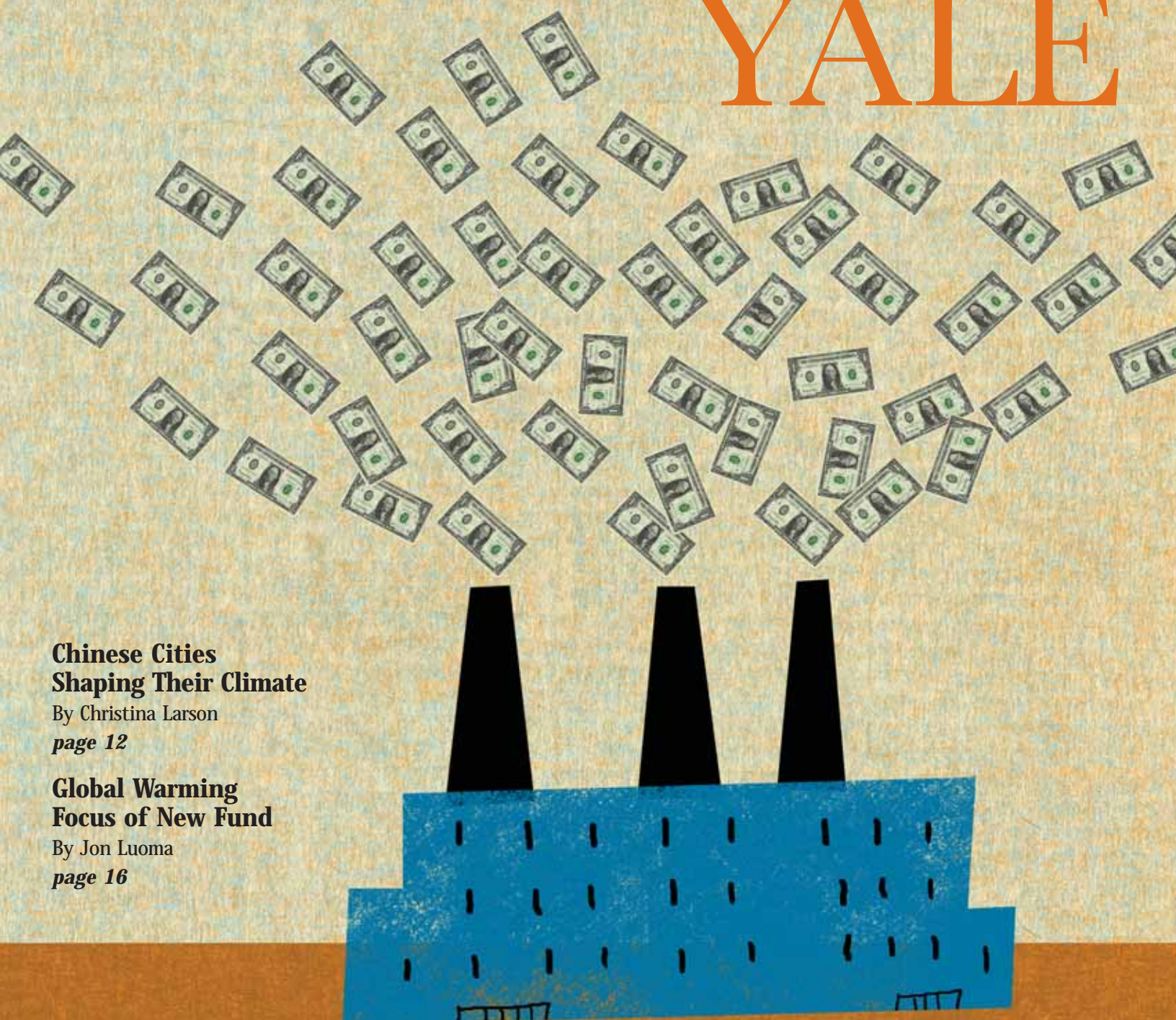


environment YALE



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Shaping Their Climate**

By Christina Larson

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**Global Warming
Focus of New Fund**

By Jon Luoma

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Wall Street's CARBON CONVERSION

By Richard Conniff

letters

To the Editor:

Since the publication of your excellent article, “Forest Destruction’s Prime Suspect” (*environment: Yale*, Spring 2008), the United States has become the first country in the world to ban the import and sale of illegally harvested wood.

In response to pressure from a diverse coalition of environmental, industrial and labor groups, the Bush administration passed a ground-breaking law in May banning commerce in illegally sourced plants and their products, including timber and wood products.

The new law amends the Lacey Act, a long-standing anti-wildlife-trafficking statute. It criminalizes the import of or commerce in illegal wood products and establishes an import declaration requirement due to go into effect on December 15, 2008. Compliance with the law will require that companies ask their suppliers about the source of their raw material, undoing the “no-questions-asked” norm in today’s timber trade sector.

These questions will force manufacturers in China, Indonesia and elsewhere to identify the scientific name of any species used and the country of original harvest, introducing a vital new level of transparency to supply chains.

Companies and individuals can be prosecuted under the law if the government can prove that they knowingly traded in illegal wood or were negligent in not knowing that their supply was illegal. Any shipment of wood can be seized if the government can prove that it was illegally harvested or traded, regardless of the owner’s knowledge. By changing the equation of risks and incentives, the United States sends a strong signal to those actors participating in illegal logging and trade: we’re on to you. The Lacey Act model is unique in supporting the efforts of developing nations to protect their forests by backing up their own laws and helping to encourage due diligence throughout the supply chain.

As the world’s largest consumer of man-

ufactured goods, the United States has a considerable ability to improve not just the global wood trade but illegal practices in mining, fishing and other resource extraction industries as well. This could be the first in a line of measures that uses U.S. consumer power to improve global natural resource management.

The Environmental Investigation Agency led the diverse coalition that supported this bill’s passage, and we continue to work closely with forest industry and nongovernmental organization partners to support its effective implementation by the U.S. government. Moreover, we hope that the United States’ leadership on an environmental issue of global importance will pave the way for similar demand-side measures in the European Union, Japan and other key consumer markets.

ANDREA JOHNSON '05

FOREST CAMPAIGNS DIRECTOR,
ENVIRONMENTAL INVESTIGATION AGENCY

Correction In the Spring 2008 issue of *environment: Yale*, the cover story “Forest Destruction’s Prime Suspect” states on page 8 that rare merbau logs had been transported from Papua New Guinea. It should have said Papua, Indonesia.



Solar panels illuminate the interior of Elizabeth Turnbull’s 132-square-foot house and provide power for Turnbull’s laptop. Inside, Turnbull sleeps and studies on a loft.

Testing the Limits of *Tiny*

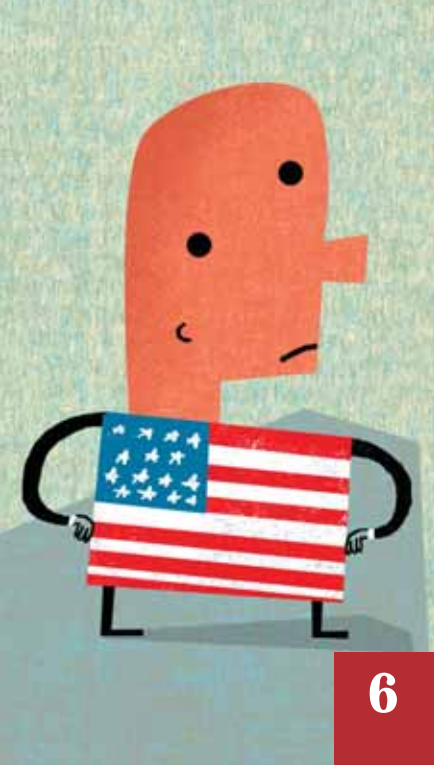
By Melinda Tuhus

Most people buy clothing to fit their bodies, but not too many build houses to fit their bodies—literally.

Elizabeth Turnbull '10 is building her dream house—all 132 square feet of it. And the frame of the sleeping loft measures six feet one inch from the floor, giving her, at almost six feet tall, a tiny bit of head room as she walks to her study space below it.

Along with her laptop, Turnbull brought her tiny house with her when she matriculated at F&ES. A 2004 Graduate of Colby College, she packed a lifetime of experiences into the years before starting grad school: leading cross-country bike trips; toiling on the 2004 Kerry presidential campaign in West Virginia, where she grew up; backpacking and doing farm work in New

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Cover art by James Yang



Dean James Gustave Speth

The Fitful Birth of Kroon Hall

The marvelous and striking Kroon Hall is taking shape now, and its super-green features are widely trumpeted around the university and far beyond. Our estimable builders, Turner Construction, bring employees here from all over to see how it's done. The dreaded Pierson-Sage Power Plant (PSPP) that once occupied the site is gone now. Soon, attention will turn to the landscaping of two magnificent courtyards where once there was asphalt and to the redesign of Schem's Wood, and one of Yale's most magical places will emerge. We are scheduled to move into our new home in December.

Meanwhile, on a larger scale, Yale's president, Richard Levin, has announced that all of Yale's new buildings will be LEED-certified, perhaps not green to the climate-neutral Kroon, but still green. And Yale is busily reducing its greenhouse gases by 43 percent over 2005 levels by 2020, just 12 years away.

On a still-larger scale, the green-building movement is not just taking off—it's flying high. In 2006 there were 400 U.S. LEED-certified buildings; in 2007, one year later, that number had jumped to 1,000, with 6,000 more in the pipeline.

All in all, an idyllic picture! But the burden of this piece is that it was not always thus. What seems in Kroon and around us as an elegant and inevitable progression was anything but. We are seeing a wondrous thing occur on the Kroon site not because someone said, "Let there be Kroon," but because of vision, struggle, determination, great generosity and an amazing amount of hard work by lots of people applying their various talents. Let me assure you: getting to where we are today was not always pretty. Within the past decade similar struggles have occurred elsewhere in the United States and abroad, and the result is today's green-building movement.

No history has been written of how we got to where we are today, but the story of Kroon Hall goes back to the mid-1990s, some years before I arrived on the scene in 1999. Yale's work on what became the Science Hill Plan began in about 1995 and, with it, serious thinking about new facilities for F&ES. Thanks to Professor Stephen Kellert's vision then and later, there was never any question that the school's new facilities, whatever they were, would seek to "realize in built form our mission and ideals as an institution," as Steve put it. In September

1998, a year before I began as dean, Steve drafted a dozen "design principles," including the following three:

- *Conservation and Sustainability.* A new facility should emphasize the school's environmental ideals and objectives, serving as a model for others. It should strive for the highest standards of energy efficiency, waste processing, environmental health and sustainable material use.
- *Environmental Experience and Connection.* A new facility should stress the quality of its natural surroundings, emphasizing healthy natural process and diversity. Landscape design should reflect the school's work and ideals—e.g., demonstration sites, restoration areas, indigenous plantings and aesthetically and intellectually inspiring natural areas.
- *Nature and the City.* A new facility should be a model of how healthy natural process can be a compatible and enriching aspect of the modern city. Our facility should emphasize the complementary relation of the natural and built environments.

Thanks to Steve, these goals have guided us ever since.

The school that year, 1998, was engaged in a vigorous argument with the university over the siting of our new building. Some faculty favored an "up-the-hill" location, across from Marsh Hall; others favored the site on Prospect near the canal, where Yale's two new undergraduate residential colleges are now slated to go. Votes were taken, and almost no one favored the site where Kroon now rises. It was in many ways a dog of a site.

The university was adamant, however, and again it fell to Steve to craft, in April 1999, the conditions under which the school could accept this site and make a silk purse out of the sow's ear. Steve's conditions stressed the need to clear out the power plant, remediate the site as necessary and create beautiful grounds around the new building—grounds that linked into a new landscaping of Schem's Wood. Perhaps most of all, Steve's conditions stressed the need to have the school deeply involved in the selection of architects and landscapers and, indeed, in all key decisions.

Steve's insistence on our participation was crucial. In a recent interview with the *Yale Alumni Magazine*, Steve pointed out the following:

"The idea [of a green, sustainable design] was so foreign in those days," recalls Kellert. "The initial reaction was to dismiss it as a kind of blue-sky thing. They

said, 'You guys are academics, you don't know anything about building, we have an office of facilities for that.' There was an inclination to dismiss us as a bunch of interfering amateurs."

I was dean-designate in the spring of 1999, and I was brought in to close the deal on location and a few other matters with then-Provost Alison Richard. Alison, an environmentalist herself, was positive on our views and reassuring in her answers to me. And so, with that agreement, the next phase, and the real work, began.

A huge amount of effort then ensued in which Steve, I and Assistant Dean Jane Coppock were heavily involved: defining the various buildings that F&ES would occupy, as well as their sizes, functions and costs to build or renovate, and phasing them into the chessboard that is the Science Hill Plan. One decision was to put our new building into Phase I of the plan. That decided, I was then told something by Mother Yale that caused the next few years of my life to become very clear to me: "Gus, being in Phase I means that construction on the new F&ES building can begin as soon as you raise

the money for it." I will not give you the details, but we did raise the money. It took a lot of hard work by me and our great development team and a lot of generosity from some wonderful people. I am especially grateful to the early, visionary lead donors, Ed Bass and Mary Jane and Rick Kroon, soon joined by Coley Burke, Carl Knobloch, John Mars, Gilman Ordway, Joan and Dick Tweedy, Jonathan Rose and William Waxter. Together, we did it. (Well, almost. We still have some additional funds we need to raise for Kroon Hall.)

Steve and I were also regularly reminded during this period by both Yale facilities and the provost's office not to set our sights too high. [Their view was that green was at war with reality, especially economic reality, and green would have to give way sooner or later.] In response, well, we smiled, and hardened our determination to prove them wrong.

I should stress that a place like Yale is an inherently complicated place to do business for a customer like F&ES. It would be *our* building, for which we would raise the money, and it would reflect, for good or ill, *our*



Matthew Garrett

"Their view was that green was at war with reality, especially economic reality, and green would have to give way sooner or later."

Dean Speth sits at the controls of an excavator to show his enthusiastic support for the demolition of the Pierson-Sage Power Plant.

dean's message

values and define our image to the world, but we are not in the driver's seat on any decision. The authority to make all relevant decisions lay elsewhere. It did from the beginning; it does today. This, of course, complicates everyone's life in the normal course of things, but it can make life especially complicated when what one is trying to accomplish is innovative, when it represents doing business differently, when it offers the potential—or the threat—of major change in the system. And our proposals for a path-breaking green building did all these things.

At the end of my first year as dean, on May 8, 2000, I wrote Steve an overview memo, which said as follows:

In conversations going back a year or so, three features of our new facilities have been discussed [by us] and, I believe, agreed upon:

- 1. The new facilities will strive to set a new standard in environmental, sustainable design;*
- 2. Beyond our needs at the school, these facilities will provide an environmental center for Yale. Not only will they provide space for the undergraduate environmental studies major, but they will also serve as a place where all those interested in environmental affairs at Yale could come together for discussions, lectures, classes, exhibits, etc., and where Yale environmental groups, e.g., Yale Student Environment Coalition and Yale Institute for Biospheric Studies, etc., could have offices;*
- 3. The facilities and grounds together will be a thing of great beauty, architecturally stunning (as Yale's music library is), maximizing the natural setting and moving naturally to Sagem's Wood and across to the Class of 1954 Environmental Science Center.*

We need to put Yale's environment school on the map, to create something that can both teach and inspire, to underscore Yale's commitments in these areas and to have a plan that will attract major donors.

But then a week later, on May 15, I received a new draft of the Science Hill Plan from the provost's office. It disturbed me greatly, and I sent it to Steve with a note to call me urgently. By May 26, 2000, I submitted our comments on the draft to the provost's office. I assumed that the draft plan was unsettling because it had not caught up with the commitments that had been made, and so I made the following points to the provost's office:

Regarding infrastructure, we believe the university should begin quickly to decommission the Pierson-

“There is simply no way on God's green earth that we can live with a new F&ES building anchored at one end by [the power plant]. Can you imagine how silly we would all look if Yale's first green building had at its heart the very technology we are trying to replace?”

Sage Power Plant (PSPP) and associated facilities and operations. We would not want this step to delay the construction of the new F&ES building. ... We would like to take this occasion to request that an early environmental investigation and remediation assessment be commissioned by the university.

Our comments continued:
Regarding the discussion [in the draft plan] of the new F&ES facility on p. 64, there are several important points:

(a) We must take exception to the proposal to retain the additional referenced portion of the power plant. We need to look into this further, but if this proposal compromises the F&ES design objectives that were the basis of faculty agreement to move to the currently proposed site, then the agreement is undermined.

We recognize that this issue has a history, but we are sufficiently concerned by the incompatible use issue that we request that the university begin investigations of options that would allow us to terminate entirely the PSPP facility. It is hard to believe that continuing operations on this site will not be incompatible with agreed objectives for F&ES. Noise, vibrations, temperature control, contamination, fumes, aesthetic limitations, space limitations, design constraints, etc., could all be problems.

(b) The description of the new F&ES building should, but does not yet, include two agreed features. One is that the building should meet the highest possible standards of environmental and aesthetic design, “making a statement,” as Joe Mullinix [the then-vice president for finance and administration at

Yale] put it, and providing a learning and teaching experience for the university as a whole. The other is that the building will provide an environmental center for the university with space for student and faculty gatherings, meetings and lectures; for environmentally related exhibits; and for offices of YSEC [Yale Student Environmental Coalition], EVST [Environmental Studies] and similar things, all of which would further the stated goal and objectives of the Science Hill Plan. We envision an attractive setting that would draw together students and faculty from around the university. The building itself would be on display.

(c) We are concerned that there is no discussion in this document of the space between the new F&ES building and Sage-Bowers-Physics. As you appreciate, we cannot have a beautiful facility on one side and an unsightly mess on the other. New efforts should be undertaken to determine alternative means of servicing Kline Tower, in which we would like to participate. ... The area should be viewed as an extension of the Sagem's Wood landscaping and should not be used for parking, trash, garbage, oil spills, etc., as is the case today.

