno.com)

1972

CLASS SECRETARY:

Ruth Hamilton Allen  
[ruth.allen@aeinstitute.com](mailto:ruth.allen@aeinstitute.com)

**Steve Wells** writes: “Hi all! I have begun my fifth career, and am selling open-water rowing shells, coaching and training for races. It’s a glorious life! I get to meet interesting people and row on a variety of lakes, rivers, estuaries, bays and harbors around the Pacific Northwest. Playing with boats is a pretty nice way to spend a day. I invite you to visit [evergreenrowing.com](http://evergreenrowing.com). The other four careers, in order, were: Navy, then academia, then five years at home with my daughters, then working for local and

state government. The last one brought me to Olympia, Wash., where I still live. One daughter lives in France and runs a company offering cooking tours ... that’s a fun visit for me! The other is raising three neat kids in St. Louis. I’m still active with our local land trust and my church stuff. The land trust work has helped me stay in touch with **Dave Miller**, who has been delightful. I hope to hear from others in our class. Thanks to all of you for making the two years after my Vietnam experiences a healing haven for me! I sure have very fond memories of our time in New Haven.”

**Gary Taylor** writes: “Most recent news is that a colleague, Pat Scharlin, and my wife have written a book to be published by Yale University Press in the spring. **Jean Thomson Black ’75** is the editor of the book, *Smart Alliance: How a Global Corporation and Environmental Activists Transformed a Tarnished Brand*. It’s a pretty riveting story of how Chiquita Brands (the former, much-reviled United Fruit) and the upstart Rainforest Alliance found a way to trust each other to certify all of Chiquita’s farms in Latin America. This is a very big deal because it also led to “a ground-breaking labor pact. We’re putting “together a website. Bill Burch helped steer the manuscript through the thickets up there. We live in Manhattan and travel a lot. Seven kids from two previous marriages are busy having children and doin’ their thing.”

**Gary Drobnack** writes: “I lead a small group called Weyerhaeuser Forestlands International. We establish or acquire forest plantations in the Southern Hemisphere. We are also involved in converting the harvested raw material to finished products for sale within the countries in which we are located and to international markets. We are growing radiata pine, loblolly pine, slash pine and eucalyptus. Good growing conditions make these plantations very productive and competitive in global markets. More and more forest plantation wood is reaching the market, so we are involved in a lot of market development programs. Current operations are located in Australia, New Zealand and Uruguay. Markets are in these countries and also in Asia and North America. I am having lots of fun working in several foreign countries and with forestry professionals of other nationalities. I work out of company headquarters in Washington state, but recently returned from assignments living in South Africa (1998) and Australia (1999–2002). Manya, my wife, and I have been married 35 years, and daughters Nina and Campie are also married. I have two grand-kids and hope for more. Manya is having her first art exhibition at a gallery in downtown Seattle. She is an abstract oil painter who loves color. We reside on Mercer Island immediately adjacent to Seattle.”

**Ros Batchelor** lives in York, England, with husband John. She writes: “My career has been mostly in urban regeneration and social housing development. I am working freelance. Our daughter, Charlotte, is in her final year at medical school, and our son, Peter, has just graduated with a degree in business economics/finance. I very much enjoyed attending the reunion in May, together with John and my father, Jack, who was a keen amateur forester, now 89 and living with us. John and I have recently added American contradance to the range of folk dancing we enjoy.”

At the U.S. EPA award ceremony on June 26, **Ruth Allen, Ph.D. ’77**, was honored with three professional awards: a Bronze Award, as co-team leader of the pesticides and schools team “for effective encouragement of school officials across the nation to adopt integrated pest management practices to protect children from unnecessary exposure to pesticides used to control pests in schools”; as an individual for scientific excellence “in recognition of exceptional and outstanding scientific support to the mission of the Office of Pesticide Programs, and of the high regard in which you are held by your co-workers”; and as a team leader for scientific excellence, National Health and Nutrition Examination Survey (NHANES) Analysis Team, a continuous survey of the U.S. population by the National Center for Health Statistics of the Centers for Disease Control and Prevention, “for coordinating NHANES data collection planning, and for incorporating analyses of NHANES dietary consumption information, occupational and residential exposure data, biomonitoring data and human health data into pesticide risk assessments.” She writes: “For the last several years, I have been able to return to Yale several times per year to lecture or attend alumni events, and this has rekindled my fond memories of many of you and our time together at Yale. Professionally, I have been at EPA for 18 years and work in health effects of pesticides with the CDC and NCI, and I am writing a book on global health and the environment. Our twins, Rachel and Rebecca, are in college and live at home in Reston, Va., so I have ‘dorm life’ up close and personal.”

**Helen Kim** writes: “I studied brain microtubule assembly *in vitro* and received a Ph.D. in biophysics at the University of Virginia in 1979. I married a Yale Ph.D. cell biologist, and we both held faculty positions in cell biology at the University of Alabama at Birmingham, School of Medicine, in 1985. After having two daughters (Sabrina, now 23, second-year graduate student in French, and Shannon, now 18, about to go off to her freshman year at Northwestern U.), my ex-husband, Skip Binder, and I split in 1995. I married another scientist, Stephen Barnes, and we are now both in pharmacology at UAB School of Medicine, where he runs the Mass Spectrometry Shared Facility and I run the 2-D Proteomics Laboratory. We also teach medical students and graduate students in the Integrative Biomedical Sciences curriculum. My research has now come back to plants; we are studying the health benefits of fruit and vegetable polyphenols, particularly those in dietary supplements like soy isoflavones and grape seed extract, to ultimately determine mechanisms of action and which components are actually beneficial. This research has led me to places like the Far East, where they have a great interest in this kind of research because their own dietary history is linked with lower cancer and chronic disease rates, yet where the West is introducing dietary elements that may counter centuries of health benefits from their traditional diet. A group of us from UAB and three other U.S. institutions has a grant pending with colleagues at Ross University School of Medicine in Dominica, West Indies, to discover and study medicinal plants in the rain forest.”  
[helenkim@uab.edu](mailto:helenkim@uab.edu)

**1973****CLASS SECRETARY:****Lauren Brown** [leb481@aol.com](mailto:leb481@aol.com)

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**1974****CLASS SECRETARY:****Leonard A. Lankford Jr.**  
[lenlankford@piopc.net](mailto:lenlankford@piopc.net)

**Len Lankford** was featured in *The Pueblo Chieftain* (Colo.) business section (Sunday, July 27), "Timber Tamer: Forestry Manager Sees Potential in Trees Big Loggers Don't Want." In his business, Greenleaf Enterprises, he focuses on sustainable jobs linked to sustainable forest care. *The Chieftain* article highlights his innovative use of small-diameter trees, removed to reduce wildfire risk, and other "junk" wood. He is looking for interns. He writes: "Perhaps the article will strike up some interest among students, graduates or faculty to check out what we are doing here, and to look for new ways to interact with and build community-based forestry. I have had a steady flow of interns in the summers, mostly recruited by my daughter, Angela, who is a graduate student in economics at Williams College. We put students up in our home, and run them through a varied experience of forest inventory, tree marking (on-the-ground silviculture), chainsawing, skidder and dozer operations, log sorting, offbearing in the sawmill, building minicabins, drawknifing poles, planting trees, selling fire hazard mitigation services to small-lot owners, designing products made from small-diameter trees, interacting with business management and personnel, writing proposals and sales brochures and so forth. After 18 months with the Peace Corps in China and following the SARS evacuation, Angela now is back in China on her own becoming more fluent in Chinese and continuing her teaching of environmental education to university students. My oldest daughter, Claire (last name Harper), is now a presidential management intern in Washington, D.C., at the U.S. Forest Service Cooperative State and Private Forestry office. Claire is a recent graduate of Duke with a master of environmental management degree."

**1975****CLASS SECRETARY:****Ann G. Corcoran****1976****CLASS SECRETARY:****Howard F. Corcoran**

**Colin Peterson** continues his work as procurement team leader with International Paper, but has relocated from Georgetown, S.C., to Pensacola, Fla., with the acquisition of Champion International in June of 2000. He writes: "Great team of procurement/land management personnel here in Pensacola and a great place to live. Only downside is that my wife and I are now 700 miles from our four daughters and three grandchildren who still live in South Carolina. There is a local Yale alumni group in the Pensacola-Mobile area, and I have attended one function thus far."

**Harry Haney '69, Ph.D. '75**

Harry Haney '69, Ph.D. '75 is a fourth-generation forest landowner. For more than 28 years, he has been assisting forest landowners in how to manage timber properties to achieve their objectives and how to transfer holdings to their heirs with minimum tax disruptions. He will be president of the Forest Landowners Association until 2005.

Haney is author of four landowner guides on income tax, investment analysis, estate planning and conservation easements, and has conducted more than 500 programs on these topics. He has written over 135 technical publications on forestry and counseled thousands of southern landowners. He runs a highly visible bus tour program, which offers forest owners and members of the public educational tours of several tree-farm tours each fall throughout Virginia. These tours provide up-to-date practices and solutions to contemporary problems, according to Harold Burkhart, head of the Virginia Tech forestry department. "His work experience, educational background, common sense and outgoing personality have enabled him to establish one of the most outstanding forest economics and timberland tax-extension programs in the nation," Burkhart said.

Haney joined the Department of Forestry at Virginia Tech in 1975 after completing his doctorate at Yale. He also received the national Technology Transfer and Extension Award from the Society of American Foresters. "To the extent that I have been successful in forestry and in life," notes Haney; "I give a large part of the credit to my tree farm partner and wife, Jackie."

**1977****CLASS SECRETARY:****James M. Guldin** [jguldin@prodigy.net](mailto:jguldin@prodigy.net)

**Bill Hanson**, after 14 years with the state of Alaska, most recently as the southeast regional supervisor for the Division of Habitat and Restoration, is now branch supervisor in the Juneau field office with the U.S. Fish and Wildlife Service. Of the change, he writes: "This office handles all fish and wildlife monitoring activities for southeast Alaska. Key areas include bald eagles, interstate and international fish species, toxic substances (mining discharges, Superfund cleanups, etc.), invasive species and fish/wildlife monitoring related to the Tongass National Forest." **Kate Troll** recently published a book, *Eco-nomics and Eagles: A People's Guide to Economic Development AND the Environment* (see Bookshelf). She also is fisheries program manager for North and South America with the Marine Stewardship Council. Bill and Kate also report: "Our kids are grown and out of the nest—Erin first to

The 2003 Distinguished Service Award of the Virginia Forestry Association (VFA) was recently awarded to Harry Haney '69, Ph.D. '75, Garland Gray Professor and Extension Specialist in the College of Natural Resources at Virginia Tech.

VFA's Distinguished Service Award was created to recognize individuals, groups, associations or corporations that have made a significant, continuing and lasting contribution to the conservation of Virginia's forest resources and to the enhancement of Virginia's forest-based community. In addition to teaching, research and extension activities, Haney is

a fourth-generation forest landowner. For more than 28 years, he has been assisting forest landowners in how to manage timber properties to achieve their objectives and how to transfer holdings to their heirs with minimum tax disruptions. He will be president of the Forest Landowners Association until 2005.

Haney is author of four landowner guides on income tax, investment analysis, estate planning and conservation easements, and has conducted more than 500 programs on these topics. He has written over 135 technical publications on forestry and counseled thousands of southern landowners. He runs a highly visible bus tour program, which offers forest owners and members of the public educational tours of several tree-farm tours each fall throughout Virginia. These tours provide up-to-date practices and solutions to contemporary problems, according to Harold Burkhart, head of the Virginia Tech forestry department. "His work experience, educational background, common sense and outgoing personality have enabled him to establish one of the most outstanding forest economics and timberland tax-extension programs in the nation," Burkhart said.

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Antioch College and now Beloit College; Rion heading to helicopter pilot training. We continue to write unpublished novels, spend our time outdoors hunting, fishing and kayaking, run our bed and breakfast (Alaska Fjord View B&B) and get mixed up in Alaska issues."

**Jerry Melillo, Ph.D. '77**, just named a trustee of the Heinz Center in Washington, D.C., was designated president-elect of the Ecological Society of America in August. He is in his 20th year with the Marine Biological Laboratory in Woods Hole, Mass., where he serves as co-director.

**1978****CLASS SECRETARIES:****Susan Curnan** [curnan@brandeis.edu](mailto:curnan@brandeis.edu)**L. Marie Magleby** [LoMaMag@aol.com](mailto:LoMaMag@aol.com)**Regina Rochefort**  
[regina\\_rochefort@nps.gov](mailto:regina_rochefort@nps.gov)

**Tom Rumpf** has been elected to the town council in Freeport, Maine.



**Edward Hogan**, a partner with the law firm Norris, McLaughlin & Marcus in Somerville, N.J., has been elected chair of the New Jersey OSHA and Industry Communication Alliance, a collaborative effort of the four OSHA area offices in New Jersey and approximately 15 business and trade associations.

**Luke Umeh** sent his regrets that owing to unforeseen circumstances he would not be able to attend the class reunion.

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## 1979

### CLASS SECRETARY:

**John A. Carey**

[john\\_carey@businessweek.com](mailto:john_carey@businessweek.com)

**Patricia Leavenworth**, Wisconsin state conservationist, reports: “The 2002 Farm Bill has brought new conservation resources and programs. In Wisconsin alone, we have almost \$19 million in financial assistance to help farmers address water quality problems, save farmland from development, restore wetlands, restore critical wildlife habitat, properly manage grazing lands and manage private forestland. On the home front, my family is fine and the kids are growing up. Helen is 14 and Danny is 10.”

**Vijay Verma** recently left his position as vice president and chief information officer at the University of Maryland in College Park to become head of information technology for all 16 public universities in North Carolina. He’s based in Chapel Hill. “The challenges are much bigger than those on a large—but single—campus in the University System of Maryland, but I consider myself fortunate that Yale prepared me well to face them,” he writes. Vijay also reports: “I finally did buy my Hummer H1 that I have been thinking about for a few years. I have named it ‘Shakti,’ which in Hindi means strength.” He’s been taking it off-road, but only under the auspices of the Tread Lightly Program, which restricts off-road travel to designated trails to limit the impact on the environment. “In July we did a four-day Hummer event called Windrock Trails 2003 near Oak Ridge in Tennessee,” he reports. “I have been doing a fair bit of hiking in the Blue Ridge Mountains of Virginia (Shenandoah National Park) and did a nice wilderness trip in Alaska last summer. And I am still doing Holocaust education and often do workshops and presentations for universities, colleges, schools and other public groups.”

**Martha Tableman** has left the Keystone Center, where she organized conferences and facilitated meetings, to “try my hand at facilitating as a solo practitioner” out in Colorado. “The bright spot in all of this is that I have had lots of time to devote to my two children. Mark is 8 and Kate will be 5 in January.” Martha adopted both children from Russia when they were 10 months old. “It has been a learning experience to become a parent, in this case a single parent, and it has its ups and downs,” Martha reports. “The kids love living in the mountains. All of us cross-country ski, sled, bicycle, hike and enjoy the scenery. Mark and Kate have learned how to downhill ski and have left me in the proverbial dust. Mark has also taken up horseback riding. Meanwhile, I too am enjoying mountain living. Quite a change from New Haven or Washington, D.C.”

**Vicki Lafarge** is at Bentley College, chairing the 30-person-plus management department, teaches a course on team effectiveness and does research in the same area. **Christopher Lafarge ’81** runs his own business, starting up businesses, mostly related to computer-assisted technologies in health care. “We get most of our environmental ‘fixes’ on family trips and I did have flashbacks to Terr Eco as we squelched happily through the rain forest in Costa Rica last summer.”

**Andy Howard** exchanged academic life at the University of British Columbia for work at KPMG six years ago. “We have a small forestry group in Vancouver involved in forest certification audits,” he explains. “I do some audit work, but spend most of my time on special forestry projects generally involving some sort of financial analysis. About one-third of my projects are international, mostly in Latin America.” Andy adds: “I still live in Campbell River on Vancouver Island with my wife and two daughters, 13 and 16. Recently I visited a couple of other F&ES grads, **Kirt Barker ’83** in Panama and **Don Dennis ’82, Ph.D. ’88**, in New Hampshire.”

**Betsy Rich** is close to finishing her forest ecology Ph.D. at Drexel University in Philadelphia. “I really hope to be done in December,” she says. “I’m just getting ready to send my first chapter to my committee. In the meantime, I’ve taught at Drexel University and hope to teach there some more as an adjunct.” On the home front, her eldest son, Andrew, graduated from Williams College this year and hopes to go to medical school in a year. A second son, Spencer, is in his junior year at Pomona College in California and is into climbing. Erin is 17 and in her junior year at a boarding school in New Hampshire, where she does lots of skiing.”

**Patty Friedman Levin** is living in the Washington, D.C., area. “I am immersed in the volunteer life of a parent with school-age kids,” she reports. “I have worked a lot on bringing service learning and character education—as well as artists in residence—to the public schools.” Patty’s husband, Blair Levin, joined Legg Mason as a financial analyst after his stint at the Federal Communications Commission. Their three children are now 17, 15 and 9 years old.

**Chris Brown** continues to work in the Rivers and Trails Program of the National Park Service in Washington, D.C. “Lately I’ve been working with seven other federal agencies helping to put together a major conference called ‘Joint Ventures: Partners in Stewardship’ in November in Los Angeles. Beyond that, I’ve been very interested in dam decommissioning (some 500 dams have now come down across the country), although it is not widely supported in the Bush administration. I’ve also, through a staff person, been minimally involved in the Lewis and Clark Bicentennial.”

**Daniel H. Pletscher, Ph.D. ’82**, reports: “I am still director of the Wildlife Biology Program at the University of Montana and was recently appointed chair of the new Department of Ecosystem and Conservation Sciences. Travel is still part of what I do, with graduate students in Mongolia (work on argali) and Italy (work on wolves).”

**John Carey** continues to write for *BusinessWeek* from the magazine’s Washington, D.C., bureau. This

year he’s written cover stories on how to reduce U.S. dependence on oil and on the new high-tech digital warfare. The story that was the most fun to write, however, was a guide to bicycle commuting. He adds that life has been more challenging since losing his wife, Agnes Loo, to cancer in May 2002.

**Deane Wang** writes: “Life in Vermont is not as quiet as it should be in this beautiful corner of the world. Yalies abound in the School of Natural Resources at the University of Vermont, with **Larry Forcier ’68, Ph.D. ’73**, **Austin Troy ’95**, **Bill Keeton ’94**, **Salem Ali ’96** and myself on the faculty. Breck Bowden, a former Greeley-era postdoc, is also here as an endowed chair. I’ve also taken on **Bryan Foster ’96** as a Ph.D. student. Just ran into **Dan Pletscher, Ph.D. ’82**, now chair of wildlife at Montana, while he was here at the national Wildlife Society meetings. I’ve been an empty nester for a year, with Carrie graduated from Cornell and working in Alaska, and Diane a sophomore at the University of Chicago. I continue to be the associate dean here at the School of Natural Resources . . . and wonder why.”