It turned out that the phoenix-like rebirth of the PSPP was not a case of oversight by the provost's office. In truth, it gradually came out that what had been promised us regarding a site free of the PSPP was being reneged on. By early 2001 it was clear that the university had reversed field and decided to keep the PSPP operational. The university's energy czars had simply rolled over us. I was shocked and wrote Steve as follows:

Steve: Alan Brewster related to me a bit about your meeting yesterday on our new facility. He said you were quite forceful on the power plant issue. Let me underscore

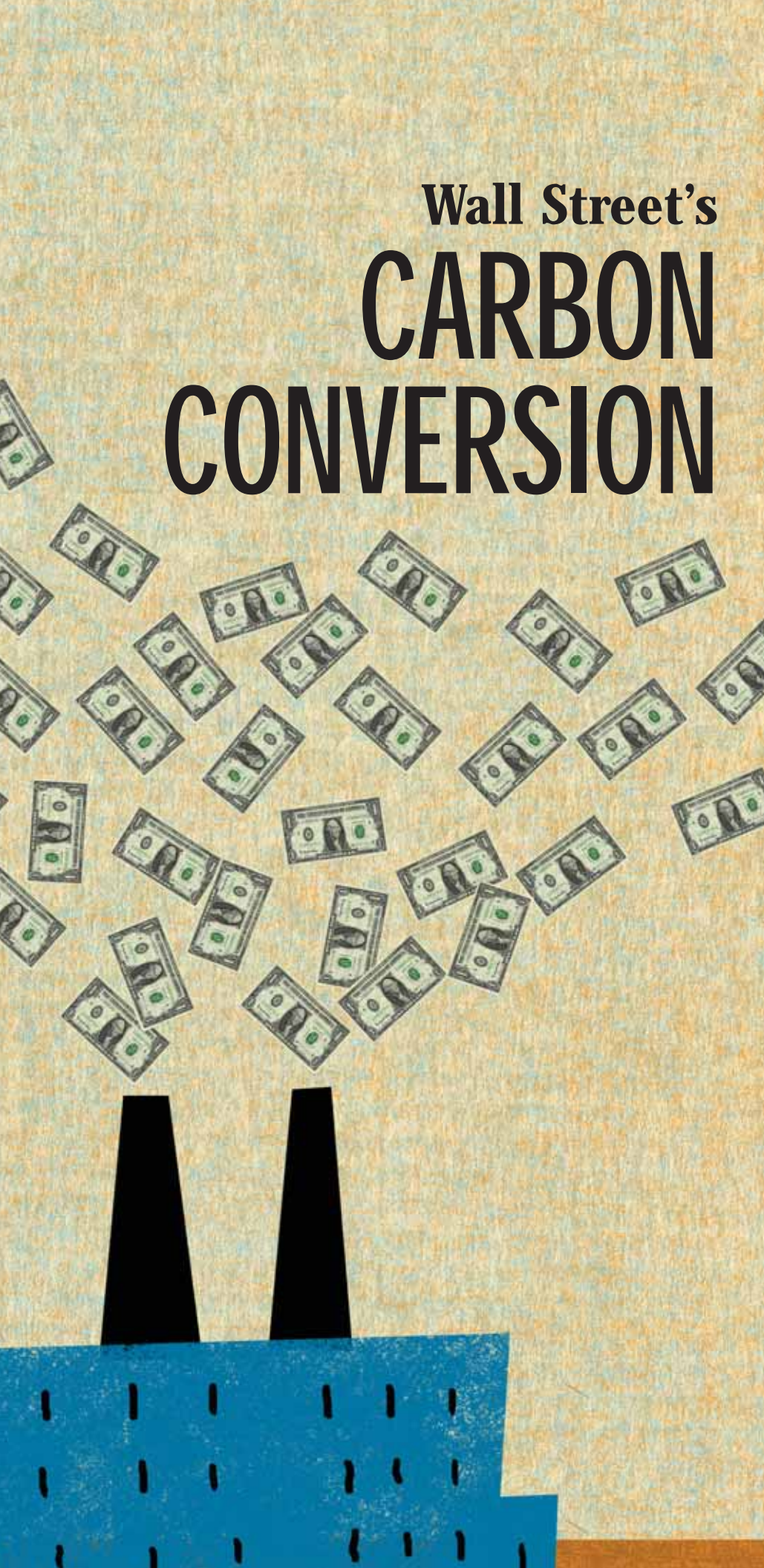
the need for a firm, clear position. ... We accepted the Administration's proposed site on the understanding that we would have the site to carry out the vision we had. We can accept no compromise here: any residual power facility can in no way infringe except insignificantly on realizing our objectives. If it does, the agreement is OFF. Please relate this on my behalf and that of the school."

In April 2001 I wrote the deputy provost a long memo on this subject, which said in part:

Our deep concerns [regarding PSPP plans] should come as no surprise. In our letter to you of 26 May 2000 we raised these same issues and requested that the university "begin investigations of options that would allow us to terminate entirely the PSPP facility" within our site. We earnestly make this request again. This whole issue is occasioned by a change in university plans to something quite different from what we were originally told. There is no reason why our school should have to bear the burden of this change in plans. Let's think creatively. There will be lots of construction on Science Hill, and there will surely be other, better sites for whatever is necessary. The worst option is to locate two fossil boilers in Yale's flagship green building.

Over a period of months that became years, I took the case against PSPP to the deputy provost, to university planning, to the head of facilities, to the vice president for administration. My basic point was that the university should look seriously and creatively at alternatives, including green ones. Somewhat to my surprise, I see when I look over the old documents that I even urged the university to find a climate-neutral alternative. Frankly, I got nowhere. My frustration mounted. In

continued on page 64



Wall Street's CARBON CONVERSION

By Richard Conniff

Early this year, four major investment firms—Citigroup, JPMorgan Chase, Morgan Stanley and Bank of America—announced standards that effectively prevent them from financing new construction of conventional coal-fired power plants, currently the largest source of electric power in the United States. With the credit crisis dominating the headlines, it was a minor story buried deep in the business section. But it turned on an increasingly important factor in investment decisions, with the potential both for enormous profits and for losses that could ultimately make the credit crisis look pale: The bankers were worried about global warming.

They made it clear that their concern was primarily financial, not environmental. In the event that the United States adopts a cap-and-trade system on greenhouse gas emissions, primarily carbon dioxide, major polluters would be required to pay for every ton of emissions in excess of their cap, and that cap would get lower each year. Even a banker could hardly fail to notice that coal-fired power plants produce many tons of CO₂ and that the power industry has no realistic prospect of a remedy. Global warming worries also caused Wall Street to downgrade coal companies this year, and Xcel Energy, one of the nation's largest builders of coal-fired power plants, agreed in a settlement with the state of New York to provide a detailed disclosure of its climate change risk.

Companies with less-obvious exposure to global warming also found themselves under pressure to come clean about their risks—and the pressure was being applied not just by lawsuits and shareholder resolutions but by the Earth itself. “If you’re Coca-Cola and you can’t get water in some of your main markets because of drought, you’re in trouble,” says Daniel Esty, Hillhouse Professor of Environmental Law and Policy at F&ES. If you’re a real estate company with ski lodges at lower elevations, he adds, you may find financing available based only on their income as hiking lodges. Insurance companies are also factoring climate risk into their policies. Writing in the *Financial Times*, Kevin Parker of Deutsche Asset Management warned, “If you can’t finance it and you can’t insure it, it probably isn’t going to get built.”

The idea that there could also be an upside in this scenario might sound wishful. But in fact, a thriving new business sector, climate change finance, is already taking shape, with a focus on likely winners as well as losers. Moreover, business and environmental leaders alike are treating it as a promising development—sometimes

in language last heard during the dot-com boom. Venture capitalist John Doerr, for instance, describes the move to a low-carbon economy as a market worth “ENORMOUS trillions” (and the use of the uppercase is his), adding, “We’re talking about nothing less than the reindustrialization of the whole planet.” Likewise, the Carbon Trust, a British nonprofit, has issued “a trillion-dollar wakeup call,” predicting a “revolution in business” as the implications of climate change become apparent: “Companies and investors that prepare now and develop new strategies will reap the commercial rewards of the move to a low-carbon economy” and “badly positioned or slow companies” will lose out.

The rapid growth in climate change finance may well justify the hype. At the start of 2005, for instance, the trade in carbon emissions permits was literally hot air, with a value of zero. But it has boomed since the Kyoto Protocol imposed emissions limits in 38 countries, and permits now

“We’re talking about nothing less than the reindustrialization of the whole planet.”

John Doerr

sell for about \$37 a ton on the European Climate Exchange. The global carbon market logged \$64 billion in trades in 2007 and is on track to top \$100 billion this year. One recent forecast predicted that the trade would reach \$1 trillion a year in 2020, assuming the United States joins the market with the passage of a cap-and-trade system now being discussed in Congress. (President-elect Barack Obama and Senator John McCain are both prominent among the backers.)

Even without that mandate, U.S. companies and individuals moved to reduce their global-warming impact (and get experience in the market) through the voluntary use of carbon offsets and credits.

The U.S. voluntary market tripled last year to \$331 million, according to nonprofit Ecosystem Marketplace.

Beyond carbon trading, climate change finance now reaches into almost every segment of the economy. Global investments in clean technology (meaning alternative energy, conservation and efficiency measures) totaled \$148.4 billion in 2007, according to market-watcher New Energy Finance. But the sector also includes green investments in water supply, agriculture, forestry, seawalls and other infrastructure for adapting to climate change and a growing assortment of relatively exotic financial instruments like weather derivatives (to account for the risk of more intense hurricanes, droughts and floods). The number of players has also rapidly increased. Back in 2005, the first hedge funds specializing in climate change had just set up shop, says Peter Fusaro, an energy consultant and author of the 2006 book *Energy and Environmental Hedge Funds—The New Investment Paradigm*. Today the climate

change sector includes 90 hedge funds and 80 private equity funds, in addition to a large number of venture capitalists.

Yale alumni have taken a leading role in promoting climate change finance, and this summer *Fast Company* magazine featured “a cadre of young idealistic Yale forestry grads” at the core of the market. One of them, Kate Hamilton ’06, director of Ecosystem Marketplace, says, “When I go into a meeting, I inevitably see another F&ES grad. We’re all over the place in this market, from the finance side to the project development side.” Yale’s dual-degree program offered by the School of Management and the School of Forestry & Environmental Studies is now 27 years old, and it has

recently moved to increase the number of graduates, according to Bryan Garcia '00, program director of the Center for Business and the Environment at Yale. The center has also hosted a continuing series of talks by leaders in climate change finance. A collection of last year's talks, *Carbon Finance: Environmental Market Solutions to Climate Change*, edited by Garcia and Eric Roberts '10, has just been published and can also be found online at www.yale.edu/cbey/carbonfinance2008. This year, the series is focusing on how climate change is affecting the purchase and management of forestland.

The surge of interest in climate change finance is clearly bringing money to bear on the problem. According to a 2007 United Nations report, 85 percent of the investment to address climate change now comes from the private sector, not government. Esty, co-author of the 2006 book *Green to Gold*, about business use of environmental strategies, argues that the shift away from government is also engaging the attention of people with the most experience at innovation and problem solving in a way that the old command-and-control style of environmental regulation never did. "There is no way a couple of thousand people at the

Environmental Protection Agency (EPA) can think about a problem as well as hundreds of thousands of companies when the burden is put on them," says Esty, himself a former EPA administrator. Business, he adds, also has the clout to produce dramatic results quickly, like Wal-Mart making a commitment to green in 2007—and then imposing it on 60,000 suppliers.

But the optimism about climate change finance needs to be cautious, too. "It's the most complex financial market ever created," says Fusaro. Just in the area of emissions trading, he counts 38 environmental markets in the United States dealing in everything from acid rain emissions permits to California's mobile emissions reductions credits—that is, credits for reducing tailpipe exhaust. Each of these markets, and each of the different clean technologies, requires specialized knowledge, down to the nitty gritty of how bus engines work or how forests sequester carbon. "If you don't understand it, don't invest in it," says Fusaro. Mutual funds and ETFs (exchange-traded funds) specializing in climate change issues have sprung up in Europe and the United States. But the market is still too young for retail investors, he says. "You'll get your head handed to you."

Because this is new territory, volatility

against the use of corn as a feedstock. The nascent carbon emissions trading industry has also experienced credibility problems over the use of questionable offsets. In the most notorious case, the British band Coldplay claimed to have rendered a concert tour carbon neutral by planting 10,000 trees in India. Then the trees died, causing a public relations debacle not just for Coldplay but also for the idea of offsets. The experience served as a painful lesson in the need for rigorous standards, with independent monitoring and verification.

The complexity of climate change finance also derives from its close connection to public policy. Other investments typically fluctuate on the basis of conventional business considerations like the supply of raw materials or the cost of manufacturing. But many carbon markets exist only because of government intervention. The sector's single-largest commodity, carbon emissions permits, depends on the Kyoto Protocol, which is due to expire in 2012. A new, more stringent treaty will almost certainly replace Kyoto, probably with the United States joining in. But it is at least conceivable—one of those risks disclosed in small print at the back of an annual report—that the carbon emissions market, forecast to reach \$1 trillion by 2020, could also be worth nothing.

Peter Sweatman, of the British investment firm Climate Change Capital, discounted such fears when he spoke at Yale last year. "For people who ask if the renewable-energy bubble is about to deflate, I make the point that we currently have about 60,000 megawatts in the world of operational wind farms and what we need is 2 million megawatts. We're about 3 percent of the way there." Referring to the analysis by Princeton professors Robert Socolow and Stephan Pacala that broke down the challenge of stabilizing the climate into a series of manageable steps, now known as Socolow's wedges, Sweatman says, "We have to reach 700 times today's coverage of solar panels to create one of Socolow's wedges. The list goes on."

"There is no way a couple of thousand people at the Environmental Protection Agency can think about a problem as well as hundreds of thousands of companies when the burden is put on them."

Daniel Esty

is common. Investors in biofuels, for instance, have recently found themselves whipsawed by drought in the Southeast and flooding in the Midwest, as well as by a rapid turn in public sentiment

But both wind and solar energy remain highly vulnerable to public policy uncertainty, at least in the United States. For instance, companies contemplating renewable-energy projects had to wait until October to find out if the tax credits that make these investments economically practical would be extended beyond the end of the year and, even then, the good news came only as an add-on to the financial crisis bailout package. According to a report from Navigant Consulting, companies would have invested just \$7 billion in wind and solar power next year without the tax credits, versus \$26.6 billion with the credits.

A final cause for caution about the potential of climate change finance is that making money doesn't necessarily mean fixing the problem. Overall carbon emissions continue rising dramatically, up 38 percent since 1992. To the surprise of many observers, the numbers actually got worse from 2006 to 2007, increasing by 3 percent, according to a new report from the Global Carbon Project. It is, of course, too soon to expect climate change finance to have made much of a dent in the problem after just a few years in existence. As businesses get more experience with the idea of paying for the harm they cause, these "incentive-based systems" may perhaps have the scale and the speed to stop global warming.

But the emissions problem is also shifting to the East, where carbon markets are less-developed. China is now the leading greenhouse gas emitter and India is about to move into third place, with the United States in between—none of them with a limit on emissions. "We have a short window of opportunity to act," Carbon Trust chief executive Tom Delay recently warned, "but, at present, business and investor actions are way out of step with the need to tackle climate change." Al Gore put it more bluntly. With the credit industry imploding in late September, he worried out loud about "a much-worse catastrophe" from "several trillion dollars in subprime carbon assets" doing damage to the atmosphere. "This is a rout," he warned. "We are losing badly."



A steady succession of events has helped move climate change finance out of environmental cul-de-sacs and onto Wall Street. It probably wouldn't have happened solely on the basis of the powerful scientific consensus that global warming is a real and rapidly worsening threat. Market participants often protest, perhaps as a way to boost their credibility on Wall Street, that they are not interested in socially responsible investing. They say it's about the money. But Hurricane Katrina drove home the likelihood of increasing devastation from more-intense weather events, and Al Gore's *An Inconvenient Truth* laid out the logic of the scientific case in the starkest possible terms.

With the beginning of the Kyoto Protocol climate regime in 2005, industrial nations with emissions caps began the tentative move away from fossil fuels. At the same time, the war in Iraq was making many Americans uneasy about how oil can distort foreign policy and about being dependent on an endlessly turbulent region of the world for the lifeblood of the economy. Finally, the spike in oil prices, from about \$25 a barrel in 2001 to as high as \$147 this summer, gave people an alarmingly immediate incentive to change not just their minds but their behavior, with the sickening prospect of going broke every time they pulled up to the gas pump.

Beyond the news cycle, climate change finance is also the product of a profound shift in thinking about environmental issues. It owes its rapid growth, surprisingly, to a simple but elegant innovation by the EPA. In the early decades of the environmental movement, the EPA was a notorious practitioner of the old command-and-control mode of governance. It did the research and made the rules. Businesses "picked up the Federal Register and learned what they had to do," said Esty. And generally they didn't like it, with the result that time and money often went into fighting the rules rather than fixing the problem. In the new mode, the government simply puts a price on doing harm and leaves business to figure out how to fix the problem.

Cap-and-trade systems are, of course, a bit more complicated than that. By definition, there's a cap on overall pollution. The government then allocates or auctions permits to companies for doing harm within the cap, and the price of permits tends to go up as the cap ratchets lower each year. It's up to individual companies to figure out the smartest way to use those permits. A utility might upgrade the efficiency of a power plant to reduce emissions and help pay for it by selling the permits it no longer needs, preferably at a premium. A cement company may decide that buying more permits is cheaper, at least for



“We have a short window of opportunity to act, but, at present, business and investor actions are way out of step with the need to tackle climate change.”

Tom DeLay

now, than actually reducing emissions.

This new incentive-based approach first got talked about in government circles in the 1970s, when EPA staffers were puzzling over how to put a price on doing harm. But the idea had a rich academic history before then, dating back to the early 20th century British economist Arthur Cecil Pigou. Pigou focused on how transactions cause—but often don’t account for—a variety of external impacts. A manufacturer can cause air pollution and not have to pay for illness among its neighbors. A landowner can plant a forest and not get compensated for improving local water quality. Neither cost nor benefit shows up in the bottom line. Pigou proposed “internalizing the externalities” with the help of taxes and subsidies, so that both costs and benefits would show up in the bottom line. In 1960, the Chicago School economist Ronald Coase added the key idea of using tradable permits for the same purpose. Then, in the 1980s, Bruce Ackerman, Sterling Professor of Law and Political Science at Yale, and Richard Stewart, of New York University School of Law, wrote a series of influential papers arguing that, in the environmental arena, “A reform relying on market incentives is just plain better, in terms of all relevant public values, than the status quo.”