**Carol Zimmerman** reports: “I continue to work for Battelle in transportation systems, where I lead our practice in intelligent transportation systems. I was promoted to vice president in 1999. My time is split about 50/50 doing technical work (working on interesting projects, mostly for U.S. DOT) and marketing. I split my weeks between my D.C. office and my home office in New Jersey, which is in my house in Princeton. That arrangement has enabled me to avoid uprooting my family. Of course, my family at home consists of my husband, John, and black Lab, Jodi, as my son, Sam, moved to New York City several years ago. Although my transportation work has tended to move me away from the issues of the environment and natural resources, I’ve been fortunate to have an opportunity to deal with those areas lately. I led a project evaluating intelligent transportation systems at Acadia National Park. There I had the good luck to run into alum **Kent Olson ’80**, who heads the Friends of Acadia. I also crossed paths with another Yalie, **Gary Machlis, Ph.D. ’79**, who has served as the Park Service’s chief social scientist for many years. The Acadia project led to my chairing a task force of the Transportation Research Board on ‘The Transportation Needs of National Parks and Public Lands,’ which in turn led to my serving on the program committee for Partnership in Stewardship, a major conference scheduled for November and sponsored by federal public land agencies (NPS, FS, F&WS, Army Corps, BLM, BIA, Bureau of Reclamation). All of this has been an inter-esting twist to my career, although it is still only a minor area of focus for me in my job. Another alum I’ve seen recently is **Fran Rundlett ’80**, who lives in Atlanta.”

## 1980

### CLASS SECRETARY:

**Sara B. Schreiner-Kendall**

[sara.kendall@weyerhaeuser.com](mailto:sara.kendall@weyerhaeuser.com)

**Janet Hess**, a producer of nature programs for PBS, was recently involved as a writer in the making of a feature film, “Pale Male,” about New York City’s most urbanized red-tailed hawk, directed by Frederic Lilien (from *The New York Times* article, June 24, 2003).

1981

**CLASS SECRETARY:**

**Carol E. Youell** envstew@snet.net

**Ann Hooker Clarke, D.F.E.S. '92**, was traveling in Japan early in the summer and reported visiting a shrine in Goeido, the largest wooden structure in the world. She also chaired Earth Day at NASA this year (see photo on F&ES website).

**Matthew Kelty, Ph.D. '84**, is now head of the Department of Forest & Wildlife Management at the University of Massachusetts, where he has been teaching silviculture and forest ecology for some years.

1982

**CLASS SECRETARIES:**

**Barbara Jean Hansen**

**Kenneth D. Osborn**  
forstman@fidalgo.net

**Nathaniel Whitcombe** has a general law practice in Danbury, Conn.

**Ken Osborn** does a lot of traveling, while managing extensive forests for a group of German owners in Washington state, where he lives, and in New Zealand.

1983

**CLASS SECRETARY:**

**Stephen P. Broker** lkbroker@snet.net

**Kenny Dobos** writes: "I so much enjoyed my time at Yale and have always regarded it as a special privilege. Although my path has taken me away from much to do with our environmental concerns in a professional sense, I am still keenly aware of the importance of the mission most of the class has taken upon themselves."

**Dave Reeves** writes: "My wife, Jill, and I live in a rural setting, amazingly just 40 minutes northwest of Washington, D.C., at the base of Sugarloaf Mountain in Comus, Md. We have twins, Gordon and Joy, who are 3, bundles of energy and curiosity and already budding environmentalists who love to hike and bird-watch. For 20 years I have been devoted to environmental management and conservation-related work. After graduating, I spent two years with an environmental consulting firm, followed by almost seven years at the U.S. EPA headquarters in D.C., writing hazardous waste regulations and policy. For the past 10 years now I have thoroughly enjoyed my role as founding president of Envirinspect, a firm providing environmental health and safety consulting services to private-sector companies throughout the eastern United States, primarily in the areas of EPA and OSHA compliance, but also including environmental engineering, occupational health and safety testing and industrial hygiene. In addition, I have a Web-based business on the side, OSHASafetyOnline (www.OSHASafetyOnline.com), offering professionally prewritten OSHA and EPA compliance plans. About a year ago I also started a nonprofit environmental organization called Eco-Spirit (www.Eco-Spirit.org). Eco-Spirit explores and advocates our moral, ethical and spiritual obligations to live sustainably and in harmony with the Earth, and provides guidance to that end."

**Steve Blackmer** receives award for championing Northern Forest (see story on next page).

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1984

**CLASS SECRETARIES:**

**Therese Feng**  
therese\_feng@yahoo.com

**Roberta Tabell Jordan**  
rjordan@clinic.net

**Nora Devoe** has taken a position with the Bureau of Land Management, coordinating research and action programs aimed at restoring more natural vegetation on degraded rangelands in the Great Basin. She is stationed at the Department of Environmental & Natural Resource Sciences of the University of Nevada at Reno. Her teaching and research at the University of Canterbury in Christchurch, New Zealand, had been related to the silviculture of natural forests in New Zealand and the Southwest Pacific.

**Jennifer Mattei** writes: "I'm currently chair of the Biology Department at Sacred Heart University in Fairfield, Conn. After working for the past 10 years on forest restoration above one of the largest landfills in the world (Fresh Kills, Staten Island), I've decided to work in a much more pleasant environment on the sandy beaches of Long Island Sound. My current research on the population ecology of the horseshoe crab has provided me with many new collaborators, including members of the Connecticut Audubon Coastal Center and the Maritime Aquarium in Norwalk. Next year, I will be on sabbatical and have been invited to visit the University of Hong Kong in a collaborative research effort concerning the Asian species of horseshoe crabs. I will undoubtedly take along my children as research assistants: Larissa, 14, Sandy, 11, and James, 6."

**Steve Winnett** writes: "I've been living in Concord, N.H., for the past six years. My wife and I moved here from D.C. when she got a great job at New Hampshire Public Radio. I had been doing forests and climate change work at EPA in D.C., and I now commute to EPA's regional office in Boston to try to clean up Connecticut's polluted rivers and lakes. We have a wonderful and challenging 3-year-old son, and watching him grow and develop is the coolest thing I have ever been a part of. We love New Hampshire and all the outdoor pursuits it allows within a short bike or drive (I took up speed skating this winter), and I'm still rowing."

From **Cara Lee**: "After many years on the Hudson River beat, I have gone terrestrial and am working for The Nature Conservancy, managing one of their landscape projects. My good fortune is that the landscape happens to be the view from my window, as I am charged with cooking up schemes for protecting the Shawangunks. Steve and I now live in New Paltz with Alice, 13, and Margaret, 9."

**Shere Abbott** writes: "We're back in D.C. with **Leah Haygood** and a few other '84 holdouts. Reconstructing our house drove me away from home consulting and I've just signed on with the American Association for the Advancement of Science to run its international office and a new center on science and technology for sustainable development."

1985

**CLASS SECRETARIES:**

**Alexander R. Brash**  
alex.brash@parks.nyc.gov

**Margaret Rasmussen King**  
theskings@attbi.com

1986

**CLASS SECRETARY:**

**Caroline Norden**  
cnorden@maine.rr.com

1987

**CLASS SECRETARIES:**

**Christie Coon** cacoon7@aol.com

**Melissa Paly** mpaly@aol.com

**Joel Seton** writes: "I recently moved back to San Francisco after eight years in Minnesota, where I grew accustomed to four seasons. Fall is my favorite. I am working for the Resource Renewal Institute on a project to improve the health of the environment. Thinking of going to U.C. Berkeley for a doctorate. I like backpacking in the mountains, bike commuting, swimming, dancing, church community events, etc."

**Josh Royte** reports: "I split my work time as a conservation planner between the Maine chapter of The Nature Conservancy and Northern Forest projects outside of Maine. Maine projects include planning and inventory on the Maine chapter's recent 241,000-acre Katahdin Forest Project. This project was negotiated by other Maine chapter Yalies **Tom Rumpf '78** and **Kent Wommack '82**, and combines preservation of a core wilderness area within a sustainably managed forest easement, the largest of its kind to date in the Conservancy's work. I'm also working with a team of USFS, UVM and TNC staff from other local and regional offices to identify the highest-priority areas for conservation in the Green Mountain National Forest. And on the fun side of things, Leigh and I are getting out on day hikes in the White Mountains, playing on lakes in our new kayak, visiting friends and trying to visit family mostly in places with clean water and mountains."

**Tony Hainault** writes: "I left Minnesota's Office of Environmental Assistance in 2002 after 12 years. I'd become somewhat of a national expert on electronics recycling and disposal issues and was recruited to the dark side—I joined an electronics recycling company, Nxtcycle. I am enjoying learning a business perspective. While at OEA I authored a report based on a study we'd done, available at www.moea.state.mn.us/plugin/report.cfm. In my free time I garden on half an acre, play with flat-coated retrievers and am working to elect a new city council member from my 5th Ward in St. Paul, Minn. I'm also on the board of the North American Hazardous Materials Management Association. I can be reached at ahainault@aol.com."

**Enrique Serrano** writes: "Recently, I was appointed vice president for research and graduate studies at Chapingo University, where I had a chair as professor 22 years ago in the forest sciences division. I am really enjoying this new position and I would like to stay in touch with all."

**Greg Waldrip** writes: "I've been living in northern Virginia for 16 years now. I live in an exurb west of Dulles Airport. My wife, Christine, and I have two boys, Gregory, 9, and Andrew, 7. Chris works for the American College of Radiology as a manager in the Mammography Department, handling internal quality and complaints from the public and being a liaison with the FDA. My two boys play soccer and basketball. I have coached soccer for both of them for their entire careers. I have worked at the National Institute of Standards and Technology for seven years. I work for a program that provides consulting services to small- and medium-sized manufacturers. What is exciting is the development of a joint program with the U.S. EPA called Green Suppliers Network. We are enlisting large companies to influence their suppliers to undertake a lean/clean review, which looks at a company's productivity and environmental performance in tandem. Our goal is to enlist 50 large companies to the program. With that many signed up, we envision getting upwards of 500 reviews a year."

**Chris DeForest** writes: "**Caroline Woodwell '86** and I married in 2001 and had a baby boy, John Elliott DeForest, on March 7. Though we live in Spokane, we've had fun seeing old friends on trips East, including **Libby Moore, Melissa Paly** and **Annette Naegel** in Maine."

**Whendee Silver, Ph.D. '92**, writes: "Steve, Josh, 3, and I still enjoy Berkeley. This year I started research here in California in addition to my tropical work, which keeps me on the continent more of the time. I attended the 35-year party for Tom Siccama in New Haven early this summer. Within an hour he had me going through my old samples, hoping I would let him throw them out. It was great to see old friends at the celebration and to reminisce about life at F&ES. Before leaving for New Haven I met with several of Tom's old buddies who moved west of the Hudson to U.C. Berkeley: **John Battles, Jennifer Pett-Ridge '96, Ann Brower '99, Jennifer Wells '01, Sasha Gennet '97** and **Laurie Koteen '98**."

As for **Christie Coon**, "After completing a final four-month soils course this spring, I became a professional soil scientist. Hopefully this new status—delineating wetlands—will enhance my environmental consulting."

## 1988

### CLASS SECRETARIES:

**Diane Stark (formerly Pierce)**  
dstark@bart.gov

**Phillip H. Voorhees III**  
pvoorhees@npc.org

**Debbie North** has moved on from the San Joaquin River Parkway to do independent freelance contract work for land conservation efforts in the Sacramento region of California.

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## 1989

### CLASS SECRETARIES:

**Susan M. Campbell**  
susan.Campbell@attbi.com

**Jane Hoyt Freeman** isweb@idiom.com



Stephen Blackmer '83, president and founder of the Northern Forest Center

the International Paper Company Foundation.

"No one can do this alone," Blackmer said. "Fifteen years ago, no one had heard of the Northern Forest. Now we're recognized as a region with a common ecology, culture and history. The people here have been very successful at working with conservation groups to protect important areas and to make sure that development won't destroy huge tracts of productive forest. That is a critical first step, and it's ongoing. Now my work and that of the Northern Forest Center is focused on generating the same energy for preserving the region's heritage and culture, and for helping communities and businesses build a strong future for themselves while still being stewards of the forest."

The majority of the Northern Forest is privately owned. The mostly undeveloped forest is of immense ecological importance for water and air filtration and as the headwaters of all the major rivers in the Northeast. Its forests, rivers and mountains provide extensive wildlife habitat, as well as recreational opportunities for residents and visitors. The region is also home to over one million people and a forest-based economy. In 1990, Blackmer brought together conservation, forestry and outdoor recreation interests to form the Northern Forest Alliance, to conserve the Northern Forest, encourage sustainable forestry and build a strong and diversified economy in the region. Seven years later, he founded the Northern Forest Center to encourage greater synergy between long-term conservation goals and sustainable economic objectives.

The need for a land conservation strategy in the Northern Forest became apparent in the late 1980s when high land values and a changing economy caused industrial timberland owners to consider selling property that had been managed for timber for hundreds of years. Since then, millions of acres of forestland have been sold; some have stayed in forestry, some have been sold to investors and developers, and more than 2.5 million acres have been conserved through purchases and conservation easements.

## 1990

### CLASS SECRETARY:

**Carolyn Anne Pilling**

**Dan Zarin** writes: "I was recently awarded tenure at the University of Florida, where I've been associate professor of tropical forestry in the School of Forest Resources and Conservation for the past three years. From 1995-2000, I was assistant professor of forest ecology at the University of New Hampshire. At U.E., I teach classroom and field courses in tropical forestry. My current research program focuses on the ecology of re-growth forests in the Brazilian Amazon. Research collaborators include **Mark Ducey '92** and **Miguel Pinedo-Vasquez, D.F.E.S. '96**. I'm also principal investigator and director of the working

forests in the tropics program at U.F., an interdisciplinary initiative supported by a five-year grant from the National Science Foundation (see our website—[www.tropicalforests.ufl.edu](http://www.tropicalforests.ufl.edu)—or the *Journal of Forestry*, September 2003, for details). **Kelly Keefe '97** is one of my doctoral students and was among the first round of seven fellowship recipients funded by this grant. F&ES alums working with the Latin American institutions that participate in the program include **Paulo Barreto '97** (*Instituto do Homem e Meio Ambiente da Amazonia*—IMAZON) and **Dan Nepstad, Ph.D. '89**, (*Instituto de Pesquisa Ambiental da Amazonia*—IPAM). My wife, Ruteleia, and I have two children, Raquel, 15, and Carlos, 3."



## 1991

### CLASS SECRETARIES:

**Dorothy Beardsley**

**Kristin Ramstad**

kramstad@odf.state.or.us

**Susan Brodie** writes: "We're leaving for Chicago. Please use the following e-mail address for me: susan.brodie@aya.yale.edu."

## 1992

### CLASS SECRETARY:

**Katherine Kearse (Farhadian)**

farhadian@aya.yale.edu

**Rosalyn Johnson** was promoted to senior reviewer/regional Endangered Species Act coordinator at the U.S. EPA Region Five office, where she reviews major U.S. Forest Service and Army Corps of Engineers projects in the form of environmental impact statements, commenting on them for EPA. Also, she coordinates compliance efforts for regional waste, water, air and other programs. Outside the office she is actively pursuing her biological/wildlife interests by studying and learning to identify solitary bees, breeding tropical fish and learning to photograph microorganisms. After her promotion was official she celebrated with an eight-day, Outward Bound sea kayaking challenge course in the Bahamas. As of November 2000, she has settled once again in her hometown, Evanston, Ill. Rosalyn can be reached by e-mail at Cellastrina@yahoo.com.

## 1993

### CLASS SECRETARIES:

**Dean Gibson** deang@acpub.duke.edu

**Molly G. Goodyear**

mandm4@mindspring.com

**Heather L. Merbs** hmerbs@aol.com

**Porchiung Benjamin Chou** writes: "I defended my dissertation in March and officially got my Ph.D. in economics from the George Washington University last May. I thank all my friends who helped me when I was a master's student at F&ES and with the completion of my Ph.D. dissertation."

**Josh Foster** works as a senior program development specialist for the Office of Global Programs of the NOAA.

**Katie Frohardt** writes: "After six enjoyable years with the African Wildlife Foundation, I will join Fauna and Flora International as its executive director in the United States. I will continue to be based in D.C." katiefrohardt@yahoo.com.

Professor Bill Burch visited Nepal last May to carry out an evaluation of a USAID-funded project in enterprise-based biodiversity conservation at the invitation of **Bhishma Subedi**, head of the Asia Network for Sustainable Agriculture and Bioresources in Kathmandu. Following a presentation on the results of that evaluation to the USAID staff, **Donna Stauffer '94**, who oversaw the USAID office in Nepal responsible for environment and agriculture projects, hosted a luncheon of F&ES alumni. **Keshav Man Bajracharya '71**, president of the Nepal Foresters Association, was in attendance. **Brian Peniston '92**, regional director of the Mountain Institute based in Kathmandu, was unable to attend. The group enjoyed

a lively discussion of community-based forestry in Nepal and the experiments in sustainable harvesting of nontimber forest products that, it is hoped, will preserve Nepal's unique endowment of medicinal and other plants.

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## 1994

### CLASS SECRETARIES:

**Jane L. Calvin** Calvin3621@aol.com

**Jane M. Whitehill**

janewhitehill@hotmail.com

**Cynthia S. Wood**

**Binney Girdler** writes: "I'm starting my third year as assistant professor of biology at Kalamazoo College in Michigan. My partner, Tim, and I have a 4-year-old named Otto, and our second is due next March."

**Jennifer (O'Hara) Palmiotto** writes: "Peter and I are proud parents of Trevor Vincenzo Palmiotto, born June 20."

**Beth Conover** and **Ken Snyder** write: "We are still in Denver with two boys, Ross and Jeremy, ages 5 and 7. I am a policy aide to Denver's Mayor John Hickenlooper, focusing on parks, public works and planning issues. Ken started a national nonprofit about 18 months ago, PlaceMatters.com, to help communities understand and access a variety of technological tools for community planning and decision making. He has startup funding from the Surdna Foundation."

**Nicky Robins** writes: "I have closed my environmental consulting business and sold my house in Cape Town. This came after three difficult years and numerous experiences that Western psychiatrists tend to label and treat as 'psychotic.' Fortunately, African healers have for millennia distinguished between psychosis and the altered state of mind associated with calling of spirits. In following this calling, I went to Botswana to be trained in divination and the ritual and medicinal use of traditional plants. Although my primary objective was to get well (I did), I discovered that this 'cure' resulted in a connection with nature that was barely imaginable within my Western framework. I am now exploring how this traditional wisdom can be applied to address the challenges we face today."

**Richard Haley** is the director of centers and education for Audubon New York, overseeing the development and operations of nature centers across New York state. He and his wife, Eileen, are living in Pittsfield, Mass. He is finishing his term as president of the New England Environmental Education Alliance, and has finished eight years on the board of the Association of Nature Center Administrators. He is joining the board of Keeping Track. In his spare time he is experiencing the challenges of homeownership and is watching bears around the neighborhood. New e-mail: haleysfielding@earthlink.net.

**Holly Ferrette** writes: "I am still a Foreign Service environment officer with the U.S. Agency for International Development. In this capacity, my husband, Fernando Gonzalez, and I were in Indonesia for four years and we are now finishing up our third year in Cairo, Egypt. We travel each year back to the States and Costa Rica to see family and friends and have been fortunate to have some visitors out to see us

as well. Our daughter, Dharma, is now 3 years old and into all things 'princess.' I attended the IUCN World Parks Congress. My e-mail address is hferrette@usaid.gov.

**John Ma** is a licensed professional engineer in Texas, doing building design and construction business in Dallas for himself. He also has an import and export firm in Dallas and a small firm in Shanghai, China, doing computer and international trading consulting. E-mail: johnma2@yahoo.com.