Over the objections of skeptics, the EPA put the idea to the test in the 1990s, establishing a cap-and-trade system for utilities to fix the acid rain problem caused by power plant smokestack pollution. Utility companies initially claimed that removing the major pollutants would cost \$1,500 a ton, says Esty, who was then

deputy chief of staff at the EPA, and government scientists figured \$750. But because cap-and-trade let companies find the most economical way to meet targets, the cost has actually averaged \$250 a ton for sulfur dioxide and \$125 a ton for nitrous oxide. The program to cut acid rain pollution in half by 2010 now costs power companies \$3 billion annually (versus early estimates of up to \$25 billion). It also generates \$122 billion a year in benefits, according to the EPA, from avoided death and illness, healthier forests and a 30 percent improvement in visibility on the Eastern seaboard.

The experience taught everyone involved a powerful lesson in human behavior: “People respond much more readily to upside opportunity than to downside burdens,” says Esty. “There’s not a person in a business anywhere who gets up in the morning and says ‘Gee, I want to race into the office to follow some regulation.’ On the other hand, if you say ‘there’s an upside potential here, you’re going to make money,’ people do get up early and do drive hard around the possibility of finding themselves winners on this.”

Esty adds: “That doesn’t mean government is unimportant. In fact, quite to the contrary, government has to be even more clever in the structure of rules and regulations to ensure that the incentives are there to engage the private sector, to draw these inventors and creative spirits into putting their time and effort into this set of issues.” Because businesses are entering new territory, with a high potential for market failures, “the only solution is to have rules that really frame and shape” the flow

of capital, beginning with the critical first step of putting a price on causing harm.

The peculiar psychology of cap-and-trade may give it a significant advantage in dealing with climate change compared with the alternative approach of a direct carbon tax. People respond tactically to an increased cost, says Jon Anda, then-president of Environmental Markets Network when he spoke at Yale recently. “They can always pay to pollute, and so they don’t have to turn the ship around.” But a cap-and-trade system aimed at achieving 60 to 80 percent reductions in emissions by 2050, in line with scientific recommendations, demands strategic change: “You don’t leave it to your chief financial officer to manage your short position on allowances. You back up the truck on research and development, you say carbon’s getting out of the system and you respond.”

The advantages of cap-and-trade, combined with the success of the acid rain program, provided a model for Kyoto Protocol countries. Thus cap-and-trade has become the industrial world’s standard tool for addressing the global-warming challenge—except, ironically, in the United States, which has lagged behind since failing to ratify the Kyoto Protocol.

For the climate change finance sector, the key question now is how the United States will play catch-up.

One speaker in last year’s series seemed to worry that the private sector is moving both too fast and too slowly. “My concern,” says entrepreneur Howard Berke, chief executive of Konarka Technologies, “is too much money chasing”

premature technologies, with inexperienced founders “trying to push science faster than science wants to be pushed. I think we’re turning up the heat under the beaker a little bit hot.” At the same time, 85 percent of the market is business-to-business, meaning buyers who are “very, very risk-averse.” The energy and utility sector in particular is “one of the most conservative industries on the planet,” with little incentive to innovate on its own. Utilities have had the advantage of never experiencing a world war on American soil, says Berke, meaning they’ve never had to replace energy infrastructure wholesale. But that’s the disadvantage too: “It’s been with us through two world wars.

“Further combine that with the need for policy that is supportive—and we know how speedily policies move through the nation’s capitals—and then combine that with coordination on a global basis amongst nations. I believe what we’re facing is perhaps a need for a solution that cannot possibly be fulfilled in the time in which we expect or want it.” He predicted passage of federal climate change legislation in 2009, followed by two to four years of debate over the details of regulation, and added, “You can see the glaciers are melting faster than the politicians can figure out what to do.”

Still, limited cap-and-trade systems are already on the way, with the 10-state Northeast Regional Greenhouse Gas Initiative (RGGI) going into effect on January 1, 2009, and the Western Climate Initiative to follow. For opponents of a federal system, cap-and-trade is a euphemism for cap-and-tax, and they will maneuver to delay passage or approve a weak system like RGGI, which applies only to electric utilities and mandates an emissions reduction of just 10 percent by 2018. Many businesses and investors, on the other hand, are pushing to get serious now. The United States Climate Action Partnership is lobbying for a 25 percent reduction by 2020 and 80 percent by 2050, and it includes such unlikely players as Alcoa,

Caterpillar and Duke Energy, a heavily coal-dependent utility. Some skeptics have argued that partnership members like General Electric and Dupont—and the climate-change finance market generally—want stricter limits on emissions because it will benefit their investments in the renewable-energy sector. But like patients anticipating a potential cancer diagnosis, some industries may simply find waiting in suspense more stressful than actually having the inevitable bad news in hand. Fusaro says, “What we want is regulatory certainty. We don’t want to make changes. We want policy certainty long-term.”

The United States has the advantage, as it moves toward climate change law, of learning from the European experience. “We need to be cognizant that because the United States has 6 billion tons of emissions annually, we’ll need to go faster than Europe and Kyoto,” says Fusaro. “We’ll need to look at buildings and the transport sector (meaning air, sea, cars, trucks and buses), both of which got left out in Europe.”

A U.S. cap-and-trade system may also need to include remedies not covered by the Kyoto Protocol, says Fusaro, including afforestation (planting new forests to absorb atmospheric carbon dioxide) and geological sequestration (burying emissions deep underground). He argues that U.S. law should include serious penalties for noncompliance, meaning at least \$500 a ton (the penalty under the U.S. acid rain program is \$2,300 per ton), unlike the nominal penalty of just 100 euros (about \$140) a ton in the European system. He also warns against one mistake the Europeans managed to avoid: New Mexico Democratic Sen. Jeff Bingaman has proposed to limit the price of carbon emissions permits to \$12 a ton in 2012 (up to \$23 a ton in 2025). That would undermine the functioning of the marketplace, says Fusaro. European companies are more likely to make emissions reductions, in part, because they know they can sell their permits for triple that price right now.

Both the United States and Europe will also need to build on the Kyoto Protocol’s Clean Development Mechanism (CDM), says Bradford Gentry, senior lecturer in sustainable investments and director of the Center for Business and the Environment at Yale, who serves as a consultant to the United Nations on how to pay for climate change remedies. The CDM program steers money from the developed world into renewable-energy projects and other emissions reductions in developing nations. It also functions as a kind of safety valve, keeping the price per ton low by allowing companies to achieve a share of their emissions reductions abroad at lower cost than would be possible in their home countries. But it doesn’t deliver nearly enough money to induce India and China to take the essential step of accepting a cap on their emissions. Some kind of large financial commitment will inevitably be “part of the conversation on accepting a cap,” he says. And that will inevitably provoke furious resistance from those who believe, as former Delaware Republican Gov. Pete Du Pont recently put it in *The Wall Street Journal*, that developing nations (read China and India) basically “want to slow down the economic growth of developed nations so they can gain economically.”

Indeed, the reluctance of the U.S. Congress to save our own economy in the thick of the recent credit crisis suggests that it could be a long, hard fight before it takes serious action to save the rest of the world. Still, the climate change finance world is betting that the lessons of Katrina, Iraq and the latest energy crisis will resonate with voters and that U.S. workers will not want to get left behind in the rush for jobs in the new cleantech economy. The European success in the climate change finance marketplace thus far, says Esty, should teach us one really pressing lesson: “We need to get on with it.” ■

Thirsty Chinese Cities Getting Drier As Skyscrapers Rise

By Christina Larson

It might seem like a cruel irony: While the growth of cities worldwide requires more water resources, urban growth itself may be a factor in creating a drier, or different, regional climate.

Take China's Pearl River Delta region, which in recent years has gone from being a regional backwater to being the center of the global manufacturing universe. Three decades ago, this area at the southern tip of Guangdong province, where the river spills into the South China Sea, was a relatively quiet spot, where farmers waved off mosquitoes buzzing in capacious rice paddies. Today the region, strategically situated just north of Hong Kong, is the industrial hub of the world's most prolific manufacturing nation—home to some 50 million people and thousands of factories churning out toothbrushes, toys, computer parts and just about everything else that can be packed in shrink-wrap and shipped



around the world. The region's new soundtrack is a constant whirl of factory machinery, loading dock whistles and construction crews building ever more roads and apartment blocks on the outskirts of town.

In Shenzhen, one of its busiest port regions, nearly everyone is from somewhere else—from other cities in China, from foreign companies and, especially, from the countryside. More than 95 percent of the workers on the assembly line are estimated to have flocked from nearby villages, a familiar pattern across China, where millions of people each year move to the nation's fast-growing cities. As they settle into factory dormitories and new high-rises, then turn on the faucet for cooking, showering and laundry, demand for water rises. Yet in precisely the same years that skyscrapers have soared and the sky has thickened with smog, rainfall in the region has declined. Why?

To untangle the connection, a team of interdisciplinary researchers compiled readings from 16 meteorological stations in the region, which they compared with maps charting urban growth, derived from NASA satellite data. Their study,

published last year in the *Journal of Climate*, found that between 1988 and 1996, urban land cover in the Pearl River Delta increased 300 percent—the equivalent of paving an area the size of Rhode Island in less than a decade. Meanwhile, during the dry winter months (the subtropical region's summer is influenced by the Asian monsoon cycle), rainfall declined. The team created a statistical model linking urban growth with winter rainfall; they found that each percentage point in growth correlated with a decrease of 2.44 millimeters in rainfall.

A growing body of research, conducted in China and elsewhere, now shows that the way a city grows can have the effect of holding an umbrella, or in some cases turning on the sprinklers, over a city. Though debate remains over which factors (land cover conversion, urban topography and pollution) are most significant, scientists agree on the underlying principle: not only are cities impacted by their regional climate, they also shape it.

"Cities are modifying their own climates," says Karen Seto, associate professor in the urban environment at F&ES and a co-author of the study. "If

you want rain, you need to start thinking about the way a city grows."

It might seem as though Shenzhen and other fast-growing urban areas—from Dubai, to Bangalore, to Lagos—sprung

"Cities are modifying their own climates. If you want rain, you need to start thinking about the way a city grows."

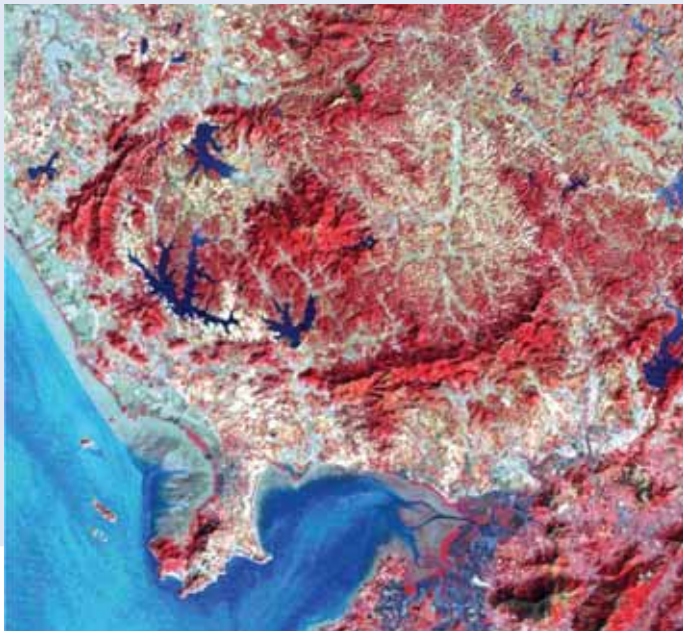
Karen Seto

into being overnight. But to understand how cities influence climate, it's helpful to look closely at the process of converting fields to factories.

Seto's research focuses on what scientists call "land cover conversion" or, what Joni Mitchell crooned, to "put up a parking

The Shenzhen city skyline





Karen Seto

Left, an image from the NASA Landsat satellite shows areas of vegetation (red) and fallow agricultural regions (white) in Shenzhen in 1973. Right, 28 years later, new urban regions (dark blue grids) and new urban development (bright white) proliferate.

lot.” When a forest, prairie or wetland—or even a sand dune or arctic tundra—is replaced by asphalt and concrete, the ground’s ability to absorb and retain moisture changes. Simply put, water seeps into soil (to different degrees depending on the soil) but washes off pavement. At the same time, sidewalks and other urban surfaces absorb sunlight, whereas natural foliage reflects it. This contributes to the familiar “urban heat island” effect, where temperatures in a city exceed those in the nearby countryside. Of course, not all newly built parking lots have the same effect. “The types of landscapes that were converted [to pavement] have an impact,” she says. “What areas were lost? And what was that land previously? Was that land formerly devoted to agriculture, or forest, or desert? Did the trees and ground absorb a lot of water, or not?” she asks, noting that planners do have a choice where to locate new interstates and residential communities.

Marshall Shepherd, a professor of atmospheric sciences at the University of Georgia and an editor of the *Journal of Applied Meteorology and Climatology*,

approaches the question from a background in meteorology. He has studied rainfall patterns near Atlanta, Ga.—a region recently pinched by water shortages—and focused, among other things, on how air circulates around urban terrain. “Visualize wind blowing straight over wheat fields in Kansas,” he says. “Now imagine low-level winds blowing around city skyscrapers. Because of the structure of buildings in a city, the air is more turbulent.” The combination of turbulent air, elevated temperatures and other factors can trigger more dramatic weather patterns, including more frequent and abrupt rainstorms over and downwind of cities. “What appear to be random thunderstorms around cities aren’t so random at all,” he says.

In the case of China’s Pearl River Delta, where dwindling precipitation is the overarching trend, an additional factor may be at work: pollution. Rapid development has brought billowing smog, also known as the presence of airborne “aerosols,” which affects the way clouds “seed” to form rain. Some aerosols are necessary to trigger showers, but an oversaturation of

particles impedes the formation of raindrops. Daniel Rosenfeld, a professor at the Institute of Earth Sciences at Hebrew University in Jerusalem, is the lead author of a paper on pollution and precipitation that was published in the journal *Science* in September. Over a 50-year period, his data show that rainfall over the mountains near Xi’an, a congested city in central China, has decreased 20 percent. “This is a serious problem for areas where water availability is scarce,” he says, noting that many of today’s fastest-growing regions, including much of the Middle East, northern China and Africa, are especially susceptible.

While scientists focus on different aspects of the feedback loop between cities and climate, they agree that planners have some control over the outcomes. Rosenfeld urges tighter emissions controls; new research “should act as a red light,” or warning, to all of those responsible for controlling the amounts of pollution we release into the atmosphere.” Shepherd recommends evaluating how urban areas influence rainfall when deciding where to build reservoirs.

Seto offers more out-of-the-box proposals that are not so much refinements of existing planning practices as they are new ways to envision a metropolis. Today's cities, seen from an airplane, she notes, are shaped like a dinner plate or, perhaps, a sprawling amoeba. As such, the urban area is a contiguous paved region that extends outward from a defined center. But a new city—in China and elsewhere, new cities are being built virtually from scratch—could be mapped as a series of concentric circles or as a checkerboard, alternating office parks with forest parks. This could augment or disperse the heat island effect, the ground's ability to retain moisture and the impact of pollution. Or, a city could be designed with several small centers—think of a constellation of mini-downtowns—with residential areas, business districts and public transportation planned accordingly. “If you have to lay down 1,000 square kilometers of urban development,” she asks, “where are you going to put it?”

One of the remarkable things you notice if you travel around the world today is that older buildings—Chinese courtyards, Venetian canals, Dutch windmills, Iranian wind towers—all look different. But newer structures, with glass and steel exteriors and air-conditioned lobbies, all look relatively the same. At one time architecture was adapted for local topography and climate; today this is far less true.

The same pattern of regional adaptation once held true for urban planning writ large. Planners took advantage of resources at hand and sought particular fixes to distinct problems, mindful of each region's natural margin for error. “The ancient Greeks were masters of matching the buildings, squares and streets of the city to its topography,” wrote MIT's Anne Whiston Spirn in her classic history of urban planning, *The Granite Garden*. “New York City owes the distinctive skyscraper skyline of Manhattan Island to the strength of the

underlying bedrock and its proximity to the surface.”

Now, as planners must account for the impact of urban growth on climate, it may be time to return to more site-specific approaches—not for nostalgic reasons but as a matter of common sense in mapping the future. “A century ago, people lost centuries of knowledge about how to adapt to climate when we began using technology to overcome natural barriers,” says Roberto Sánchez-Rodríguez, a professor of environmental sciences at the University of California, Riverside. “But not every city has to strive to look like Los Angeles or New York today.”

For the last decade, Sánchez-Rodríguez has been at the forefront of efforts to bring science to bear on real-world decision-making. Among other projects, he has advised planners in Tijuana, Mexico, which a decade ago was devastated by flooding caused by El Niño. “A lot of knowledge has already been generated about environmental planning and how cities affect climate,” he says, “and yet so

little of this knowledge is used by planners on a daily basis.” The collaboration has given him a greater appreciation for the concerns of city officials, helping him to tailor his advice. City planners, who must consider the short-term needs of their constituents, are in general not versed in ecology and climate science. Likewise, ecologists largely are not trained in what issues city planners must confront. “To work together successfully, you have to be very strategic in how you use these people's time, how to present conclusions,” he says. “There needs to be someone who can act as an interface between the two domains of knowledge.”

Urban density, and the rising global middle class moving to swelling cities, has lately gotten a bad rap—the “crowded” part of Thomas Friedman's book title warning that the Earth is becoming *Hot, Flat, and Crowded*. But because Shenzhen and Manhattan aren't likely to be torn down anytime soon, it may be helpful to rejig-



Looking south toward Hong Kong across the Sham Chun River. The wetlands on the far side of the river are in Hong Kong. The city on the near side of the river is Shenzhen, which was transformed from a small fishing village into a metropolis in less than 30 years.

ger our thinking. “Urban areas should be where environmental policy starts, not where it ends,” says Margaret O’Mara, a visiting assistant professor of urban history at the University of Washington.

“Scientists and environmental planners need to consider landscapes like Rio de Janeiro, not only Amazon rainforests.”

She points out that there may be opportunities in inevitable urban growth, including the possibility of scaling up green-friendly technologies that urban density allows. It will be a simpler matter, for instance, to install new units designed to calibrate household energy usage, or recycle wastewater, in a towering Beijing apartment complex than in 2,000 single-family homes. “We need to think of cities not only as environmental problems, but as a component of environmental solutions; they have to be,” says O’Mara.

The fast-rising skylines in regions like the Pearl River Delta—and the recognition of the impact they have on climate—mean neither a death sentence nor deliverance, but must be seen as a force, like gravity, that scientists and planners should find a way to work with wisely. Or, as *The Granite Garden* put it nearly 25 years ago: “Civilizations and governments rise and fall; traditions, values, and policies change; but the natural environment of each city remains an enduring framework within which the human community builds.” ■

Fund to Address Downside of China’s Boom

By Jon Luoma

In the weeks leading up to the pageantry and athletic triumph of the 2008 summer Olympics in Beijing, one troubling image predominated: air so polluted it looked like cumulonimbus had descended on the city. Thanks to a temporary government shutdown of some regional industries, along with severe restrictions on driving, air pollution decreased and cleaner skies arrived in time for the Games in August. But the pre-Olympic images remain as reminders of what James Fallows, writing in *The Atlantic Monthly*, has called “the environmental damage that is the most shocking side effect of China’s economic miracle.”

To help address the troubling environmental downside of China's economic boom, an anonymous donor has awarded Yale a \$2 million dollar gift to help create an Asia Environment Fund at the School of Forestry & Environmental Studies (F&ES). The fund will support research, policy, exchange and outreach efforts aimed at some of China's most pressing environmental problems. At the urgent center of that focus will be the crisis that is not only China's, or Asia's, but the entire world's—global warming.

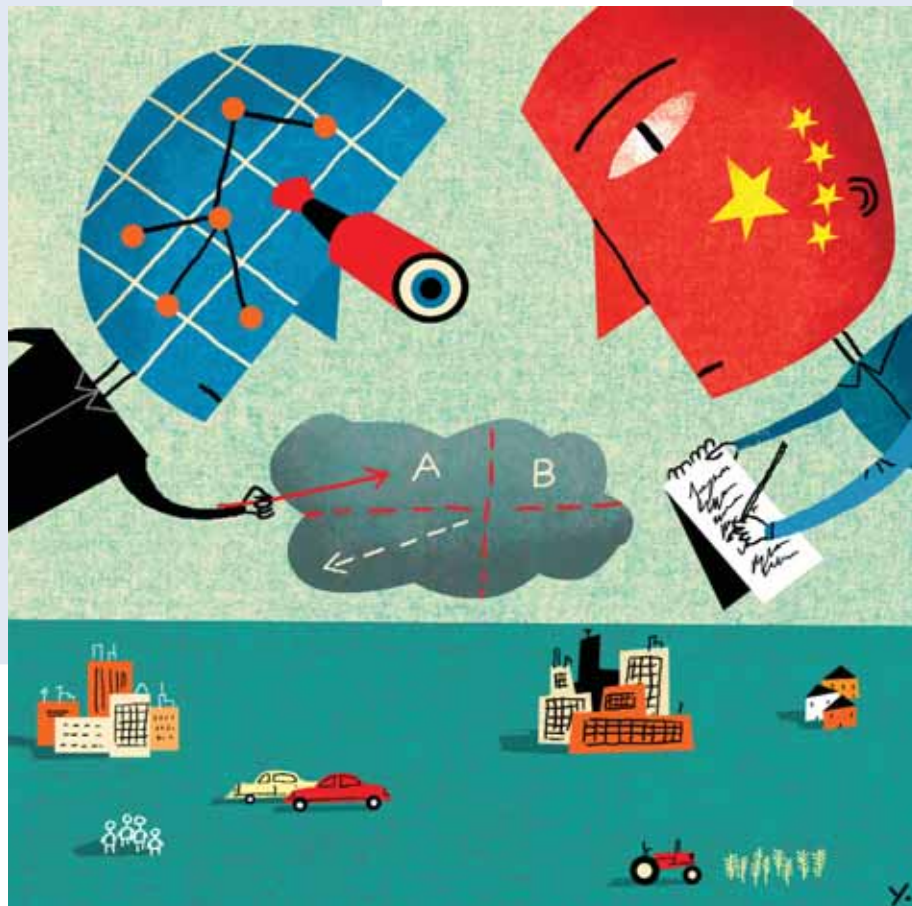
"The enormous expansion of the human enterprise in Asia has brought us to the threshold of a new era in which environmental management must quickly emerge as a top priority of governments and citizens everywhere," said F&ES Dean Gus Speth. "The importance of focusing extensively on environmental issues as they relate to China cannot be overstated, both for the health of the Chinese people and the health of the planet."

In 2008, China moved past the United States as the single-largest carbon dioxide emitter in the world, with coal consumption there soaring at a rate of 20 percent per year and reports of new coal-fired power plants going up at a rate of one every week or two. But power plant emissions are only a piece of a larger and still incompletely understood puzzle about the best way to address China's contribution to global warming.

"Farming is the single most important land use type in China, and it plays a huge role in the future trajectory of the Chinese greenhouse gas portfolio," says Xuhui Lee, professor of meteorology at F&ES.

With support from the fund, Lee's research team will expand studies aimed at finding the best ways to minimize climate change while sustaining food production. They will compare, for example, greenhouse gas emissions from traditional farming practices and those from industrialized approaches.

According to Lee, traditional ecological field studies—sampling soils and vegetation—will provide some answers. But although these methods can detect changes over longer periods of time—months or



James Yang

years—they cannot measure responses over shorter time frames, such as weeks or days or an event as brief as a rain shower. So Lee and his colleagues are deploying arrays of state-of-the-art instruments, including tunable diode laser analyzers. These devices can measure short-term changes not only in carbon dioxide, but also in methane and nitrous oxide, which are also greenhouse gases. The researchers have already deployed their analyzer arrays in fields of wheat, maize, cotton and soybeans on the plains of northern China, and they plan to add at least one additional array on a rice paddy, an agricultural landscape vital to Asian agriculture.

Marian Chertow, Ph.D. '00, associate professor of industrial environmental management, is researching energy and resource use and exchange among companies located in large Chinese industrial parks. This work focuses on how diverse industries can better use and exchange energy, raw materials and water and process wastes in ways that provide both

financial and environmental benefits. For instance, a refinery's sulfur waste might become raw material for an agricultural company's fertilizer. Or waste heat from a power plant might provide space heating for a nearby factory. Ideally, an entire network of industries can be linked for optimal benefits. The idea could be compared with the symbiosis and other mutual benefits that organisms enjoy in natural ecosystems, notes Chertow.

Anthony Leiserowitz, director of the Yale Project on Climate Change, points out that not only is booming China now the leader in carbon dioxide emissions, booming Asian neighbor India is fourth. Combined, he says, the two nations now generate one quarter of all the world's carbon dioxide emissions, "a proportion," he says, "that is only projected to rise." (Second-place United States, with a smaller population, still holds the dubious title of leader in per capita emissions.)

And yet, he notes, little is known about public perceptions about global

warming among the 2.5 billion people in the two countries, including the degree to which the public understands the great risks—ranging from flooding from rising seas to agricultural damage from drought—that this global problem poses to their own nations. Nor is much known about the degree to which people in the two nations would favor government policies to address the global problem or be willing to make sacrifices themselves. To find answers, the Yale Project on Climate Change plans to collaborate with local pollsters to conduct “large, nationally representative surveys” about global warming in both nations, the first of their kind, says Leiserowitz.

The Yale Center for Environmental Law & Policy will be compiling a subnational “Environmental Performance Index” (EPI) specifically tailored for China. Collaborating with Columbia University, the center in 2008 issued the latest international EPI, which ranked the nations of the world based on how they scored on a wide range of environmental

“The importance of focusing extensively on environmental issues as they relate to China cannot be overstated, both for the health of the Chinese people and the health of the planet.”

Dean Gus Speth

protection issues, from the provision of sanitary water to protection of agricultural land and biodiversity. Climate change-related issues constituted 25 percent of the total score. (Of 149 nations ranked, wealthy Switzerland, Norway and Sweden were on top; the African nations of Sierra Leone, Angola and Niger came out at the bottom. The United States was 39th and China was 105th.)

According to Christine Kim, project manager for the EPI, the analysis now under way for China will break down environmental performance province by province. One major thrust is to provide provincial and federal governments with information that can help them tailor environmental policies to fit specific needs.

“Different areas have somewhat different problems and can’t employ the same solutions,” says Kim. For example, she says that air pollution sources can differ widely from region to region. A performance index could guide strategies for allocating resources or for setting suitable air quality policies or emission regulations.

The donors who provided the gift at the core of the Asia Environment Fund said they were motivated in part by Yale’s history of international exchange, education and “catalysis and influence.” They cited the “opportunities for scholarship, learning and debate” in Yale’s World Fellows Program, which brings young leaders from around the globe to the university. In that spirit, Xuhui Lee has developed a lecture series for the current academic year at Yale featuring Chinese environmental experts, who are exploring the environmental ramifications of their nation’s economic boom, with a focus on carbon emissions, as well as on the protection of biodiversity and natural resources.

The fund has also provided three years of support for an environmental leadership education program that will bring political leaders and local officials to Yale for intensive study of urban planning and development. This project is administered by the Environment and Sustainable Development Leadership Program (ESDLP), a joint venture of F&ES and China’s Tsinghua University.

In terms of public outreach, the new magazine, *Yale Environment 360*, published online and aimed at an international audience, has been able to expand its coverage of China and Asia as a whole. The Web magazine, which covers the gamut of environmental issues, got off to a rousing start with nearly 1.5 million “hits” in the first 11 weeks after its July 2008 launch.

By early September, the magazine had

already published several articles focused on China. Correspondent Christina Larson, who is based part of the year in Beijing, had filed two of four reports focusing on Chinese environmentalists. Orville Schell, director of the Center on U.S.-China Relations at the Asia Society, had authored a detailed opinion piece, “The U.S. and China: Common Ground on Climate,” on why the United States and China must become partners on global warming.

“Several of our articles have already been linked to or cited by Chinese websites and publications,” says Editor Roger Cohn. And he notes that *Yale Environment 360* has established an ongoing relationship with the Chinese Web publication *China Dialogue*, which has republished several *Yale Environment 360* pieces in both English and Mandarin.

“We’re commissioning articles written by Chinese journalists as well,” says Cohn. “China Dialogue will be acting as the intermediary, translating the articles into English and handling the journalists’ interactions with editors here at Yale.”

This sort of cooperation with Chinese and other Asian entities permeates the entire array of programs that will benefit from the fund. Chertow’s industrial-symbiosis project, for instance, is being conducted in collaboration with China’s Tsinghua University, National Center for Innovation Research on Circular Economy at Nankai University, as well as the National University of Singapore. The Chinese Academy of Environmental Planning is a key collaborator on the EPI project.

China expert Orville Schell’s *Yale Environment 360* commentary on global warming highlights the urgency of just the sort of collaboration the new Asia Environment Fund is spurring. Of the United States and China, he writes: “The consequences of rapidly escalating emissions from both nations are now beginning to be increasingly evident in such phenomena as melting glaciers, changing weather patterns and the loss of Arctic sea ice. Whatever else may divide us, and there is much, we will be unable to escape the consequences of each other’s actions on climate change.” ■



Strachan Donnelley is shown here fishing at his family's plantation in South Carolina.

For Strachan Donnelley, Hunting Was Being Fully Human

Both Yale and the environment lost a great friend when Strachan Donnelley passed away on July 12, 2008.

I feel the void still. Strachan and I were classmates and friends at Yale ('64). We called him Joe then, and we were in the same fraternity and "secret" society. Though we had stayed in touch over the years, we became truly close again after I began as dean in 1999. I had known Strachan as an environmental champion, but I quickly discovered Strachan the generous donor, Strachan the academic, Strachan the sportsman and Strachan the fellow part-time South Carolinian.

The Chicago Tribune captured his many sides when it wrote that the world had lost a "nature-loving philanthropist and fly-fishing philosopher."

When I began as dean, I created the F&ES New Century Fund to help get us off to a fast start. Before I could start fundraising for it, I noticed that it had \$1 million in it—from Strachan. Other major gifts from Strachan to support scholarships for our students were soon to follow.

Strachan did love to fish, but he also really loved hunting. His commitment to conservation, his writings about Darwin and Leopold and his determination to be agent provocateur to those who "just don't get it" were animated by seeing the ducks come in against a brightening sky.

So it is fitting that as part of our tribute to Strachan we publish here one of Strachan's provocative essays on these themes. He wrote "Hunting Hennepin's Windblown Bottom" in 2006 as part of his work as founder and president of the Center for Humans and Nature, an outstanding organization that he spent his last months ensuring would carry on. Brooke Hecht '03 is now its acting president.

—Dean Gus Speth

By Strachan Donnelley

Aldo Leopold is the reigning patron saint of American conservation. His Land Ethic, the culmination of the many stories and essays of *A Sand County Almanac*, defines the human good and bad, right and wrong, in terms of our protection and promotion of the integrity, stability and beauty of the biotic community. He enjoins us to become members and plain citizens, rather than conquerors, of the land. By land and biotic community he means much the same thing: the abiotic and biotic elements, including flora and fauna (above and below ground), of the ecosphere and the ecosystems in which we humans inescapably live. This natural biotic community involves its own temporally deep, evolutionary past and future.

That this mode of citizenship embraces our fundamental moral status is clear and straightforward to Leopold and, indeed, seems to fit well with our natural Darwinian origins and ongoing roots in nature. (Our moral status rests, in part, on developed and circumscribed capacities of freedom, responsibility and recognition of innumerable values, human and other.) Nevertheless, Leopold realized that the Land Ethic is a further extension and broadening of human ethics as it has culturally and historically evolved. The Land Ethic as a practical ethic of human communities was for the mid-20th century a civic ethics of the future. In our early 21st century, it still is. Few, if any, of us recognize the full reaches of our biotic responsibilities to ourselves and our Earthly home. This is a major cultural and moral problem of our times.

Why has it been so difficult to recognize ourselves as full-blown, charter members of the biotic community, with all the innumerable benefits, burdens and attendant moral obligations that go along with such membership? (We, along with all natural organisms, are undeniably "wild ones," born of evolutionary and ecological processes.) Why do we characteristically consider ourselves outside of nature? Further, why was Leopold himself so prescient and farsighted

about our fundamental status in the scheme of things? Others knew their Darwin and evolutionary biology, with their seeming implications—philosophical and moral.

I think a clue to Leopold's moral pioneering and originality can be found in *A Sand County Almanac* and precisely in passages which trouble so many of his readers and sympathetic critics. Leopold unapologetically tells several stories of hunting and fishing, including the shooting of the wild mother wolf in "Thinking Like a Mountain," from which he gained intimations of the importance of large predators to their ecosystems. Leopold describes killing his first wild (black) duck; his crafty luring, hooking and landing of a large wild brook trout; his love of autumn woodcock hunting, as well as his delight in their springtime mating dance. (He learned to take only so many woodcock in the fall as to allow enough dancers for

Few, if any, of us recognize the full reaches of our biotic responsibilities to ourselves and our Earthly home. This is a major cultural and moral problem of our times.

the ensuing spring—a fundamental insight for any adequate conservation ethics.) Despite the robust moral demands of the Land Ethic, Leopold never condemns hunting and fishing, though he does claim them to be atavistic sport. Why this moral silence? So question many of Leopold's sympathizers and critics alike. Is this a sign of moral immaturity or lack of insight? Or, rather, is there not something deeper and more nuanced afoot, something that escapes Leopold's more urban or polis-

minded readers?

I will not defend Leopold by quoting, explicating or interpreting chapter and verse of *A Sand County Almanac*. Such a critical, academic enterprise would not forcibly get to the bottom of the matter. Rather, I will heed Leopold's example and tell my own stories. In particular, I revisit my own youth and early days of duck hunting near Hennepin, Ill., which is in a historical, storied duck-hunting and decoy-carving area along the Illinois River—the home of the Illinois River carvers Robert Elliston, Charles Perdue and others who served duck hunters, private and market, of the late 19th and early 20th centuries. Nearby Hennepin are Henry, LaSalle, Peru and other rural towns, which, like Cairo further south, have their own uniquely Illinoisan and Midwestern pronunciations. My father owned a farm with two small lakes in Hennepin, meant for fall duck hunting. The farm was named Windblown Bottom.

My early duck hunting had its distinctly human hues. I started hunting when I was 8, 10 or 12—I cannot remember exactly—under the rigorous tutelage of my father. I was given a single-barreled, 20-gauge shotgun with a hammer cock. I was to learn gun safety and the art of shooting before moving on to double-barreled or pump shotguns, which everyone else used.

Family weekend trips to Hennepin included my mother, several dogs (Labrador Retrievers), friends of my parents and occasionally my brother, Elliott, four years older and already an accomplished hunter. We always stayed at the widow Isa Turner's house in Hennepin, which though the county seat, was a small town, everyone knowing—and watching—everyone else. For dinner, we invariably went to the Ranch House, the local supper club, where we were joined by Paul, a local contractor, and Buttons, the local police chief, and their families. Paul and Buttons were our hunting guides, both seasoned duck callers. The dinners were lively,

joyful, if not ribald, and there were many Isa Turner house stories, including guests peeing out upstairs windows because it was too cold to go downstairs to the bathroom. There was also a weekend with an eccentric cousin, Thorne, who bought a new car every six months (he had a Lancia sports car at the time), driving with his head out the window as we left for Windblown Bottom in the pre-dawn darkness, cursing his windshield wipers for not working. I mentioned that the windows were merely fogged on the inside, wiped my side, and looked at the road ahead. Cousin Thorne would have none of my youthful suggestion and braved the six-mile ride in a cold morning wind.

We always had breakfast at 5 a.m., were assigned a black lunch pail with coffee and sandwiches, each painted with a name of a dog (my favorite was "Joe"), and proceeded to the farm and the modest Windblown Bottoms clubhouse. We were guided along the way by blinking red lights of a nearby coal power plant.

Once at the farm, we quickly put on hip boots. Day was coming, and we needed to be in the duck blinds before dawn. We drove in the darkness past the power plant, which was next to the river, to duck boats and then headed for the blinds along shallow channels.

Often it was cold—Midwestern cold—with ice on the lake, which we occasionally had to break to get to the blinds. In the dark, just ahead of us, flocks and flocks of wild ducks—mallards, black ducks, teal, pintail and more—would take off into the dark sky. The landscape was all wildness and sounds of silence. We humans were but shadowy creatures. We would break a hole in the ice in front of the blind, put out the duck decoys, climb into the blind and await the light of dawn and returning ducks.