**Tad Galion** writes: "I'm a senior environmental policy analyst with the White House Office of Management and Budget. I work closely with the EPA on Superfund policy, management, budget and legislative issues. I live in Bethesda, Md., with my wife, Kristen, daughter Emma and dog Kehoe (whom you may remember from F&ES as a puppy). We are expecting another child in the spring. I have become a passionate amateur astronomer since my New Haven days and enjoy spending clear nights under the Milky Way wondering how life could be any better."

**Carolyn Mayer** writes: "I have been living in Seattle for six years and met Paul Hope after a year here. We bought a house in Seattle a year and a half ago. He and I are getting hitched on Sept. 13 in Leavenworth, Wash., in the mountains where we spend most of our time mountain biking, snowboarding and hiking. **Jessica Eskow, Harriet Honigfeld** and her new husband, Ross Wiener, will be attending from F&ES. Since I moved here, I have been an environmental regulatory affairs manager for Philip Services Corp., a hazardous waste management company, among other things."

**Tom Kalinsky '93** and **Nick Shufro** have teamed up at The PricewaterhouseCoopers LLP Sustainable Business Solutions advisory practice to provide services related to sustainability report design and verification, climate change, sustainability management systems reviews and financial accounting and internal controls assessments surrounding environmental issues in financial reporting. The practice works with multinational corporations, government agencies and nongovernmental organizations headquartered in the U.S. that understand that sustainability can be important to an organization's success. New e-mail: nshufro@att.net.

**Beth Conover** writes: "As of late July, I am putting Headwaters Consulting to sleep for the time being to serve as policy aide to Denver Mayor Hickenlooper for Parks & Recreation, Public Works and Community Planning. My new e-mail address is beth.conover@ci.denver.co.us.

**Donna Stauffer** finished working for USAID in Kathmandu, Nepal, as the director of the General Development Office on projects in diverse fields, including community-based forest conservation and water management. Her work kept her in contact with other F&ESers, including **Bhishma Subedi '93** and Steve Kellert. She has now left Nepal and is in Portuguese language training in preparation for a new assignment as USAID deputy country director for Mozambique.

**Andrew Beckerman** lives in Scotland where he recently finished a three-year postdoc at the University of Stirling and started a three-year NERC (NSF equivalent) fellowship. He was married in August 2001 to Sophie Glyn-Jones of Hereford, England, on her family's organic dairy farm. A variety

of F&ES affiliates showed their faces for the BBQ and barn dance including **Mark Bryer**, **John Tuxill**, **Julie Velazquez-Runk '02**, **Andy Kulmatiski '99**, **Karen Beard '96, Ph.D. '01**, Peter Hamback, Os Schmitz and Sarah Bradley. He and Sophie live in a picturesque small city, called Dunblane, and are slowly refurbishing a 250-year-old stone cottage two doors from the local pub.

**Mark Bryer** writes: "See Ethan, Arlo and Pearce on the F&ES alumni affairs website. Pearce was born on Jan. 28."

## 1995

### CLASS SECRETARIES:

**Marie J. Gunning** [mjgunning@aol.com](mailto:mjgunning@aol.com)  
**Ciara M. O'Connell**  
[ciaramoconnell@aol.com](mailto:ciaramoconnell@aol.com)

**Maria Uriarte** and Gustavo Azenha were married in a beautiful lakeside ceremony in the Finger Lakes region of New York this summer. Maria, who completed her doctorate in plant ecology at Cornell in 2001, is completing a postdoc at the Institute of Ecosystem Studies in N.Y. Her work focuses on understanding the role that neighborhood interactions play in the assembly and composition of natural plant communities. Her current research includes the modeling of the long-term dynamics of tropical forests.

After graduating from F&ES, **Zoe Rappaport** worked on wildlife and companion animal protection for People for the Ethical Treatment of Animals (PETA), a vegan-animal rights organization, including two years improving shelters in Puerto Rico. She recently moved to Santa Cruz, Calif., to work with WildCoast, an international conservation team that builds grassroots efforts in Baja, Calif., and Mexico to protect sea turtles and imperiled coastal areas ([wildcoast.net](http://wildcoast.net)).

**Sarah Cole McDaniel** writes: "I changed my name with my recent marriage. I finally graduated from Harvard Law School this winter after having taken some time off midstudies to have a baby. My beautiful daughter, Rosalie, just turned 2. We all moved back to Maine this past winter where I have a job at a Portland law firm, Murray, Plumb & Murray ([www.mpmlaw.com](http://www.mpmlaw.com)), doing quite a bit of land use work. Rosalie's dad and I bought a house here in Gorham and were married this spring in Gloucester, Mass., where we first met—he's an offshore commercial fisherman. Former F&ES classmate **Ragnhildur Sigurdardottir, Ph.D. '00**, was a huge help with all the last-minute wedding details. I sat for the Maine bar exam this July and at this writing am anxiously awaiting the results. I can be reached at [smcdaniel@mpmlaw.com](mailto:smcdaniel@mpmlaw.com)."

## 1996

### CLASS SECRETARIES:

**Kathryn A. Pipkin** [kate@goodisp.com](mailto:kate@goodisp.com)  
**Julie A. Rothrock**  
[julie.rothrock@amec.com](mailto:julie.rothrock@amec.com)

**Mike Toffel** writes: "Elijah Cope Toffel was born on Aug. 8. Elijah has already taught us that days really do last 24 hours." See photo on F&ES website.

**Thomas Pokalski** writes that he is divorced and has taken a new job with the U.S. Fish and Wildlife Service as the assistant refuge manager in Imperial Beach, Calif.

**Michael O'Malley** is settling into a new house in Newburyport, Mass., where he works in public affairs for the EMC Corp.

**Alison Barlow** writes from the Boston area, where she lives with her husband, Jack, and daughter, Katherine Ann, born Dec. 9. "I'm taking a break from environmental consulting to spend time with her—what fun!"

**Duncan Schmitt** is working with the land acquisition group at NYC DEP and living in Woodstock, N.Y., with Alice, Matthew, 4, and Gregory, 2.

**Robin Sears** has been working with the New York Botanical Garden and recently received her Ph.D. from Columbia University.

**Marcia Tobin** writes: "Life in San Francisco continues to be fun—I'm working for EDAW, an environmental planning and design firm, where I focus on water resources. I've been lucky to have had many visitors passing through, including **Antoinette Wannebo**, who was here for work on her dissertation, and am looking forward to Miss Jen's (**Jennifer Thorne**) wedding this fall in Baltimore. Also, I congratulate "Doctor" **Robin Sears** on finishing her Ph.D. at Columbia in the spring!"

## 1997

### CLASS SECRETARY:

**Paul A. Calzada** [pcalz@metro2000.net](mailto:pcalz@metro2000.net)

**Claire Corcoran** and husband Will Murphy had a baby, Sylvia Ray, on March 2, 2002. Claire is an ecologist for the Massachusetts Natural Heritage and Endangered Species Program, where she works for **Henry Woolsey '81**.

**Karen Westley** writes: "I joined CARE International after graduation and stayed with them for four years—working in Benin, Ghana and Togo, and then based in London, covering over 20 countries. I was a program advisor and specialized in needs assessment, project design, monitoring and evaluation. A couple of years ago I was recruited by Shell to work as part of a small team to set up a new foundation funded by the company. I am program manager on household energy issues in developing countries."

**Jonathan Baillie** has returned from Central Africa and is working for the Zoological Society of London, while maintaining a home base in Toronto. He is writing several papers on general trends in biodiversity and a few on gorillas.

**Madeline Kass** has accepted a faculty position at Thomas Jefferson School of Law in San Diego and will be teaching environmental law.

**Jeff Stewart** is involved in a water initiative, heading the effort to model a managed water system.

**Josh Reid** writes: "I practice environmental law in Las Vegas with Lionel Sawyer & Collins. I am now married to Tamsen Burk with one son, Liam, and one on the way. I am a member of several boards, including the Clark County Environmentally Sensitive Lands Committee, which is developing a master plan for sensitive lands within the county."

## 1998

### CLASS SECRETARIES:

**Nadine Block**  
[nadineblock@alumni.williams.edu](mailto:nadineblock@alumni.williams.edu)  
**Claire Corcoran**  
[corcoran\\_claire@hotmail.com](mailto:corcoran_claire@hotmail.com)

**Andrew Richardson** and **Ellen Denny '97** were married on Sept. 13.

**Brian Rod** writes: "I'm living in New Mexico again. I've recently started a new consulting business, Land Conservation Consulting Services, to help land trusts and public agencies involved with land conservation. Actually, I've been working recently with another Yalie, **Paul Ringgold '97**, at Peninsula Open Space Trust in California. I've been learning about marketing and Web pages; if you're curious it's [www.conservationconsulting.net](http://www.conservationconsulting.net)."

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## 1999

### CLASS SECRETARIES:

**Jocelyn Forbush** [jforbush@ttor.org](mailto:jforbush@ttor.org)  
**Jennifer Garrison**  
[jennifermgarrison@yahoo.com](mailto:jennifermgarrison@yahoo.com)  
**Christiana Soares**  
[christiana@aya.yale.edu](mailto:christiana@aya.yale.edu)

**Timo Fritzing** is a financial analyst with Hancock Timber in Boston. He married Cai Cai Needham in September 2002, with **Joe Taggart '98** as best man.

**Jamie Shambaugh** is an evaluation specialist with the Peace Corps in its program learning unit. He is based in Washington, D.C.

**Brian O'Malley** has been in Washington, D.C., for a couple of years, first working as a director of operations and public relations, and now as an independent public relations and marketing consultant.

"**Mike**" **Gang Zong** is working for the Chinese Education Association for International Exchange, preparing for upcoming international academic forums being held in Beijing.

**Nicole Smith** writes: "On Aug. 10 I got married to Samuel Chevalier. We went to Montreal for our honeymoon. Most of it was spent in a cottage on a lake in the town Mont Tremblant about an hour north of Montreal, but we did get into Montreal to do some sightseeing."