After dawn and the early morning return flight of ducks (if there was one), we would sit back in the blinds and scan the lake for flocks of mallards, black ducks and swift-moving bluewing teal.

On rare occasions, high-flying pintail would come over the lake. Mere specks in the sky, the pintail would set and cup their wings, masterfully carving their way down to the water. Their commanding performance transformed the natural landscape of the lake and its surroundings into a background stage for their art. (Such pintail shows are always magical.) Other times, we settled for watching butterflies and small song birds.

I remember well the first duck that I shot. I was hunting with my father. It was bitterly cold, 8 degrees Fahrenheit, with a 40-mph wind. A single duck came in from the right side of the blind, flying downwind. I stuck my gun out the left side and shot. The bird dropped dead in the water and floated against the ice. It was an American goldeneye. (It is the only goldeneye I have ever seen while hunting.) I looked at my father. As I remember, neither of us said a thing.

Another time, I was shooting with my mother, Mimi. She was always more interested in the dogs, especially petting her favorite female Labrador, Widgeon, than in shooting. A flock of teal landed in the decoys. I got up, the birds flushed and I shot. Three teal fell into the water. Looking up from Widgeon, Mimi shouted, "Great shot!," and sent Widgeon out to retrieve the birds. I looked around the lake, then back at the teal in the water, filled with an adolescent son's pride.

A curious thing characteristically would happen as the days warmed up. I would leave the blind in my hip boots and wander alone, wading amid the willows, looking for potholes and wounded ducks. Often I found them. They would flush and, with luck, I would shoot them and tuck them in my hunting coat.

On one such excursion, I wandered over to the nearby, smaller lake and climbed into an empty blind. I was alone, with no decoys, but I did have a duck call. (I was very much the rookie duck caller.) A flight of 40 or so mallards flew over. I called. They turned. I kept calling

and, after a number of swings over the lake, they lit in the water in front of me. I cannot remember whether I shot or not. No matter. I, all by myself, had decoyed wild birds on their home turf, a solitary bottomland lake along the Illinois River. I was visited by a feeling of excitement never before experienced.

Enough of youthful memories and stories. What do they mean? What relation do they have to recognizing our membership in Leopold's biotic community? A lot, I think, and certainly worth exploring. Were these hunting trips introductions to nature and its wildness (here, wild ducks)? Yes. Were these trips further bondings with my family, with a new, enhanced familial status? Yes. Now I could bring something of my own to the table. Did I feel remorse and pangs of guilt when I shot the ducks and looked at their unimaginably beautiful, feathered forms lifeless on the floor of the blind? Yes. (Hunter's emotions are decidedly not simple.)

But why did duck hunting, including killing the birds, not morally repel me then? And why does it not to this day, though I have lost the youthful trigger itch? In particular, why did pothole hunting and, especially, calling the ducks to the blind so deeply stir me?

At the time, the experiences were emotionally, if not spiritually, deep, though more or less mindless. But that was over 50 years ago. For me, they were pre-Darwinian and pre-Leopoldian. Now, I can hazard a guess at what was happening to me. I was experiencing deep, well-honed predator instincts, interests and satisfactions. I was implicated in predator-prey relations that psychologically and behaviorally bound me to natural landscapes, to evolutionary and ecological time and space. Never again could I deny an aboriginal membership in historically deep biotic communities.

Leopold could not live without wild things. Neither can I. Perhaps for both of us, hunting and fishing afforded an

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Strachan Donnelley



Sandhill cranes standing in the wetlands at Bosque del Apache National Wildlife Refuge, New Mexico, at sunset.

Government Report Finds Wildlife Refuges Falling Into Neglect

Since 1903, when Theodore Roosevelt established the first wildlife refuge in Florida, the National Wildlife Refuge System (NWRS) has grown to 548 refuges that comprise more than 97 million acres—13 million more than in the national park system. These places vary in size, from the half-acre Mille Lacs National Wildlife Refuge in Minnesota to the 19.3 million-acre Arctic National Wildlife Refuge, and they encompass forests, marshes, tundra, estuaries, deserts and coral reefs. There are refuges in all 50 states, some in wilderness and some within sight of skyscrapers. They are the only federal lands where conservation and wildlife, including about 260 species listed as endangered or threatened, take statutory precedence over other uses such as recreation, mining, forestry, farming and grazing.

Yet the system is teetering because of severe funding shortages. One-third of all refuges are now unstaffed; half of them no longer have a staff biologist. None have enough personnel and money to achieve their mandated missions—to protect, monitor and manage wildlife and habitat and to run recreational and environmental programs.

In September the Government Accountability Office (GAO) published a report on the refuge system titled “Changes

in Funding, Staffing, and Other Factors Create Concerns About Future Sustainability.” The report concluded: “In light of continuing federal fiscal constraints and an ever-expanding list of challenges facing refuges, maintaining the refuge system as envisioned in law—where the biological integrity, diversity and environmental health of the refuge system are maintained, priority visitor services are provided, and the strategic growth of the system is continued—may be difficult.”

Even basic upkeep has been cut past the bone. The price tag for deferred maintenance on buildings, equipment, dikes and other essentials has reached \$2.48 billion, according to the U.S. Fish & Wildlife Service, which administers the NWRS in the Department of the Interior. In May 2008, an alarming report by the Cooperative Alliance for Refuge Enhancement (CARE), a consortium of 22 large conservation and wildlife organizations, whose members range from the Audubon Society to the National Rifle Association, found that because refuge personnel are overwhelmed with other duties, invasive species have claimed more than 2 million acres, crowding out native plants important to wildlife, including some endangered species, for forage, nesting and protection.

The NWRS has added little habitat in recent years, though money is available

for that purpose through special funding mechanisms such as the Migratory Bird Hunting and Conservation Stamp, often called the Duck Stamp, a federal waterfowl-hunting license that raises about \$25 million each year specifically to buy land for refuges. This may be partly because the NWRS’ resources are already stretched thin, but it’s also because its realty office has been gutted and the acquisition process has become onerous under the current administration’s Interior Department.

The absence of law enforcement has become a critical concern. A 2005 report by the International Association of Chiefs of Police recommended a corps of at least 845 officers for the NWRS, but about 245 now attempt to cover the entire system—an average of one officer for every 400,000 acres. In Alaska, the Arctic, Kanuti and Yukon Flats refuges share one officer for 30 million acres, an area bigger than Pennsylvania. (They also share one maintenance worker.) Unsurprisingly, refuge managers report worries about public safety caused by intrusions into restricted areas by hunters and photographers, poaching, wildlife trafficking, vandalism, drunkenness, destruction caused by transient illegal immigrants and even illegal drug labs.

No wonder a survey of all refuge managers in 2007 by Public Employees for Environmental Responsibility (PEER) found that nearly two-thirds of them believe the system isn’t meeting its mission. An even higher percentage (67 percent) said they were not “optimistic about the future of the refuge system.” They rated morale as either poor (65 percent) or “at an all-time low” (26 percent).

In fiscal year 2008, a few Congressional leaders pushed through a budget increase for refuges of \$36 million, to \$434 million. (By comparison, the budget for the National Park Service is about \$2.4 billion.) Congress seems to be waking up to the plight of refuges and may give them another increase in fiscal year 2009, against the White House’s wishes, but even another \$36 million raise wouldn’t be near enough to catch up. The system’s backlog for operations—staff, equipment and projects

considered essential—is now \$1 billion. CARE estimates that the refuge system can't meet its mission without a minimum annual budget of \$765 million.

How did refuges get into this fix? Gene Hocutt has some theories. He spent 29 years with the NWRS and worked on five refuges, mostly as refuge manager. He's now refuge keeper for PEER, which keeps him in touch with refuge personnel all over the country. "Of all the federal land management agencies," he says, "the National Wildlife Refuge System has always been the poor stepchild in terms of dollars, staff and visibility."

That lack of visibility, he believes, led directly to a lack of funding. The NWRS' narrow focus on wildlife and habitat fostered an exceptional conservation and research organization but ignored a crucial factor—the public. Refuges were almost invisible even in their own communities.

"People who grew up on a farm, grew up hunting, these are people who went into resource management years ago," says Hocutt. "They weren't used to dealing with politicians and chambers of commerce, networking and communicating. They thought, 'I'm just going out with the wildlife and do science.' Wake up! You've got to make a connection with the public."

That's slowly happening. In June 2008, Management Systems International (MIS) released an independent report on refuges commissioned by the Fish & Wildlife Service. MIS rated the refuge system "highly effective" in only one key area—its partnerships with volunteers, community support groups ("friends") and other outside organizations. Twenty years ago only a few million people visited refuges each year, most of them hunters and birdwatchers. Now 37 million visit for a spectrum of outdoor interests, including visits by about 800,000 schoolchildren for environmental programs. The number of friends groups also has increased to 250 from 75 in 1994.

The National Wildlife Refuge Association (NWRA), an advocacy organization, has been helping communities establish volunteer groups at local

refuges—140 of them in the last five years. These groups raise funds for programs and also take up some of the slack caused by staffing cutbacks. "To put it into perspective," says Evan Hirsche, NWRA's president, "the volunteer force on refuges is approximately 30,000 people, and they are contributing 20 percent of the work being done." That work is valued at \$25 million per year, according to the GAO. This growing volunteerism, adds Hirsche, "ultimately translates into political support, and the core message is, 'These places need more money.'"

The JN "Ding" Darling National Wildlife Refuge in Sanibel, Fla., has benefited tremendously from the 1,500 members of its wildlife society. That volunteer group's president, Susan Cassell, said the society raised \$1.5 million to build a new education center and another \$1.5 million to fill it with exhibits and also built a

"Refuge system administrative reporting has reached an unbalanced and critical level and is diverting time and resources away from mission-critical activities."

Management Systems International

presentation pavilion and an observation tower. It buses 10,000 children to the refuge every year for environmental education and gives five grants of \$5,000 each to teachers doing environmental projects. It also awards five scholarships a year to college students studying biology or environmental sciences.

Volunteers run the refuge's bookstore, staff the education desk, answer questions out in the refuge and run free public events. (More than 800,000 people visit this popular refuge every year.) Volunteers also do bird counts and pull fishing line out of mangroves so that waterfowl don't

get ensnared. The society budgets \$120,000 a year for programs and other needs at the refuge. "This all allows the refuge to use its money for other things," says Cassell.

"Ding" Darling is one of the system's most fortunate refuges, but it nevertheless lacks the funds to counteract invasive species and polluted water released from Lake Okeechobee or to restore the area damaged by Hurricane Charlie in 2004. Most refuges wish their list of problems was so short.

"The society equates to 11 full-time employees, which is absolutely huge," says Rob Jess, who was the refuge manager at "Ding" Darling for six years, before he assumed the same position at Alaska's Yukon Flats a year ago. "But that refuge is unique." He points out that the Sanibel refuge has a staff of 15 for 6,000 acres; Yukon Flats has 14 for 9.5 million. Sanibel has three maintenance staff members, and Yukon Flats shares one person with two other huge refuges. "I have friends who run some national parks here in Alaska," says Jess, "and they each have 30 maintenance people."

According to the studies by both the GAO and MIS, though staff has been cut throughout the NWRS, responsibilities have increased, especially paperwork. "Refuge system administrative reporting has reached an unbalanced and critical level," says the MIS report, "and is diverting time and resources away from mission-critical activities."

"To be honest, what's being squeezed out are the resources themselves," says Jess, "because it's the one thing we can control. Surveys for sheep, caribou, grizzly and black bear; habitat work; prescribed burning—all the things that we should be doing are going away. We either do it on our own time or it doesn't get done. So we're working on Saturdays, working 12-hour days instead of eight. People are very resource-oriented here and very passionate."

Yukon Flats is a crucial nesting area for about 2 million ducks, so that's where Jess concentrates his resources. "Our moose populations are declining, and we aren't able to study that like we would

like to,” he says. “We aren’t able to study the potential for the reintroduction of the woodland bison. We aren’t even able to make a good-enough effort on ducks. Some are declining and some are okay, and we aren’t sure why. Managers at all refuges have to pick and choose species. We will get to the point where it’s ‘Do we allow the polar bear to die off to save three other species?’”

His point is echoed in the GAO report: “Fish & Wildlife Service has had to make trade-offs among refuges with regard to which habitat will be monitored and maintained, which visitor services will be offered, and which refuges will receive adequate law enforcement coverage.”

Hard choices have also shaped NWRS’ organization. In the name of efficiency, groups of refuges get “complexed,” which consolidates staff and resources at one refuge and leaves others mothballed, with only occasional monitoring. “What it means is that once every two weeks somebody goes to make sure that nobody has burned the buildings down,” says Hocutt. He once managed a group of refuges that included two in Massachusetts, one in New Hampshire, one near Charlestown, R.I., and the Stewart B. McKinney National Wildlife Refuge on the Connecticut coast. “And I’m managing these?” he asks. “When pigs fly, I’m just calling the police when something goes wrong.”

Meanwhile, wildlife can fall through the cracks. After the Wallkill National Wildlife Refuge in New Jersey was slated to lose its manager and go unstaffed, the refuge’s friends group brought in a volunteer biologist who found endangered Indiana bats living there. “The system doesn’t have the resources to catalogue and monitor and know what they have,” says Hirsche. “It’s not their fault; they don’t have the money to do it. But when we don’t even know what’s on our refuges, it’s awfully hard to make good management decisions.”

The NWRS also needs to widen its perspective beyond waterfowl and ungulates, says David Skelly, F&ES professor of ecology. “When these refuges were

established,” he says, “people had a fairly utilitarian view of what wildlife mattered, and they targeted a small set of species like a laser beam. For instance, a lot of refuges have been heavily modified and managed to benefit migratory waterfowl. And they have shown how important it is to support migratory species and how successful you can be. But it’s the kind of wildlife management that people were talking about in the early to middle 20th century, when the connections among different groups of wildlife either weren’t

them into thinking along lines more like the rest of the conservation world, integrating wildlife management across species and larger areas.”

Some people think the refuge system can’t thrive until it becomes a separate agency. That’s the goal of the Blue Goose Alliance, which was started by a number of former employees of the NWRS and Fish & Wildlife Service. “If Congress was creating the refuge system today,” says William Reffalt, a former chief of the NWRS who spent 24 years with the Fish



National Wildlife Refuge Association

Vandalism in refuges, like the ransacking that occurred recently in this office in the Arctic National Wildlife Refuge, is on the increase.

understood or weren’t in the foreground. I work on amphibians, for example, and much of what happens in wildlife refuges is detrimental to them—dredging and damming.”

Skelly noticed a different attitude recently when he was asked to consult on the planning process for the Silvio O. Conte National Fish and Wildlife Refuge. It extends throughout the Connecticut River watershed, which connects Vermont, New Hampshire, Massachusetts and Connecticut. “They’re acquiring properties to protect watersheds and drainages and streams,” says Skelly, “which could get

& Wildlife Service, “there’s no way anyone would suggest that it shouldn’t be a separate agency, because of its size and complexity and reach. But because it’s an historical artifact that started small, it didn’t happen.”

Stuffed inside the Fish & Wildlife Service, which already has too much to do, refuges often get pushed to the end of the line. “The regional directors seem to think they can take care of refuges almost in their spare time,” says Reffalt. “We believe that a separate refuge agency could make decisions to keep the system healthy rather than caving in to Fish & Wildlife Service needs.”

Aside from low funding and low status, the NWRS faces several other issues.

Development is encroaching on many refuges that were once in rural areas, for instance, and President Bush and others want to drill in refuges such as the Arctic National Wildlife Refuge and the Yukon Flats.

Reffalt, Hocutt and others also worry about the use of so-called annual funding agreements (AFAs) under the Indian Self-Determination and Education Assistance Act, which allows tribes to apply for authority over many functions at refuges and national parks. Political appointees in the Interior Department pressured the Fish & Wildlife Service to sign the first extensive AFA in July 2005. It gave the Confederated Salish and Kootenai Tribes (CSKT) half the duties at the National Bison Range Wildlife Refuge in Montana despite a petition by more than 100 refuge managers who called the arrangement unworkable. In December 2006, the Fish & Wildlife Service terminated the agreement, citing CSKT's multiple failures to perform duties, supply qualified personnel and account for funds. Nevertheless, two weeks later the Interior Department stepped in again and ordered the Fish & Wildlife Service to renegotiate the agreement. The new AFA, signed in June and in effect since October 1, transfers all jobs to CSKT, with the exception of a refuge manager and a deputy. Other tribes are reportedly preparing requests for AFAs at other refuges and parks.

The refuge system must also adapt to emerging environmental issues such as climate change and water scarcity, which will require research, monitoring and nimble management. But since most refuges can barely meet the needs of the present, there's no time or money for future challenges.

"It can be fixed," says Hocutt. "It's so fixable. We have the most salable product in the world in our national wildlife refuges, and the majority of them are within 20 miles of a major population center. But we have to develop a strong constituency, and we have to have a seat at the table when money is being divvied up." ■



MEMO TO PRESIDENT-ELECT OBAMA: 'Sustainability' Key to Energy Policy

By Melinda Tuhus

With the price of gasoline and crude oil at historic highs and climate change an increasingly serious threat to the global environment, President-elect Barack Obama will have an historic opportunity to remake the world's largest economy into a leader on alternative energy. When asked what advice they would give to the next administration, several F&ES professors identified "sustainability" as the key to a viable long-term energy policy.

Paul Anastas, founding director of the Center for Green Chemistry and Green Engineering, says that sustainability, which he defines as "meeting the needs of the current generation while preserving the ability of future generations to meet their needs," must undergird any forward-looking energy policy.

To determine sustainability, Anastas says, all aspects of an energy source must be taken into account through sustainable-design principles. "In the case of solar energy, for one example, we must consider the means of capturing the sunlight and the materials involved. Are they depleting? Are they toxic? Are they renewable? What happens to them at the end of their useful life? After doing that analysis, then we'll see whether it's going to be sustainable or not."

The primacy of sustainability is echoed by Karen Seto, associate professor in the urban environment. She studies the environmental impact of cities, which this year became home to more than half of the global population. She says people tend to think about energy in very individualistic ways—like how many miles per gallon of gasoline they can squeeze out of their car—but not to think about how their lifestyle choices affect the bigger energy picture. "We have to consider things like how cities are developed and planned, so people can use mass transit."

Seto says the emphasis so far has been on low-hanging fruit and feel-good steps people can take. "Ethanol, EnergyStar, hybrids, fuel cells, even a gas tax or carbon tax—they fundamentally do

not change our consumption patterns. We need to be more integrative and rethink those patterns. We need a sustainability policy; an energy policy is one element of that.”

Marian Chertow, Ph.D. '00, associate professor of industrial environmental management, says she has looked into several energy models. “I think we need to be consistent and systematic about reducing our dependence on foreign fossil fuels. Drilling more now just extends something that’s unsustainable. We need to be mindful of public policies that ease the pain of transition but don’t avoid the transition; the government may have to offer subsidies to people below certain income thresholds or help finance new technologies.”

Most of those interviewed favor regulations for reducing greenhouse gases but consider market forces more effective in promoting other aspects of an energy policy, like the mix, availability and price of various kinds of energy.

Robert Mendelsohn, Edwin Weyerhaeuser Davis Professor of Forest Policy and an economist, is a big believer in the power of the market to solve America’s energy woes. “I believe that the first priority for sorting out our energy problems is to sort out our foreign policy problems,” he says. “It is critical for the United States to end the wars in Iraq and Afghanistan and return the globe to a stable and peaceful state. Then I believe that oil prices will promptly fall back to long-run values of about \$50 per barrel.” He says the skyrocketing prices have been caused mainly by “wars and hostilities in virtually every oil-producing country.”

Mendelsohn supports a role for government in curbing or preventing environmental damage, so he favors regulations on emissions. In fact, he says, economic analysis suggests that greenhouse gases and other pollutants, such as particulates and sulfur dioxide, should be more tightly regulated than they are now. The tightened regulations could come in the form of taxes on emissions or cap-and-trade regulations, in which a government authority would set a cap on total emissions and companies would either buy or be given pollution credits. Companies that pollute more would need to buy credits from those that have successfully reduced their emissions and, therefore, have “extra” credits to sell.

Exploration for new oil and other energy sources is better left to the market, says Mendelsohn. “The more the government interferes in these choices, the worse off society is likely to be.”

For example, he says, “CAFE standards are mostly wasteful regulations. If the price of gas is very high, people are not going to buy cars with poor mileage. It’s happening now, and it didn’t require regulation.” (Corporate Average Fuel Economy standards were first put in place after the 1973 Arab oil embargo and were revised for the first time in 2007 to require an increase in fleetwide gas mileage to 35 miles per gallon by 2020.)

Daniel Esty, Hillhouse Professor of Environmental Law and Policy and director of the Center for Business and the Environment at Yale (CBEY), says a mix of market incentives and regulation will probably be necessary to bring about a clean-energy future, with the emphasis on the carrots of innovation. “The centerpiece of any regulatory strategy will have to be some kind of price signal, most likely a cap-and-trade allowance system.” It may make sense, he adds, to supplement that with some sort of “stick” to make people pay directly for their destructive impacts on the environment. He also proposes some “old-style mandates” to set standards for green building, including higher-efficiency air conditioning and heating systems, better lighting, more insulation and higher-efficiency windows in both residential and commercial buildings.

Bryan Garcia '00, program director for CBEY, says that ongoing production tax credits and investment tax credits for renewable sources of energy are critical to nurturing their development and survival, adding that Congress’ inability to pass them prevents continuous investment in wind, solar, biomass and other forms of renewable energy. He notes that the production tax credit is especially helpful because it is generation-based, meaning the more power produced from a renewable source like wind or solar, the bigger the credit. “Extending investment tax credits and expanding them to technology, like fuel cells and photovoltaic cells, would give the market the sense that the federal government is committed to these technologies,” he says, “because the fits and starts cause investors to say, ‘All right, the United States isn’t committed to this, so we’ll move to other markets.’”

Chertow advises a multipronged approach for a long-term energy policy, focusing on conservation. “Every time we burn a fossil fuel conventionally to make electricity,” she notes, “two-thirds of the energy value is lost as waste heat.” For transportation, it’s all about miles per gallon, improving fuel-efficiency standards.

At this point we’re not doing it through regulation, we’re doing it through people’s pocketbooks, and I think it’s important to have a plan.” She adds that the plan would not necessarily involve regulation. “It could be incentives to drive less. For example, ridership on passenger rail and buses need only increase by 15 percent to 30 percent in order to allow service to be expanded geometrically in most regions. With



Bryan Garcia



Arnulf Grubler



Robert Mendelsohn



Karen Seto

more and better service, the attractiveness of mass transit will have profound impacts on development and lifestyles in the next generation, even if the current population only slightly alters its lifestyles. We won't become a European-style transportation culture overnight or perhaps ever, but if Dallas and Denver begin to look more like New York and San Francisco from a sustainability point of view over the next 10 years, America will have changed for the better."

Chertow favors "unleashing" entrepreneurs, because "Americans resist regulation and being told what to do, but when it comes from the business sector it's often a positive force, creating jobs and reducing dependence."

Robert Bailis, assistant professor of environmental social science, sees a need to increase government oversight of business in pursuit of a viable energy strategy. "The government needs to be a little less business-friendly or at least needs to promote different businesses than it has in the past, like mining and petroleum." He supports rolling back some tax breaks on drilling and says that such support should go instead to renewable energy.

Garcia says any successful government energy strategy "can't leave consumers out of the picture. We often establish policies at the federal and state levels that ignore consumers, and by that I mean they don't let consumers know there are incentives for them that they can take advantage of and, in so doing, change their own behavior to be part of the solution." For example, he says the federal government and some state governments, including Connecticut, provide thousands of dollars in incentives for homeowners who install renewable energy systems in their homes.

"So this can't just be the government taking care of us; this has to also be about the government getting people to take responsibility themselves for their actions and providing them a carrot or an incentive to, in fact, do that," says Garcia. "Consumers can actually be the solution providers; we have to engage them."

Garcia also recommends "taking a hard look at the importance of all federal national labs that are dealing with energy and demonstrating a commitment to science," a commitment that many environmentalists and scientists charge has been undermined by the Bush administration. "Federal labs like Lawrence Berkeley National Laboratory and the National Renewable Energy Laboratory are vital resources for the advancement of clean energy in the United States. They provide technology test beds for companies seeking to "prove out" the reliability of their technologies. They provide lab facilities to design and develop the next generation of solar technologies. And they provide a useful national resource focused on advancing clean and renewable sources of energy. "We should look at them with an eye toward greater

support with more strategic focus, for example, by helping the nation achieve the goal of energy independence."

Chertow also calls for more research and development on energy issues. "The U.S. government spends about a billion dollars a year less than it did 10 years ago on energy research and development at a time when so many of the issues we face, from the Middle East to our own economy, are so affected by energy choices and prices. We aren't doing the basic R&D work that could turn a big problem into a solution that creates jobs, reduces dependence and reduces global tensions."

Arnulf Grubler, professor in the field of energy and technology,



Paul Anastas



Robert Bailis



Marian Chertow



Daniel Esty

says that in talking about energy policy, one has to worry about import dependence, CO₂ emissions and local air pollution because of smog. "Now, all these problems are proportional to the amount of energy used, so before we talk about drilling our way out of oil import dependence—and you cannot, obviously—you need first to try to reduce the demand as much as possible, because the lower the demand, the easier it is to address the other energy challenges. And this, unfortunately, is not a very popular message and, in most debates, is ignored.

"When my students first come into class," he says, "they talk about renewable energy and biofuels for cars without ever questioning whether it makes sense to have biofuels in an inefficient car. Does it make sense, as my countryman Arnold Schwarzenegger has done, to have hydrogen—an alternative fuel and incredibly expensive—and use it in a Hummer? Now, Arnold has sold his hydrogen Hummer, but my point is that you need to look first at the demand and the efficiency of energy." Then, he says, other issues can be discussed within that context, such as oil imports, increased domestic drilling and development of alternative-energy technologies.

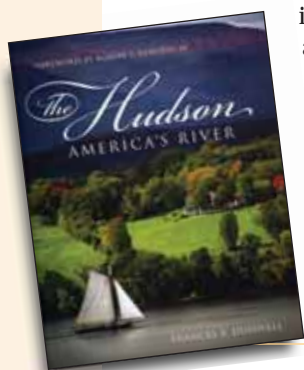
Esty says leadership is critical to shifting America toward a clean-energy future. "The key to doing that will be a president who brings the country together around a clean-energy agenda, galvanizing the public and then really working the Congress to bring Democrats and Republicans together on a shared vision of the way forward." ■

All photos by Harold Shapiro except Dan Esty (Gale Zucker) and Karen Seto



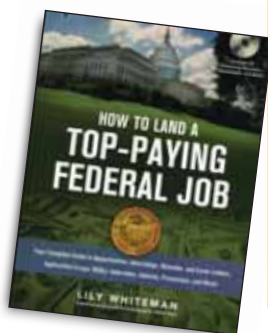
The Hudson: America's River

In *The Hudson: America's River*, author Frances Dunwell '84 explores the Hudson River as a 315-mile-long exemplar of the relationship and interdependence of the American people with the environment they have claimed, tamed, exploited and repaired over a span of centuries. With a brief introduction on the Native Americans who lived on the Hudson's shores and depended on it for their sustenance, Dunwell launches her chronicle in earnest with Henry Hudson's 17th-century exploration and follows the American story of this mighty river as it evolved over 300 years through the American Revolution, burgeoning national commercialization, invention and industrialization, development and pollution, up to The Nature Conservancy's campaign in the 1960s to "save a mountain and revive a 'dead' river." In his foreword, Robert Kennedy Jr. commends the author for "highlighting the symbolic power that the Hudson has acquired over its people and over our nation." The book is published by Columbia University Press. To purchase a copy, visit cup.columbia.edu or www.amazon.com.



How to Land a Top-Paying Federal Job

In *How to Land a Top-Paying Federal Job*, Lily Whiteman '88 disputes the common misconceptions of many job-seekers: that government salaries are non-negotiable; that only applicants with the right connections can succeed in getting an offer; or that if one has previously applied for a federal position and been rejected, they're out of luck. Drawing on interviews with more than 100 hiring managers, Whiteman offers readers little-known ways for finding openings, shortcuts for instantly impressing the true gatekeepers on paper and in person and sure-fire tips for negotiating a top salary and getting quickly promoted. The book includes a companion CD filled with sample resumes and worksheets. Whiteman lives in Washington, D.C., and is a popular contributor to the Jobs section of *The Washington Post*. The book is published by AMACOM, a division of American Management Association. To purchase a copy, call 1-800-714-6395 or visit www.amacombooks.org.



Thoreau's New England: Photographs and Selections

In *Thoreau's New England: Photographs and Selections*, photographer Stephen Gorman '88 presents his own vibrant images of wild New England, paired with quotes from the writings of Henry David Thoreau, including *Walden*, *The Maine Woods*, *Cape Cod* and a number of shorter essays and letters. Gorman divides his visions of natural New England into two sections: "Wildness," in which Thoreau saw "the preservation of the world"; and "Society," which Thoreau presumed to question, while continuing to embrace it as part of a nonconformist's life of exploration and adventure. The book is published by University Press of New England. To purchase a copy, visit www.upne.com or www.amazon.com.



The Storks' Nest: Life and Love in the Russian Countryside

In *The Storks' Nest: Life and Love in the Russian Countryside*, author Laura Lynne Williams '99, with photographs taken by her husband, Igor Shpilenok, chronicles the life and work that have grown out of their mutual commitment to preserve the wilderness of Russia. The author tells multiple stories: of her partnership with Shpilenok, both professional and personal; of the rugged realities of life in the government-protected wildernesses of Russia; and of the remote Russian village they call home and the 18 villagers who are their neighbors. The author begins her saga with her move to Moscow in 1993 to set up the World Wildlife Fund in Russia. A meeting with Shpilenok led to a job offer, which Williams accepted in 1997, and this led her to both the wilderness that she is working to support and marriage to her colleague. The book is published by Fulcrum Publishing. To purchase a copy, visit www.fulcrum-books.com or www.amazon.com.





Harold Shapiro

William Burch cited a Puccini opera during a lecture once to make a point that “every time we lose a species we cry together.”

TRIBUTE: William Burch

A Career Devoted to Finding Environmental Solutions in Ordinary People’s Lives

By Alan Bisbort

This spring, William Burch, Frederick C. Hixon Professor of Natural Resource Management, told a gathering of F&ES alumni that he had, during his career, tried to “carry out the words, if not the music, to the song ‘I did it my way!’”

Burch, who is retiring this year from Yale after 40 years on the faculty, was on hand to receive a distinguished service award, along with former Dean John Gordon and Robert Pyle, Ph.D. ’76. When it was time for him to give the keynote address to the alumni, Burch—never one to flinch from sharing his passion—offered remarks that have become his trademark: part instructional, part inspirational, all from the heart. He, in short, did it his way by presenting the talk “Back to the Future: Lessons From Pulaskis, Peaveys, Porcupine Sex and Maine Lupines.”

In it, he called himself “a preindustrial exchange scholar, whose rant is that society is nature and nature is social” and

“a professor at a fancy school who thinks that the most effective learning for natural resource professionals can only come through getting your hands dirty by being involved in activities useful to others.” He offered his audience advice such as: “always question authority—especially if you have now become one” and “meaning well or even being right seldom excuses a large failure done in public and with all the bright stage lights on.”

Burch has had few “large failures” in his career, though he has felt the bright lights on such stages as Nepal, Bhutan, China, Costa Rica, Argentina, Bolivia, Paraguay, India, Bangladesh, the Philippines and Peru, as well as the inner cities of the United States. At each stop, he has hammered home the one idea that has animated his research: “Urban areas are ecological systems, and humans should be studied from ecological and spatial perspectives.”

In other words, you can’t take the human out of the environment. “Environ-

mental solutions can’t be outside the scale of daily human life,” he says. “The Cedar Hill neighborhood group in New Haven honored the work of our students from the Urban Resources Initiative and the ecosystem management class by planting a birch tree near the basketball court, making a connection between playing basketball and the natural world. This group, like many others in the city, has demonstrated that local people can take charge of their own environment. They just need modest resources, technical backup and some optimism that our students bring to such challenges.”

In addition to the classes he has taught at F&ES in forest management and urban ecology, Burch has also held social science research and management appointments with the U.S. Forest Service, National Park Service and Connecticut Department of Environmental Protection. His work on wildland recreation behavior was among the earliest, and expanded to include parks, biosphere reserves and

ecotourist regions in Asia, South America and Europe.

He was the first director of Yale's Tropical Resources Institute and the Urban Resources Initiative. He has been a grantee on numerous projects—sponsored by USAID, the Ford Foundation, the MacArthur Foundation and the World Wildlife Fund—in Asia and Latin America. He was awarded the John Eadie Fellowship by the Scottish Forestry Trust to advise British Forestry on community-based forestry research and training needs. And since 2001, he has been an adjunct professor in the School of Economics and Management at Beijing Forestry University.

"The best class I ever took was his six-credit monster on managing protected areas," says Marc Stern '92, Ph.D. '06, whose advisor was Burch. "I was hesitant to take it, because I just wanted to be

"He deepened and broadened the school, but his biggest gift to his students may be his broadening of their imaginations."

Graeme Berlyn

away from people in a forest studying the ecosystem. But he convinced me that local studies in New Haven were just as fascinating as forests in Nepal—that it didn't matter where you are, New Haven or Nepal; the same theories and realities applied. His message has always been that unless you can reach to that village level, it won't work. We can think up brilliant ideas and theories and plans, but it makes no difference if they don't reach ordinary people."

Graeme Berlyn, E. H. Harriman Professor of Forest Management, is the longest-serving member of the F&ES faculty, in his 48th year. "Even though he used to jokingly say his expertise was 'the sociology of leisure,' Bill got so many things done. He deepened and broadened the school, but his biggest gift to his students may be his broadening of their imaginations. I'm terribly sad to see him go."

For Stern and his wife, Kim Thurlow '02, Burch wasn't just a teacher; he took a paternal interest in their lives. Burch flew to speak at their wedding despite being weak from a bout of dysentery.

Equally memorable was the conference on rainforest protection that Stern organized at the school and at which Burch was the keynote speaker.

"People had been pontificating all day about various forest issues," recalls Stern. "Bill got up in his torn jeans, tweed coat and cowboy belt buckle and slammed his fist on the podium. He was angry, telling the crowd 'You are arguing over tiny things. What you're forgetting about ... is love.' Then he cited a Puccini opera to make a point that 'every time we lose a species we cry together.' By the time he was through, there were people weeping in the audience behind me."

When asked later about the talk, Burch laughs and says, "It was the usual stuff, people talking in grandiose ways, not connecting to the assumed clients—the villagers in Guatemala or whomever. Not asking, 'What do they need? How do they perceive the problem?' I sensed an unwillingness to get down and find out for themselves."

Like Stern, Gary Machlis, Ph.D. '79, had a close relationship with Burch. "After I had done my master's, I came across Bill's first book, *Daydreams and Nightmares* [originally published in 1971 by Harper & Row and republished in 1988 by Social Ecology Press], which was a revelation to me," says Machlis,

now a professor of conservation at the University of Idaho. "He found connections between the social and biological sciences that no one, to my knowledge, had found, and he stated them for the first time. I thought, 'I want to go study with him,' contacted him at Yale and went there as a doctoral student. I had never been east of Bozeman before that."

Machlis recalls a conference at which Burch was speaker: "The hall was filled with peace and optimism, and to stir things up and connect the event to the subject of forests, Bill pulled out the largest chainsaw I'd ever seen and cranked it up. It spewed blue smoke and made a noise like an atomic explosion. You see that as a graduate student and you think, 'Anything is possible.'"

Generous to a fault and accessible to an extreme, Burch is also given to solitary wanderings in the forest. Tireless in his dedication to his job, he is equally devoted to his family, and his Branford home was open to F&ES students over the years. "Bill had students from all over the world and treated them as an extended family," notes Machlis.

His worldview was shaped during a boyhood in eastern Oregon, when his father, then employed by the Depression-era Works Progress Administration, took the family on extended camping trips. "It was a good childhood," he says. "My brother and I grew up out of a tent." While attending college at the University of Oregon, Burch could not resist getting involved in the trade union movement and found himself at the center of a campus workers' strike. Later, working for the U.S. Forest Service, he struggled with like-minded scientists to save the virgin forests from timbering and dam building before the Wilderness Act was passed in September 1964. The act protected 9 million acres of federal land and created the legal definition of wilderness: "an

continued on page 61



1940

John Slocomb is 93 years old and lives in Grantsville, Md. He is in excellent health, keeps up on forestry and environmental issues, walks daily, likes to sail, plays saxophone in a local band and recently wrote a book on Paul Bunyan stories.