## 2000

### CLASS SECRETARIES:

**Erika Schaub**  
[eschaub@geog.umd.edu](mailto:eschaub@geog.umd.edu)  
**Zikun Yu** [yuzikun2001@yahoo.com](mailto:yuzikun2001@yahoo.com)

**Charles (Chi-Hung) Liao** and **Ann (Huei-An) Chu** write that they are still at the University of North Carolina at Chapel Hill. Charles passed his Ph.D. qualifying exam in the Department of Economics in January 2002. Anne passed her Ph.D. qualifying exam in the Department of Environmental Engineering (School of Public Health) in November 2002.

**Shannon Heyck-Williams** is living outside D.C. with her husband, Jeff, who teaches at a school for learning-disabled children. She is working for U.S. Sen. Jim Jeffords of the Environment and Public Works Committee on issues of air quality and climate change.

## 2001

### CLASS SECRETARIES:

**Leigh Cash** [leighcash@aya.yale.edu](mailto:leighcash@aya.yale.edu)

**Adam Chambers**

[sebastianchambers@hotmail.com](mailto:sebastianchambers@hotmail.com)

**Jennifer Grimm**

[jwgrimm@earthlink.net](mailto:jwgrimm@earthlink.net)

**Jesse Johnson** is preparing for the autumn launch—in a New York City showroom—of his Q Collection (Q stands for *Quercus*), an environmentally friendly line of furniture and textiles. Each piece is designed with organic fabric and wood from replanted forests, and manufactured in a factory where “the water leaves cleaner than when it entered.” Learn more at [www.qcollection.com](http://www.qcollection.com).

**Tracy Scheffler** is a recovery biologist at the U.S. Fish and Wildlife Service in its regional office covering Texas, Arizona, New Mexico and Oklahoma.

**Marcela Bocchetto** writes: “After almost three years in the United States, I have returned to Chile to take a position at the Food and Agriculture Organization of the U.N. regional office for Latin America and the Caribbean, based in Santiago, providing support to FAO members in the analysis and formulation of policies, strategies and programs for sustainable food security, agricultural and rural development, with an emphasis on natural resources management. [marcela.bocchetto@fao.org](mailto:marcela.bocchetto@fao.org)

**William Shipp** writes from Sacramento, Calif., where he is now working for the U.S. Bureau of Reclamation, dealing with water issues.

**Matt Hollamby** is leaving his current job with U.S. PIRG to work for the Wyss Foundation as the National Landscape Conservation System program manager.

**James Woodworth** has been working on the development of a community forestry program in D.C. with **Heather Langford** and Colleen Murphy-Dunning, director of the Urban Resources Initiative at F&ES. During the summer he started work at the Natural Resources Defense Council with Casey Trees and **Jim Lyons** ’79 on a project concerning the future of D.C. street trees.

**Aarti Gupta** is moving with her husband, Frank, from Berlin to Amsterdam, where she will be using the MacArthur Foundation research and writing grant she just received to undertake an 18-month research project on biotechnology governance in developing countries. She will be a visiting fellow with the Technology and Agrarian Studies Group of Wageningen University, as well as a visiting fellow at the Institute for Social Studies in the Hague.

**Nick Holland** has started his own consulting business, Land Stewardship Inc., which will provide baseline documentation and monitoring services to land trusts in Massachusetts.

**Valerie Fraser**, working as a forester for the South Central Connecticut Regional Water Authority, commented on her position: “It can’t always be

textbook forestry. There are lots of aspects to consider in forestry, ranging from addressing neighbors’ concerns to making sure that a recreation trail is aesthetically pleasing for hikers, yet good for the wildlife inhabiting the trail.”

## 2002

### CLASS SECRETARY:

**Roberto Frau** [roberto.frau@yale.edu](mailto:roberto.frau@yale.edu)

**Beth Alves** writes: “I recently started working at the Connecticut Agricultural Experiment Station, several blocks up the road from F&ES. It’s a part-time position (which works well for me and my child care situation), analyzing ticks for the Lyme Disease bacterium. I’ve also been helping with some West Nile encephalitis research. They are building a brand-new lab, which we will be moving to in a few weeks.”

**Barb Bamberger** writes: “I have relocated to San Diego, Calif. I am still working for the F&ES Program on Forest Certification, but am also working for a consulting firm here. My new title is social scientist with EDAW ([www.edaw.com](http://www.edaw.com)) in the Applied Social Sciences Department. I am working on the ‘cultural effect’ of conservation—sustainable whaling in Alaska and indigenous communities, sustainable fisheries in small commercial fishing villages and rural energy projects in Brazil. I’ll continue to work for Yale, coordinating a symposium on the effects of certification in developing countries.”

**Rebekah Frederick** is working as the coordinator of corporate and foundation relations at the Chicago Botanic Garden in Glencoe, Ill.

**Shalini Gupta** just returned from a year working in the Natural Resources Division of the Institute for World Economics in Kiel, Germany. She writes: “I learned an incredible amount about trade, agriculture and renewable energy issues. I also had the opportunity to relearn my German, hang out at some really amazing beaches and experience why most Germans complain about American beer! F&ES was never far away though, as I bumped into Dr. Pachauri and **Aarti Gupta** ’01 in Berlin, and was in constant phone contact with **Mahua Acharya**, who’s been working in Geneva. These days, I’m temporarily back in Minnesota with my family, taking advantage of my time between jobs to travel to Costa Rica and learning Spanish.”

**Corey Wisneski** writes from Plymouth, Mass., where she is working as a research associate for Battelle Ocean Sciences and is involved in various projects concerning coastal and ocean environments. She recently married Brian Caswell. **Heidi Binko** and **Elizabeth Alves** joined in the June ceremony as bridesmaids.

## 2003

### CLASS SECRETARIES:

**A-L: Brian Goldberg**

[Brian.Goldberg@aya.yale.edu](mailto:Brian.Goldberg@aya.yale.edu)

**M-Z: Scott Threadgill**

[Scott\\_Threadgill@yahoo.com](mailto:Scott_Threadgill@yahoo.com)

**Bronson Griscom, Ph.D. ’03**, is a postdoc at Canaan Valley Institute in Davis, W. Va. He married **Heather Peckham** ’00 in May at her parents’ home in Baton Rouge, La.

**Brooke Parry Hecht Ph.D. ’03** and her husband

Pete are working with National Geographic’s “Wild Vet” (Dr. Ulf Tubbesing) to set up a nature reserve outside the capital of Namibia. So far, with the help of investors, almost 25,000 acres of land have been purchased, and reintroduction of native animals has already begun. Pete is a finance professor at Harvard Business School, and is working on a case for the business school’s curriculum on this project. Both Brooke and Pete plan to continue working to make this nature reserve operational, as well as expand its area. If you would like to get involved with this effort, please contact Brooke. See photos on F&ES website.

**Melanie Cutler** writes: “I’m enjoying my new job as an ecologist at the Bioengineering Group (an environmental engineering and restoration firm) in Salem, Mass. Mark and I just moved into our new apartment on the campus of Phillips Academy in Andover. My email is [mcutler@bioengineering.com](mailto:mcutler@bioengineering.com).”

**Elizabeth Allison** writes: “I’m on to Nepal for a year of Fulbright-sponsored research on religion and environment.” [elizabeth.allison@aya.yale.edu](mailto:elizabeth.allison@aya.yale.edu).

**Ryan Bennett** writes: “I have moved back to California and am now working in the commercial group at GE Wind Energy, based in Tehachapi.” [ryan.bennett@ps.ge.com](mailto:ryan.bennett@ps.ge.com)

**Nicole Breznock** writes: “I moved to San Francisco at the beginning of August and have a wonderful view of the Pacific Ocean and the Golden Gate Bridge. I am working at a law firm, Sher & Leff, that specializes in protecting public drinking ground water supplies through litigation; it’s a great job and a great firm.”

**Becca Brown** is in Washington, D.C., working with the EPA and NIH on the National Childrens Study, a longitudinal epidemiological study to follow children’s environmental exposures and their health outcomes. This is through a fellowship with the Association of Schools of Public Health. E-mail: [rebecca.brown@aya.yale.edu](mailto:rebecca.brown@aya.yale.edu).

**Andrew Clack** writes: “I started a master’s program in England. I’m seriously considering staying in the UK for doctoral research.”

**Daniela Cusack** writes: “I’m in Berkeley starting the Ph.D. program with **Liz Shapiro** and **Kabir**. It’s great to be out here all together.” [daniela.cusack@aya.yale.edu](mailto:daniela.cusack@aya.yale.edu)

**Steve Dettman** has relocated to Brooklyn Heights and is working to bring the Summer Olympics to NYC in 2012. [sdettman@nyc2012.com](mailto:sdettman@nyc2012.com)

**Lydia Dixon** writes: “I’ve been playing in Jackson, Wyo., and working for the Northern Rockies Conservation Cooperative.” [Lydia.A.Dixon.01@Alum.Dartmouth.org](mailto:Lydia.A.Dixon.01@Alum.Dartmouth.org)

**Vic Edgerton** writes: “I’m wrapping up a research internship with the Connecticut Coalition for Environmental Justice and looking for work. I’m also running for alderman in Ward 9, which is the lower East Rock neighborhood.” [Vic.edgerton@aya.yale.edu](mailto:Vic.edgerton@aya.yale.edu)

**Jeffrey Firman** writes: “I’m in Sacramento, mapping vegetation for the forest service, playing around in the mountains and kickin’ it with my dog.”

**Margaret Francis** is working for the U.S. Forest Service, International Programs Disaster Assistance Support Program, in Washington, D.C. In late September she departs as a Fulbright scholar to the Brazilian Amazon to conduct a year of research on the socioeconomic impacts of forest concessions on



communities of the Tapajos Forest.

**Alison Forrestel** writes: “I just arrived at my new home in Berkeley last week. I am working as a cartographer for the National Park Service Pacific West regional office in Oakland. I am still adjusting to office life, but so far so good.”