1942

Richard Jorgensen, D.E. '54, writes: "I have been very fortunate in being able to talk to the other four members of our class. Betty and **Dick West** are in Florida to be near their three grandkids and seven great-grandkids. Betty is severely arthritic and needs much care, but Dick says her spirit is good. He and **Crock Atkinson** tented together at Urania camp, and both mentioned Crock sticking his pistol out of the tent and firing to scare an owl away that was keeping them awake. Crock turned 90 last November and is still hunting. He got a 185-pound buck last fall. Sadly, Crock's brother in Boston is very ill, and Crock had just returned from visiting him when we talked. **Sid McKnight** lost his beloved wife just about the time I lost mine and is going through the same lonely life, but showed me up by walking 10 miles every day. I go around the block once a week! He has a patch of timber behind his house and often goes out to watch the trees grow. His children are some 30 miles away, and I check on him often. **Ben Eggeman** lives in Alexandria, Va., with wife Jenny, whom he latched on to some 60 years ago. They're keeping the line going with six grandchildren. I serve on the board of directors at a senior housing facility and do some church work. I got a new driver's license on my 90th and take folks shopping, etc."

1946

Class Secretary
Paul Burns
pburns@lsu.edu

Paul Burns, Ph.D. '49, writes: "I continue to go to my office nearly every day at the Louisiana State University School of Renewable Natural Resources in Baton Rouge. I have been professor emeritus there

since I retired in 1986. I have been trying to learn more about the Chinese scientists who received special training in wood technology at the Yale Forestry School from 1945 to 1946. My friend and fellow 1946 alumnus **Dave Smith, Ph.D. '50**, and Gordon Geballe, F&ES associate dean for student and alumni affairs, have helped me. Gordon wrote that on the wall near his Sage Hall office is a photo showing 14 Chinese students in a special 1946 class. He also wrote to his colleague **Yajie Song '89, D.F.E.S. '95**, who traveled in China during the summer of 2008 and had planned to make contact with one or more of these former students. The history of the Yale Forestry School's first half-century has a chapter on "Yale in Foreign Countries," with a section on China that points out how Chinese graduates, including **D.Y. Lin '14, N.K. Ip '19, Paul S. Lee '20, P.F. Shen '21, C.F. Yao '21** and **C. Wan '23** played an important part in Chinese forestry."

1947

Class Secretary
Evert Johnson
swede-doc@mindspring.com

Henry "Hank" Wilson writes: "I took a 35-day Viking cruise and was amazed at seeing a plantation in Iceland of very slow-growing trees. I enjoy keeping in touch with **Robert Parker**, now living in Issaquah, Wash. He is acquiring land in Brush, Colo. I live in Lyman, S.C., a small town between Greenville and Spartanburg. I always enjoy the news of Yale Forestry School graduates from the WWII era."

1948

Class Secretary
Francis Clifton
fhcpbyfor@webtv.net

Francis Clifton writes: "August 1 was my fourth anniversary at The Cloisters in DeLand, Fla." ■ **George Hindmarsh** writes: "I went to White Lake off Lake Michigan with my daughter for 10 days and caught two nice salmon. I admired the great wildlife and huge white pine and red oak in the area above Michigan's shores." ■ **John O'Donnell** writes: "I am long retired but healthy, and keep

busy cutting grass and babysitting for grandkids. Not old enough to winter in Florida yet."

1949 60th Reunion Year

Class Secretary
Daniel Dick
d.dick51@verizon.net

Jim Carlaw was the first forester that International Paper ever hired, which involved him in very large sales and purchases of timberland and pulp. He retired to Cape Cod when he was 60. ■ **Dan Dick** writes: "Then there were 51 of us, the largest class in the history of the school at that time. Now there are 20 of us 59 years later. Not so bad. Noting that the previous issue of *environment:Yale* did not list a class secretary for our class, I volunteered and was appointed posthaste. **Wiry Dave Fordyce**, of Ogden, Utah, for years now has been concerned over the lack of forest management of the timberlands in those states where too little rainfall produces incendiary conditions. To quote Dave, "... forests need stocking control through heavy thinning, fire breaks along with prescribed burning. Both federal and private-property holders pulled back from these actions due to no financing and threatened lawsuits by environmental groups using surrogate reasons such as timber harvesting, thinning or any type of vegetative management that would purportedly threaten wildlife habitat, or perhaps, an endangered species. Judicial decisions were handed down to stay harvesting or any type of tree-cutting. With these management practices shut down or curtailed, ground fires turned into crown fires and total destruction of the forest. This year, money has been allocated for extensive thinning. Actually, when controlled, fire is very beneficial, such as in the South, to ensure regeneration.' How about them apples?! I trust that the rest of us aren't too old to find some similar passion stirring in our bloodstream about personal or professional issues of interest. How about it?" ■ **Herb Winer, Ph.D. '56**, likes the international position the school holds as its curriculum and outreach have developed.



1950

Class Secretary
Kenneth Carvell
kencarvell@aol.com

Walter Henson, Ph.D. '50, writes: "I broke my hip early in May and spent eight weeks in the hospital. Recovery has been slow, but my doctor tells me I am doing well. Pauline is doing pretty well. She enjoyed the pool during the hot summer. The grandchildren are prospering and are lots of fun."

1951

Class Secretary
Peter Arnold
arnoldp@nccn.net

Peter Arnold writes: "This year I have crossed a couple of watersheds. July saw my professional forester's license come off the wall—in California, if you don't renew and neglect to inform the powers, you get fined for it—so no more woods traipsing for me. My knees would complain too much anyway. This year we also moved out of the house we had lived in for 35 years (four years out while we lived in Ecuador) and into a new one just up the hill that wife Sarah had designed—a very easy transfer from one to the other. We had sold most of our property, including the vineyard, two years ago and were renting until this one was finished. And the final watershed was leaving the grape-growing business. In 2007, even though the vineyard was no longer ours, I managed it for the last season, a most dismal one in terms of yield. But grapes from that vineyard have, over the years, produced award-winning cabernet franc; in fact, the 1997 vintage was even noted in a *Wall Street Journal* article about that varietal some time back."

1952

Class Secretary
Milton Hartley
redheded@olympus.net

1953

Class Secretary
Stanley Goodrich
slgmyg.good@quest.net

Eric Ellwood, Ph.D. '54, writes: "Now in my 86th year, I have been retired for 19 years from my position of Dean of the College of Natural Resources at North Carolina State University. Retired is a misnomer, as I run out of time daily. For the first several years of my retirement, my main occupation was caregiver for my ailing wife Dorothy (Parkinson's disease). She passed away in 2000, and a few years later I married a wonderful lady, Mary Kilburn, who this year will retire from her business as a clinical psychologist. We do some traveling and have lots of expanded family nearby. I'm pretty active gardening (especially roses) and sailing off the North Carolina coast. My principal passion is photography (I've built a studio over the garage), and I've won some awards for my work. My best regards to all the other survivors out there and would like to hear from them. Have to go—things to do!" ■ **Oak Thorne** writes: "I was elected to the external board of the Yale Institute for Biospheric Studies and am honored to be a member." ■ **George Tsoumis, D.F. '57**, writes: "I am 20 years in retirement as professor of forest utilization, School of Forestry and Natural Environment, Aristotelian University, Thessaloniki, Greece. In the course of the years, I published three books in English: *Wood as Raw Material; Science and Technology of Wood*; and *Harvesting Forest Products*. These were published in the United States and England and as texts in Greek for the local students. In 2007, I published *Forests and Environment in Ancient Greece*. It is in Greek with a long English summary. I donated a copy of this book to the F&ES library. Over my career, I was a Fulbright scholar and dean of the School of Agriculture and Forestry and the School of Forestry and Natural Environment in Greece. I taught at Montana and Penn State universities. I was a research associate at Yale. I served as president of the Hellenic Forestry Association, was a member of the International Academy of Wood Science and was a founding member of the Hellenic Agricultural Academy. I published 60 research papers and many presentations in journals, books, conferences, public

lectures and encyclopedia articles. My wife Alexandra, a dietician, is now retired. We have two sons—a surgeon and an orthodontist."

1954 55th Reunion Year

Class Secretary
Richard Chase
RACHase@aol.com

1956

Class Secretary
Jack Rose
jackarose@sbcglobal.net

Jack Rose writes: "After too much medical excitement for the last year, we finally headed out for our Sun Valley, Idaho, home in August, and the trout are now endangered again."

1957

Gordon Baskerville, Ph.D. '64, received an honorary Doctor of Science (Forestry) degree on May 29 from the University of New Brunswick. In attendance for this occasion, which was held in the centennial year of the UNB Faculty of Forestry and Environmental Studies, was **John William Ker '51, D.F. '57**.

1958

Class Secretary
Ernest Kurmes
ernest.kurmes@nau.edu

Herster Barres writes: "I continue to develop the forest carbon-offset model, which I have been working on for more than 40 years. Reforest the Tropics (RTT), a Connecticut-based nonprofit organization, manages 30 carbon-offset forests for 59 U.S. sponsors in Costa Rica. The goal of this applied research, climate-change program is to combine efficient CO₂ sequestration in tropical farm pasture reforestation projects, with the production of wood for farmer income. Key to long-term carbon sequestration is the profitability of these forests to the participating farmer on whose land the forests are established. Only if the farmer is happy with the cash flow from the forest will the forest be managed sustainably. Each forest has a 25-year agreement between RTT and the farmer. In September 2008, the first thinning of these very-fast growing forests will be done for

farmer income. Recently, **Mike Ferrucci '81** and **Kyle Meister '07** inspected some of the 30 different innovative models designed by me. RTT maintains a forester in Costa Rica who is in charge of managing the forests under my direction. The results so far are very positive, with annual sequestration rates of 40 to 50 tons of CO₂ per hectare by the fifth and sixth years in some designs.”

■ **Rolf Benseler** writes: “It’s our 50th anniversary, and I have much to be grateful for. I still can get out with my dog in the field and in the woods: redwoods, coast and sierra, though mostly sierra mixed conifer and coastal mixed evergreen forests. Move slowly, shorter distances, less time spent afield. I continue to be active in the local Bernard Osher Lifelong Learning Institute and Adult Education Program. Once a student, always a student. Classmate **Bill Rogers** and his wife, Peg, celebrate their golden anniversary this year. When asked how I spend my time, I recite a little ditty: ‘I wander and wonder, look and listen, usually with dog on the go. Ballet and opera, Bach and Shakespeare, usually with wife in tow.’”

■ **Ernie Kurmes, Ph.D. '61**, is writing a brief history of the Northern Arizona University forestry school for the celebration of its 50th anniversary this year. He also is completely recovered from a hip replacement operation in mid-June.

1959 50th Reunion Year

Class Secretary
Hans Bergey
hberg16@aol.com

1960

Class Secretary
John Hamner
Jhamner1@bellsouth.net

1961

Class Secretary
Roger Graham

R. Scott Wallinger writes: “I am a member of the National Commission on Science for Sustainable Forestry, now in its final year and making some significant policy-related recommendations. **Joyce Berry, D.F.E.S. '00**, **John Gordon** and **Al Sample '80, D.F. '89**, are also members. The

commission has issued a statement calling for a presidential commission on forests to address major inconsistencies between policies and an urbanizing society with a growing population in federal and state forest policies. In parallel, the commission calls for a forest caucus in the Congress and forestry sectors in the various governors’ associations. I continue to chair the Forest History Society, which is growing its endowment and its relevance to education and public policy. I’m grossly overworked and underpaid as a member of the board of the Seabrook Island Property Owners Association, and I chair two of its committees. Adelaide and I travel and enjoy grandchildren, and I find time to golf, fish, boat and shoot.”

■ **Harry Wiant Jr., Ph.D. '63**, holds the Joseph E. Ibberson Chair in Forest Resources Management at Penn State University, which has just announced the institution of a new Ibberson Chair in Silviculture Research. **Joseph Ibberson '48** was the subject of the book *A Forester’s Legacy: The Life of Joseph E. Ibberson*, by **Henry Gerhold '56, Ph.D. '59** (See Bookshelf, Fall 2007).

1962

Class Secretary
Larry Safford
lsafford@metrocast.net

Jeff Burley, Ph.D. '65, writes: “After a career in international development forestry and academic teaching and research at Oxford, I retired in 2003 and have recently become chair of an incubator company, C-Questor, which is concerned with marine, geological, terrestrial and silvicultural carbon sequestration and renewable-energy generation.”

1963

Class Secretary
James Boyle
forsol40@comcast.net

1964 45th Reunion Year

John Worrall, Ph.D. '69, reports that he is five years retired, but still teaching forestry at the University of British Columbia (41st year coming up). They just don’t pay him for it anymore.

1965

Class Secretary
James Howard
jhoward@sfasu.edu

John Blouch writes: “I’m director of specialty paper sales, trying to brighten the world with Fluorescent, Photo Ink Jet, Laser and Latex papers from Miami Wabash Paper in Franklin, Ohio. I work out of my home office in Lebanon, Pa. I enjoy great health and love the customers and the opportunities to help. I plan on working until the other huskies pull too fast, and they leave my carcass for the wolves. I’ve been married to Joyce for 43 years. She is a very patient and understanding semi-retired HR manager. The sole progeny, John von Blouch (restoration of pre-immigration nomenclature), is managing director of a Madrid jewelry company, Cejalvo, manufacturer of orders and decorations such as Blue Max and Golden Fleece.”

■ **Michael Greenwood, Ph.D. '69**, writes: “I am in my last year of a phased retirement in the School of Forest Resources at the University of Maine, wrapping up the establishment of a clonal test of white pine to find weevil-resistant clones. I still have some graduate students, and have some articles to finish on maturation and stand growth in red spruce. I work closely with **Bob Seymour '76, Ph.D. '80**, on the White Pine project, and work with **Bruce Wiersma** as a member of our new Center for Sustainable Forestry Research.”

1966

Class Secretary
Howard Dickinson Jr.

1967

Class Secretary
Robert Hintze
bclues@aol.com

1968

Class Secretary
Gerald Gagne
gerald.gagne@sympatico.ca

1969 40th Reunion Year

Class Secretary
Davis Cherington
cheringt@aol.com

Visit the Yale
School of Forestry
& Environmental
Studies website at
environment.yale.edu



1970

Class Secretary

Whitney Beals

wbeals@newenglandforestry.org

John Bissonette writes: "I work for the U.S. Geological Survey, and have led the Utah Cooperative Fish and Wildlife Research Unit at Utah State University since 1985. I just finished my fifth book, *Temporal Dimensions of Landscape Ecology: Wildlife Responses to Variable Resources*, which is the third in a series of landscape ecology ideas for wildlife biologists. I was a Senior Fulbright Scholar in 2002 at the Technic University of Munich, and in 2005 a Mercator Visiting Professor at the University of Freiburg in Germany. I return yearly in November to the University of Freiburg to teach a three-week course in landscape ecology to international students. The people that make life wonderful are my wife of 42 years, Mary; my son, Gabe, who works for the Bureau of Land Management in Moab, Utah; and my daughter, Nicole, who works for the Utah Department of Health, and her husband, Robert. Nicole's daughter—our first grandbaby, Gabriella—turned 1 in August. I find it so fascinating to watch her go through all of those developmental steps that my children went through more than 35 years ago. It keeps us young. When we're not traveling, you can find me riding my horse in the mountains of Utah and my Harley on the back roads of the West." ■ **Donn Critchell** is designing and maintaining simple websites for local town and community organizations. He is also a member of two photography clubs and participates in their monthly competitions. His photographs are online at www.dynamicdonna.com. After retirement, Donn took up downhill skiing and has been to China twice, Greece once and Switzerland several times with his skiing friends and Sue. He gave up sailing to take up kayaking on lakes and sometimes on the Hudson River near Catskill, N.Y. ■ **William Lansing** retired as president and CEO of Menasha Forest Products Corporation in April 2006, a position he held since 2001. He is the author of *Seeing the Forest for the Trees: Menasha Corporation and Its 100 Year History in Coos County,*

Oregon, 1905-2005; Can't You Hear the Whistle Blowin': Logs, Lignite, and Locomotives in Coos County, Oregon, 1859-1930; and Remember When: Coos County Schools, 1850-1940. He makes presentations around the state of Oregon about the history of the timber, railroad, coal mining and schools of the region. He lives in North Bend, Ore. ■ **Rick Matheny** writes: "For 32 years, I have been the director of public health for the Farmington Valley Health District, a 10-town area that encompasses the majority of the watershed of the Farmington River in Connecticut. I have just recently rotated off of the board of directors of the National Association of County and City Health Officials after eight years, the last four of which I was on the executive committee. I was just elected president of the Connecticut Association of Directors of Health for a two-year term, and I spent five years as a special consultant to the board of scientific counselors of the Agency for Toxic Substances and Disease Registry. My wife, Ines, and I have four adult children and two grandchildren, all of whom live within an hour's drive, so we get to spend lots of time together. I have become a very serious photographer and have had many photographs exhibited at juried art and photography exhibits in the Hartford area. My online gallery can found at www.nikonians-images.org/galleries under RHMJR2."

1971

Class Secretary

Harold Nygren

tnygren@juno.com

1972

Class Secretary

Ruth Hamilton Allen

ruth.allen@aehinstitute.com

Gary Taylor, Ph.D. '77, writes: "I'm working with a small group to commercialize a versatile concentrating solar patent. Ray tracing and computer simulations just completed show that we are ahead of the curve of the most advanced technologies currently deployed. We have just commissioned a prototype that we believe will be finished soon. We

have an exclusive deal with the patent holder and are seeking partners, advisors, investors and friends to help us through the coming steps."