**Brian Goldberg** lives in New York City and has yet to find pizza that is tastier than Modern’s. He is helping to reclaim 2,300 acres of public space by converting Fresh Kills landfill and wetland into one of the city’s largest park and recreation areas.

**Liz Gordon** is in New Haven working at the Yale Program on Forest Certification with Professor Ben Cashore.

**Justin Bishop Grewell** writes: “My book, *Ecological Agrarian*, came out from Purdue University Press in June (see Bookshelf). After spending the summer in Bozeman at PERC, I’ve moved to Chicago to start law school at Northwestern University.”  
bishop@stanfordalumni.org

**Kat Hall** writes: “I’m working as a water quality and mining organizer for the Southeast Alaska Conservation Council in Juneau. In my free time, I’ve been fishing, hiking, camping, paddling and genuinely appreciating this beautiful place!”  
kat@seacc.org

**Takatsugu Kobayashi** writes: “I just started my Ph.D. in geography at Indiana University.”  
tkobayas@indiana.edu

**Pete Land** was in New Haven working on a fall conference. Immediately after the conference he headed to Idaho. He and **Bill Finnegan** are starting a consulting firm doing environmental communications for nonprofit organizations, but are still uncertain how many groups are looking for videos on Ping-Pong.

**Ted Lanzano** writes: “I live in Boulder, Colo., where I work for the environmental branch of a consulting firm called SAIC. Also, I’m climbing a lot and enjoying being out West.”

**Cherie Lim** is in Monrovia, Calif.  
cherie.lim@aya.yale.edu

**James Lucas** writes: “Hanging out with my family in Vancouver, host of the 2010 Winter Olympics and working as a professional forester with Ecotrust Canada in Vancouver. Our mission is promoting the conservation economy on the West Coast of North America from northern California to Alaska. I am working with First Nations, helping them achieve sustainable forestry in their traditional areas.”

**Jason Wilmot** and his wife, Kate, spent this past summer working as backcountry rangers in Katmai National Park, Alaska. They have moved to Jackson, Wyo., where Jason is working as the executive director of the Northern Rockies Conservation Cooperative.

**Yudi Iskandarsyah** writes: “I am now working for The Nature Conservancy Indonesian Field Office, and am based in Jakarta as a deputy program manager for

TNC-WWF Global Development Alliance, promoting forest certification and combating illegal logging.”

**Toru Uemachi** writes: “My family welcomed a new member, a girl named Nozomi, on July 23. Her father has moved to China and is waiting for his family’s arrival there, which will be in early November.”

**Terry Miller** writes: “Kate and I are back in Portland where we’ve landed a two-year housesitting job. She got a temp position at Nike and I am interning at the city of Portland Office of Sustainable Development’s Green Building Division through January. We go surfing on the Oregon Coast almost every weekend. Life is good in the great Northwest.”

**Krithi Karanth** writes: “I am interning at USGS Patuxent Wildlife Research Center in Maryland as part of Dr. James Nichols’ animal population dynamics and monitoring research group and will be here until next May.”  
kkaranth@usgs.gov

**Flo Miller** is working in the Education Department of the World Wildlife Fund.

**Wei-Shiuen Ng** writes: “I am working on an environmental economic project for the Great Marsh Coalition, formed by various state agencies and NGOs in Massachusetts. This project aims to estimate the total environmental value of the North Shore’s Great Marsh of Massachusetts.”

**Sam Rothman** worked all summer at the school forest.

**Ninian Stein** writes: “I’m moving to Providence to finish my joint Ph.D. in environmental studies and anthropology/archaeology at Brown University.”

**Curtis Robinhold** writes: “I spent the summer months hiking through Oregon and running some of the great rivers in the Pacific Northwest. I’m working in London and Germany for BP PLC on issues arising from the acquisition of Germany’s largest gasoline retailer.”  
curtis.robinhold@aya.yale.edu

**Nicole Maywah** writes: “I’m traveling through India and Madagascar until the end of September.”

**Fuyumi Naito** writes: “I came back to Japan and started working for the Ministry of Environment. My new e-mail address is fuyumi\_naito@env.go.jp.”

**Meg Roessing** has moved to Washington, D.C., to work for the Forest Service Policy Analysis office.

**Holly Sage** writes: “I am a program analyst for the U.S. EPA Office of Inspector General in the Region II/New York City office. I am working on an evaluation of one of EPA’s programs to protect water quality.”

**Teak Seng** is the new country director for WWF Cambodia, as of Aug. 4. He has a long history of service in the area of conservation and sustainable development, both with the Royal Government of Cambodia and with WWF Cambodia. He has worked with WWF Cambodia since it was established in the country.

**Abdalla Said Shah** writes: “I am now back in Tanzania and working as a freelance consultant. I am

consulting for the National Forest Programme.”

**Liz Shapiro** has returned to her homeland, California, where she recently started a doctoral program in agroecology.  
eshapiro@nature.berkeley.edu

**Kirsten Spainhower** writes: “I am consulting for the World Bank. I am enjoying being in my house and having enough free time to garden and go on long bike rides.”

**Emily Sprowls** writes: “I spent my summer fishing and canoeing with kids on New Haven’s Quinnipiac River. Now I’m setting up my classroom at Hopkins School to start teaching ninth-grade biology and seventh-grade environmental/earth science!”

**Scott Threadgill** writes: “Scott, Paula and Sage are all doing great! I’m teaching environmental science at Gainesville College in Georgia.”

**George Vanduzer** writes: “Christine and I have moved to Southern California. We are home and the weather is great!”  
george.vanduzer@aya.yale.edu

**Glen Van Zandt** writes: “I’m still job-searching from our Guilford base of the last couple of years. E-mail: glen.vanzandt@aya.yale.edu.”

**Yvette Williams** writes: “I am working with the Urban Resources Initiative at F&ES to assist in the development of management strategies for invasive plant species on Greenspace project sites in New Haven. I am planning to present the results of my work at an invasive plant conference in September.”

**Nicole Vickey** writes: “I am getting settled in Mobile, Ala., and working for The Nature Conservancy. Jesse and I bought our first house. New e-mail: nicolevickey@hotmail.com.”

**Andrew Winston** writes: “Christine and I welcomed Joshua Haden Winston into the world Aug. 5, and we’re having a great time with him. I’m working on a grant-funded research project with Dan Esty on corporate environmentalism and trying to drum up some consulting work as well.”

**Cherie LeBlanc** (cherie.leblanc@yale.edu) writes: “I’m going to work for the U.S. Forest Service, doing social science research in Chicago. The research station focuses on issues related to managing natural areas in urban environments.”

**Trey Schillie** writes: “I am still assessing my chances as a late entry to the upcoming California gubernatorial race despite having offers from a local pet care service and Matt’s Carnival Warehouse. Any letters or words of support should be forwarded to Trey Schillie at: tigertrey@hotmail.com.”

**Brenden McEaney** writes: “I am working for Weston Solutions, a remediation and redevelopment firm, in its Manchester, N.H., office, doing a combination of fieldwork and project support for Weston’s various clients and promoting an initiative for Weston to green their projects and business.”  
brenden.mceaney@aya.yale.edu

# Obituaries

**Lewis R. Grosenbaugh '36** (1913-2003) died suddenly on April 22 in Gainesville, Fla. He came from East Orange, N.J., and was a Dartmouth graduate. He joined the U.S. Forest Service after Yale and had assignments in timber management on the Ouachita and Ozark national forests in Arkansas, where he met and married Wilma Gill, another USFS employee, in 1948. In 1941 he joined the Navy, serving as a gunnery officer on destroyers in the Pacific and attaining the rank of lieutenant commander. In 1946 he returned to the southern region of the Forest Service and soon transferred to the Southern Forest Experiment Station in New Orleans, where he served successively as a silviculturist, mensurationist and chief of forest management research. In 1960 he transferred to Berkeley, Calif., to head the first Pioneering Research Unit of the U.S.FS. His research led to innovative developments in forest mensuration, inventory design and statistical sampling, including formulation of 3P sampling ("probability proportional to prediction"). In 1968 the unit moved to Atlanta, where Lew stayed until retiring from the Forest Service in 1974. In 1977 he became an adjunct professor at the University of Florida in Gainesville and continued his writings and research. His contributions to science and forestry brought him many honors, including the F&ES Distinguished Alumni Service Award at the time of the Centennial in 2000, an honorary D.Sc. from the University of Florida, and honorary membership in the Mexican

Academy of Forest Sciences. He was an SAF Fellow and received the Barrington Moore Memorial Award. His wife, Wilma, survives him.

**Earl G. Dunford '36** (1913-2003) died on Feb. 4 in Poulsbo, Wash. He came from Seattle and graduated from the University of Washington in 1935. He had a distinguished career of four decades of watershed management research in the U.S.FS in the Northwest, Colorado, Appalachians, Carolina Piedmont and California. His last assignment was in research administration at the Washington Office. In 1973-74 he was a watershed research consultant to the New Zealand Ministry of Works. After retiring in 1976 he resided in Belen, N.M., Shingle Springs, Calif., and Bremerton, Wash.

**Louis Liedman Jr. '36** (1911-2003) came from Pittsburgh, Pa., and was a 1933 forestry graduate of Colorado State. From 1937 to 1944 he was a forester for the Soil Conservation Service in Ohio, Kentucky and Colorado. Then he joined the USFS and had assignments in New Mexico for the next 26 years, many of them at the regional office in Albuquerque. He remained in Albuquerque after he retired in 1970, but then moved to Peyton, Colo., not long before he died at the age of 92 earlier this year.

CONTINUED on page 48

## Save the Date Reunion Weekend

**May 14 to 16, 2004**

**Celebrating Anniversary Classes:**

**1939, 1944, 1949, 1954, 1959,**

**1964, 1969, 1974, 1979,**

**1984, 1989, 1994, 1999**

For more information, contact Kath Schomaker at  
[alumni.fes@yale.edu](mailto:alumni.fes@yale.edu) or 203-432-5108

# 2003

## ELECTION OF OFFICERS

Congratulations  
on their re-election  
to board officers,

**President**, Al Sample '80, Ph.D.'89  
and

**Vice President**, Anne Osborn '00.

We appreciate your service and  
the service of all members of  
the executive board.

Thank you to all  
who cast the 294 ballots.

Final results: 286 affirmed, 8 declined.

# Obituaries

CONTINUED from page 47

**James P. MacKimmie '36** (1911-2002) came from Amherst, Mass., and graduated from the University of Massachusetts in 1934. For several years he directed CCC work in that locality. During WWII he served in the U.S. Army in Europe. After that he taught mathematics and coached at Bacon Academy in Connecticut. In 1960 he became an officer at the Vermont State Prison in Windsor. About 20 years later he moved to Alfred, Maine, where he died on Nov. 5, 2002.

**John M. Wick '37** (1911-2003) was a native of Seattle and a graduate of the University of Washington. He was a forester in the Pacific Northwest for the USFS for 33 years. For many years he was a 4-H leader and also enjoyed travel, woodworking and the American Contract Bridge League. He retired to Corvallis, Ore., where he died on July 10 at 91. His survivors include Evelyn, his wife of 63 years, a daughter, two sons, seven grandchildren and two great-grandchildren.

**Carl B. Hupman '46** (1917-2003) died on May 30 at Parma Heights in his native Ohio. After he graduated from the University of Washington he spent two years managing rubber plantations for Firestone Rubber Co. in Liberia. During WWII he was a captain and navigator in the 376th Bomb Group of the 15th Air Force in the Mediterranean Theater, receiving the Distinguished Flying Cross, Air Medal and the Yugoslav Royal Air Force Wings. After Yale he was a forester for the Crossett Lumber Co. in Arkansas and Louisiana. Then for 19 years he was manager of the Pack Forest of the University of Washington. After retiring he moved to the Cleveland area. He was predeceased by three wives and is survived by five children.

**George N. Hilfinger '47** (1920-2002) died Dec. 17 in Beverly Hills, Mich. He came from Syracuse and graduated from the NYSU College of Forestry there in 1941. He was a Navy lieutenant in the Atlantic and Pacific during WWII. He had a long career in engineering and sales for the General Box Company in New York and Michigan.

**Allen W. Neff '49** (1924-2003) was from Orange, Conn. He served in the Navy during both WWII and the Korean War and retired from the Reserve as a lieutenant commander after 27 years of service. He and his wife, Edith, were 1948 forestry graduates of the University of New Hampshire. He was a forester for state of Oregon for 37 years and was stationed in Newport and Coquille before moving to Salem in 1972. He and Edie traveled throughout the world. He died in Salem on July 5 and is survived by Edie, six children, 11 grandchildren and five great-grandchildren.

**John D. Downer '54** (1921-2003) came from Cedar Rapids, Iowa. He graduated from the University of Washington as a physics major and went to work for the Weyerhaeuser Lumber Co., where he became an expert in forest mensuration and inventory work. After graduate study at Yale he became manager of the Weyerhaeuser information department for several years. Then the appeal of the sea moved him to start Jack's Country Store at Ocean Park, Wash. He died there on May 27; his wife, Lucille, is among his survivors.

**Robert B. Schultz '57** (1926-2003) died on Feb. 18 in Milford, Ohio. He came from Pennsylvania and was a 1951 graduate of Bucknell. For several years he was in charge of logging operations for Scott Paper Co. in northern Maine. Later he was an analyst of logging machinery systems for the Beloit Corporation in Alabama. For the past 35 years he resided in Ohio. A nephew and niece survive him.

**Enn V. Abel '59** (1934-2003) of East Hartford, Conn., died on April 4 at the age of 67. He emigrated from Estonia as a youngster with his refugee family and was a forestry graduate of the University of Connecticut. He and the late Luther Zai '57 conducted the first continuous forest inventory of the Yale Forests. He was an expert statistician and worked in that capacity for the state of Connecticut. His sister and four nieces survive him.

**Bart A. Thielges '64, Ph.D.'69** (1938-2003) grew up in Chicago and served in the Marines after high school. Then he received a B.S.F. from Southern Illinois University before his years of graduate study in forest genetics at Yale. He spent a couple of years at the Ohio Agricultural Experiment Station. Then from 1971 to 1976 he taught genetics and silviculture at Louisiana State University. From 1976 to 1990 he was chair of the Forestry Department at the University of Kentucky. Then he went to Oregon State University as associate dean for research and international programs in the Forestry College. His expertise was in genetics and conservation biology. He authored or co-authored more than 60 scientific publications. He held offices in the National Association of Professional Forestry Schools and the National Association of State Universities and Land-Grant Colleges. He died suddenly on May 29 in Arroyo Grande, Calif., where he had just moved after retiring. His wife, Judy, three sons and one grandchild survive him.

**Joseph E. Means '75** (1950-2002) was from Tacoma and a 1973 graduate of Washington State. After Yale he became a researcher in forest ecology and stand dynamics for the U.S.F.S at Corvallis, Ore. There he also received a Ph.D. from Oregon State University in 1980. A few years ago he moved to Salem, Ore., where he died on August 30, 2002. His wife, Paula survives him. **EY**



# Commentary

## The Cost of Wildfires is Vastly Underestimated and Little Understood



© Michael Doolittle

Mary Tyrrell

By Mary Tyrrell

**A**s forest fires rage across the western landscape, it seems absurd to say that we really don't know the true cost of these fires. People in places like the Flathead Valley of Montana have been living with acrid smoke for months; towns and tourist villages have been evacuated; vacation plans disrupted; roads closed; thousands of acres of forest ecosystems dramatically changed; and critical wildlife habitat lost. Firefighters from all over the country have been battling continuously to protect homes, businesses, recreational facilities and historic places.

With so much at stake, including lives, homes, businesses, water supplies, timber, wildlife habitat and the forests themselves, it seems

reasonable that we'd know the costs, understand the risks and have enough information to make good decisions about how much to spend on fire prevention. But we don't. The cost of wildfires is vastly underestimated and little understood. Federal and state agencies, which administer most of the forests that are burning, do not collect or share financial information on wildfire impacts. Nearly all pertinent information required to make informed policy decisions is kept solely at the local level.

Yale's Global Institute of Sustainable Forestry recently partnered with the American Forest & Paper Association to evaluate the environmental, social and economic impacts of wildfires in the United States. We began by asking federal agencies for information. Much to our surprise, we found that the Forest Service, the Bureau of Land Management and the National Interagency Fire Center could not provide data on the full cost of wildfires on federal lands. Only the amount spent on fire suppression and immediate postfire remediation were readily available. No summary information exists about other significant wildfire costs, such as economic losses to private businesses and individuals or the cost of long-term watershed and community restoration. Our findings are detailed in the report, "Assessing the Environmental, Social and Economic Impacts of Wildfire," available at [www.yale.edu/gisf](http://www.yale.edu/gisf).

In places like Colorado and Montana, people are building homes in and near forests that are prone to fire, creating greater risk to personal property and for more costly fires. Take, for example, three recent fires. The 2002 Biscuit fire burned nearly 500,000 acres almost entirely on public lands in Oregon and California. The cost of suppressing this fire was \$150 million, with an additional \$16 million thus far for restoration. According to our research, no other significant economic losses resulted from the Biscuit fire. In comparison, the 2002 Rodeo-Chediski fire in Arizona burned 460,000 acres, causing over \$300 million in economic loss on the White Mountain Apache tribal lands. The most costly fire in U.S. history was the 2000 Cerro Grande, which burned 43,000 acres in New Mexico. It destroyed homes, businesses, tribal villages, cultural and historic sites, infrastructure such as roads and utilities and, most dramatically, some of the Los Alamos National Laboratory equipment and facilities. The total cost of the Cerro Grande fire was close to \$1.1 billion,

much of which was paid for by FEMA under the Cerro Grande Fire Assistance Act.

Why is it critical that we know the true costs of wildfires? Why is it worth the effort and expense to collect, tabulate, analyze and summarize information that is inherently diverse and not easily summarized?

There are several compelling reasons why the United States would benefit from better information about wildfire costs.

In the never-ending and often contentious debate on forest management of national forestlands, it would be extremely useful to have better information about the cost of active management versus the cost of fire suppression and postfire remediation. Once fires are raging near where people live and work, money is inevitably spent on suppression. In some places and with some forest types, it may be less expensive to pay for prevention programs, such as forest management to reduce fuel loads, homeowner and community education, creating natural firebreaks, etc. In other places, perhaps paying for suppression and remediation is the most cost-effective approach. And there are ecosystems where fire performs a valuable ecological function and thus should be managed to assure the least risk to communities with the greatest benefit to the ecosystem. These decisions cannot be made intelligently without full information about fire costs.

Government programs such as FEMA insurance, home mortgage tax deductions, zoning regulations, subsidies for commercial and recreational development, and municipal water supply protection are political decisions that sometimes support development adjacent to fire-prone forests in the so-called wildland/urban interface. How can we know if these policies are appropriate without full information about the cost to taxpayers and communities of subsidized development in fire-prone areas?

More thorough data on the broad array of wildfire impacts, collected and summarized at the state and national levels, would provide policy makers with a better understanding of fire impacts and ultimately enhance state and national risk assessment methods and wildfire management policies. It's all about knowing the ecological and financial risks and benefits, making informed decisions and thinking through trade-offs in an atmosphere of uncertainty. One thing that is becoming more and more certain is that forests will burn every year. The only uncertainty is which ones and at what cost. **EY**

**Tyrrell is director of the Program on Private Forests for the Global Institute of Sustainable Forestry.**



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