1974 35th Reunion Year

Chuck Dauchy writes: "I'm still using my F&ES education and a few years of on-the-job training with the SCS (now NRCS), a small civil engineering firm, and have been an independent consultant since 1986 for wetlands delineation, site design and permitting (to avoid the wetlands) and stormwater management. Thanks to Tom Siccama and my classmates for help on plant identification, to Garth Voight for my intro to soils, to Professor Gartska for an intro to hydrology and to the whole school for the understanding that everything is connected." ■ **Len Lankford** continues expanding the community-based forestry enterprise, Greenleaf Forestry and Wood Products. Three huge buildings have been added—all constructed of salvaged materials—to house a wood-product showroom (10,000 square feet) and two lumber-drying sheds (each 3,500 square feet). Installation of grant-funded small-diameter pole and lumber processing equipment is proceeding. Greenleaf is now processing beetle-kill lodge pole pine from northern Colorado, where 1.5 million acres of lodge pole have died. www.greenleafforestry.com ■ **Liz Mikols** sends warm greetings to all from New Mexico. After retiring from Lehigh Cement Company in the spring of 2008, she and her husband, Joe Schindler, relocated to Silver City, N.M., in early August. As of writing, they were still up to their ears in boxes and bubble wrap. She writes that she participated in a five-session workshop with the Gila Native Plant Society on Shrubs and Trees of New Mexico on August 20. "Although I am terribly rusty, I managed to recognize some of those arcane (and delightful) botanical terms, such as tomentose, pinnately compound and obovate. I am eager to learn a new flora, which I plan to put to good use when landscaping my yard. I volunteer at the local historical museum and hope to begin teaching a few group fitness classes later this year."

■ **Judith Stockdale** writes: "I am executive director of the Gaylord and Dorothy Donnelley Foundation, which is focused on land conservation and artistic vitality in the three-state Chicago region and the Low Country of South Carolina. Projects of the moment concern local food production, regional land use, the Illinois Cultural Data Project and the Arts Work Fund. I serve on the boards of the Donors Forum, Friends of Ryerson Woods and the Nuveen Funds. My husband, Jonathan Boyer, is working on sustainable architecture and neighborhoods with Farr Associates."

1975

Jean Thomson Black was promoted to executive editor in the Acquisitions Department of Yale University Press. Jean has built the science, medicine and technology lists from almost nothing since coming to the Press in April 1990. "It is a remarkable and deep accomplishment that has earned the respect of her peers throughout the publishing world," according to an announcement. She invented the consumer health list and the Yale University Press Health and Wellness imprint. Her specializations have encompassed life, environmental and physical sciences; history of science and medicine; environmental politics and policy; environmental history; the ongoing debate between science and religion; and trade psychology and cognitive science/philosophy of the mind. She has acquired a continuous stream of excellent academic and trade titles, from general interest to scholarly to course books, to major reference works, such as *Lichens of North America and Phylogeny and Classification of Birds*. Among the F&ES faculty and graduates whose books Jean has published are **John Aber '73, Ph.D. '76**; **Diana Balmori; Joyce Berry, D.F.E.S. '00**; **Herb Bormann; Mark Boyce, Ph.D. '77**; **Ben Cashore; Susan Clark; Gordon Geballe; John Gordon; Steve Kellert; Ralph Schmidt '78**; and **Gus Speth**. ■ **Evan Griswold** writes: "I have been involved with the school for several years now on a volunteer basis, first as a delegate to the AYA and also with the F&ES Alumni Council. It's been great fun meeting

other grads from different eras. After a five-year stint with The Nature Conservancy, I entered residential real estate, working with conservation sellers and buyers to help protect the Lower Connecticut River through private action. I'm married, have two adult sons—one married, one about to be—and have lived in one place for 32 years. I manage my own 50-acre woodlot in Lyme, which provides me with fuel, some venison and tranquility." ■ **Michael Harlow** is undergoing a highly experimental stem cell transplant procedure at Stanford to try to stave off continuing assaults from multiple myeloma. His brother is the stem cell donor.

■ **Patrick Lee** assumed a managerial position with the Legacy Lands Program in 2006. He writes: "The Legacy Lands Program seeks to establish an interconnected system of parks, natural areas, open spaces trails and greenways throughout the county. Since its inception in 1985, the program has protected over 4,000 acres of land. The emphasis is on habitat protection and restoration and low-impact recreation. New initiatives include development of programs to support working farms and forests in the county that are threatened by rapid urbanization. Clark County is just across the Columbia River from Portland, Ore., and is an integral part of the Portland-Vancouver metropolitan area. My daughter, Robyn, graduated from Oregon State University in 2006 with a major in biology, and is now working at Oregon Health Sciences University in Portland. My son, Darren, is a junior at Rensselaer Polytechnic Institute in Troy, N.Y., majoring in chemical engineering. At a recent Yale gathering at the Lucky Lab brew pub in northwest Portland, I had a nice conversation with former Dean John Gordon and his son, **Sean Gordon '91**." ■ **Jayne Levy** writes: "I transferred from the Bureau of Land Management in Utah to the U.S. Fish & Wildlife Service (FWS) in Washington. I live in Pasco, Wash. My new appointment involves managing visitor services for the FWS at the Mid-Columbia River National Wildlife Refuge Complex, which consists of eight refuges: Columbia, Cold Springs, Conboy Lake, McKay,

Toppenish and Umatilla National Wildlife Refuges; McNary National Wildlife Refuge and Environmental Education Center; and the Hanford Reach National Monument." ■ **Helen Waldorf** retired from the Massachusetts Department of Environmental Protection after 25 years to do freelance and volunteer work on climate change. bostongreenfest.org; hawaldorf@aol.com

1976

Richard Guldin, Ph.D. '79, is the director of Quantitative Sciences at the USDA Forest Service. In June, he was recruited to lead an interagency project started by the Council of Environmental Quality. The intent of the project is to recommend a path forward on building the capacity to regularly report on NEST indicators to the incoming chair of CEQ, director of the Office of Science and Technology Policy and deputy director of the Office of Management and Budget.

■ **Colin Peterson** writes: "My wife, Sandy, and I relocated in May from Prattville, Ala., to Georgetown, S.C., following retirement in October 2007 from International Paper's Global Forestry Division after 36-plus years. All good things must come to an end. I have four daughters, five grandchildren and innumerable friends and fellow associates made over the years in forestry and various organizations." colin.peterson@yahoo.com ■ **Ty Tice** writes: "I took a memorable monthlong 'walkabout' in the Australian states of Queensland, Victoria and Tasmania, guided by my eldest grandson, Lincoln, after he finished a semester abroad studying environmental issues at Queensland University before graduating from the University of Wisconsin in May 2008. I spent several enjoyable days with Chris and Herb Bormann, here in Seattle. I endured the painful 'laying to rest' last fall of a decade-long effort to establish a sustainable business enterprise, discovering and producing hydrocarbon energy, in the Ukraine. Now, having fully completed a transition from a quarter-century of environmental mediation practice to far more laid-back 'elder' pursuits of mentoring grandchildren, maintaining fitness, renewing friendships and traveling to special

Visit the Yale
School of Forestry
& Environmental
Studies website at
environment.yale.edu

class notes



places, I'm looking forward to swapping tales with F&ES colleagues along the way."

1977

Class Secretary

James Guldin

jguldin@prodigy.net

Tim Glidden writes: "I'm holding down the fort at Land for Maine's Future. Generous voters ponied up another \$20 million for more trails, eco-reserves, parks and green space, so I guess I'm employed for another couple of years. Maine remains a hotbed of F&ES types—classes old and new. On the home front, one daughter is about to graduate college and thinking about following ol' dad into the swamp of environmental policy. She is even thinking about applying to F&ES. Yikes. My second daughter is headed to college this fall looking to strike out as a historian and writer." ■ **Kirk Hall** writes: "When I left F&ES, I worked on environmental cases in the U.S. Attorney's Office in Portland, Ore. I liked the law side, so I got a law degree at Lewis & Clark Law School while working full time in a law firm. I practiced law for five years, started a business related to transportation services and was CEO of a professional liability insurance company for 12 years. I got married to a wine writer along the way, Lisa Shara Hall, so there has been lots of travel to where grapes are grown. I don't have any kids, but three dogs. In 2000 I joined a technology startup that was acquired by a big company in 2006. Now I work with a Portland-based commercial real estate syndication firm that focuses on commercial properties in the West, and also with a family company helping them manage their investment and real estate holdings. On the side, I drive Meals on Wheels on weekends and am a court-appointed special advocate for abused and neglected kids. I'm still trying to figure out what I want to do for my real career, and will let you know when I do."

kirk.r.hall@comcast.net ■ **Tim Hawley** writes: "My son, John, was co-valedictorian of Middletown High School, a National Merit Scholar, Chemistry Olympiad state champion, math team captain, and he played

varsity tennis and taught biology to Upward Bound students for a summer job. He's attending Brown University, and his career goal is to do research in theoretical math. He's not keen on being close to nature, but he uses the clothesline instead of the dryer and turns off the lights, so he's on the right track." ■ **Evan Koslow** runs a company in Waterloo, Ontario, where he invents and develops new technologies and starts new companies. Last year, his manufacturing company KX Industries was sold to a large conglomerate. He has four boys, the youngest only 2 years old. His wife, Gosia, is from Poland.

■ **Andrew Melnykovych** writes: "I joined the executive staff of the Kentucky Public Service Commission, and am living in Louisville. My son, Alexander, is a sophomore history/economics major at Hendrix College in Arkansas, where he plays on the lacrosse team. My daughter, Anna, is a junior in high school, a prize-winning baker of desserts and a player on the field hockey team. Both kids are goalies, evidence that a lack of common sense is an inheritable trait." estiles74@insightbb.com. ■ **Howie Neufeld** writes: "This summer I was invited to present a lecture to Rainer Matyssek's research group at the Technical University of Munich about the impacts of ozone on plants in Great Smoky Mountains National Park. I also toured their research forest (and got to go up in one of those canopy cranes to view the forest from above the canopy—something I highly recommend—very cool!). This October, I participated on a U.S. EPA panel in Research Triangle Park, N.C., to discuss the protocols associated with setting the National Ambient Air Quality Standards for ozone. I am also the chair of Appalachian State University's Darwin Bicentennial Celebration Committee. We will be hosting 13 distinguished lecturers over the upcoming fall and spring semesters to celebrate the 200th anniversary of Darwin's birth and the 150th anniversary of the publication of *On the Origin of Species*. The list of speakers can be found at www.universityforum.appstate.edu and includes two Pulitzer Prize-winning authors." ■ **Joanne Polayes**

writes: "After 20 years with the Washington State Department of Ecology, I have retired from state service. My last nine years were with the Water Quality Program, where I served as grant project manager for a variety of local nonpoint water quality projects, including stream restoration, water quality monitoring, outreach and education. I enjoyed a summer of hiking, backpacking (including a successful climb of Mt. Whitney), gardening and kayaking. I will be traveling with my husband, Perry Wien, to Argentina and Chile in the fall and winter. After my return, I plan to do volunteer work with environmental nonprofits, perhaps leading eventually to part-time work." joannepw@msn.com ■ **Stuart Ross** writes: "After 25 years in corporate public relations, I am head of program marketing and communications for the Environmental Defense Fund, where I am primarily based in Washington, D.C., but commuting weekly from home in northern Westchester, N.Y." ■ **Kate Troll**, executive director of the Alaska Conservation Alliance in Anchorage, wrote a letter to the editor that appeared in the July 19 edition of *Newsweek*. She wrote: "The easiest way to raise individual consciousness is to tie climate change to weather reports—something everyone talks about and watches. As such, I was wondering if it was possible for weather experts to develop a climate-change association index—say, on a scale of 1 to 5 for different types of extreme weather events, such as floods, hurricanes, tornadoes, etc.—that weather reporters could quickly reference. When we have 100-year floods every 10 years or so, it's more than just local weather patterns. Alas, most reporters miss the climate-change connection, and as a result, so do most Americans. I certainly hope this [index] can be developed, given that Alaska is warming up at two to three times the rate of the Lower 48. This small step could have a very significant impact on how we as a nation face up to the challenge of climate change."

1978

Class Secretaries

Susan Curnan
curnan@brandeis.edu

Marie Magleby
lomamag@aol.com

Regina Rochefort
regina_rochefort@nps.gov

Ed Hogan writes: "I have been in the private practice of environmental law for the past 27 years; here in New Jersey for the past 25. I have had a great practice and really enjoy what I do. Most of my work has involved dealing with the legal issues involved in the remediation, purchase and sale of contaminated industrial properties. In the '80s and '90s, that involved primarily industrial-to-industrial use, but for the past 10 years or so it has turned to redevelopment of these properties to commercial and residential (multifamily) uses. I find myself frequently drawing on what I learned in a number of my F&ES courses. In my work, I also deal with a broad range of other environmental matters concerning endangered species, wetlands, coastal land use and stormwater. On the nonprofit side, I am a member of the board of directors of the New Jersey Audubon Society, and was previously on the board of the New Jersey Forestry Association." ■ **Tom Rumpf** is an associate state director of The Nature Conservancy in Maine. Tom and TNC in Maine, along with other private and public conservation partners, received a Cooperative Conservation Award from the Secretary of the Interior, Dirk Kempthorne, for the Penobscot River Restoration Project, the largest river restoration project east of the Mississippi. The awards were recently announced at a celebration of a major step in the project, which is the execution of options to purchase three hydro dams on the river for \$25 million from PPL Maine. When completed in three to four years, the project will open up an additional 1,000 miles of habitat for 11 different species of diadromous fish in Maine's largest river.

1979 30th Reunion Year

Class Secretary

John Carey
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Testing the Limits of *Tiny...*

continued from inside front cover

Zealand; working for a natural resources consulting company, a high-end travel company and a building design firm in Boston.

When she conceived the idea to actually build her own house, she took a two-week home design class offered by yestermorrow.org, which was founded by a group of architects "exploring the very fertile junction of design/build/sustainability," Turnbull says.

Turnbull is studying for a master's degree in environmental management, focusing particularly on the intersection between business and the environment at F&ES, with the goal of learning more about greening the built environment. "It's the best school for what I want to do," she says. "The [environment] school has a great connection to the business school, and it's forward-thinking and solutions-oriented."

"It's been a very public design and building process, and the house is much more interesting, much better-designed and much more creative than it would have been if I'd been building in a vacuum," she says. "There's been great volunteer support, donations, curiosity, interest and ideas."

The house was hauled by a trailer to Yale in October. It uses passive solar heating, so Turnbull says she can position the high wall to the south in the winter for maximum solar heat and then rotate it 180 degrees in the summer, turning the high wall to the north to keep her home cooler.

Her desks fold down Murphy-style, enabling a maximum workspace of 18 square feet, which is massive for the size of the interior space. And she's euphoric about her combination stove and oven, which is smaller than a two-foot cube. "It's just a tiny little thing; it's so cute!" She also has a lot of shelf space and a 3 foot by 7 foot storage loft above the door, as well as the bathroom and a closet wardrobe that she built. "So I had to be thoughtful about what I brought, and it turns out that there's enough room." She uses a marine cooler now but hopes to get a solar-powered refrigerator down the road.

The bathroom is the tiniest room in the tiny house. It measures 3 feet by 3 feet, but will eventually host a yacht-style wetbath.

The house is located near F&ES, and she'll have close access to a bathroom in a host house. She has water for cooking and drinking but not for washing. The siting would determine whether she would be able to put in a composting toilet and a sustainable gray water management system. "Waiting for a ruling from zoning boards and [figuring out] legal issues, like how to insure it, was a big part of the learning process for me."

Not only does the house use minimal construction materials, but Turnbull says she paid a lot of attention to the kind of materials she used. Most of the wood is FSC (Forest Stewardship Council)-certified, which added about \$250 to the cost of the wood she purchased. "To know that it came from a forest that was well-managed and supported regeneration," she says, "I felt great about it." The exterior paint was low on volatile organic compounds (VOC), and the interior paint didn't have any VOCs. "I used only four gallons of paint on the outside," she says, "so I could afford to go with one of the more expensive paints."

The insulation was donated by a company that uses post-industrial waste soy oil in place of 30 percent of the petroleum in standard insulation, creating a foam that's highly energy efficient.

Turnbull says she held five building parties on summer weekends, and spurred by the first in a series of articles in a local Massachusetts-area newspaper, the majority of people who showed up at the first one were strangers. She gives special credit to a young man, Andy Vecchione, who came to check out the project and returned almost every day to help convert Turnbull's dream into reality. She says he had a lot more building and design experience than she did, adding, "There were four hands working on the house most of the time, and the other two belonged to someone who's way more capable and has a significantly better three-dimensional brain than I do. I joke with Andy that without him the house would be basically ashes and tears." ■



1980

Class Secretary

Sara Schreiner-Kendall
sara.kendall@weyerhaeuser.com

Tricia Johnson writes: "I finished my fifth year of teaching this past June. I took my biodiversity class on our annual field trip to Great Mountain Forest, where **Star Childs** led us on a great field tour. My boyfriend of six years, Robert Johnson, and I were married on August 2 in a ceremony at the Pine Orchard Chapel in Branford, near where we live. We sailed off into the sunset aboard our 37-foot Tartan sailboat for a two-week honeymoon cruise. I teach science at Common Ground High School in New Haven, which was founded by **Oliver Barton '94.**" ■ **Patti Kolb Millet** writes: "I left the Forest Service this year on a disability retirement after having hip replacement surgery in November and in anticipation of future knee replacement—too risky to continue with fieldwork. I fell in love with Mabou, Cape Breton, Nova Scotia, a few years ago on the basis of the fiddle music and step dance, the warm ocean water and the genuinely friendly people I met. So I bought a store this spring and opened Nest, which sells jewelry, gifts and home decor inspired by nature. It will be a seasonal business for about five years, with Jack holding down the fort in California until the store gets going and we get immigration status, at which time we plan to move here permanently."

■ **Charlie Nilon** writes: "I'm starting my 19th year as a faculty member in the Department of Fisheries and Wildlife Sciences at the University of Missouri. Thirty years ago this week I was in the middle of the second week of the modules and roaming around the Yale golf course with **Laura Snook, D.F. '93,** and **Marc Groff '81.**" ■ **Steven Strauss** is a professor of genetics and molecular and cellular biology in Oregon State University's College of Forestry. The July issue of *The Forestry Source* reports that he was recently awarded the title of distinguished professor. He is the author of nearly 160 scholarly papers, has delivered more than 170 invited lectures and raised more than \$14 million in research funding from

the National Science Foundation, the National Institutes of Health and other federal agencies. He is the founder and director of the Tree Genomics and Biosafety Research Cooperative, composed of biotechnology companies and forest industries, which focuses on reducing ecological risks of genetically engineered trees. He also created and directed the NSF Industry-University Research Center on Tree Genetics in 1999, a multi-university center. ■ **Jim Thorne** and **Rosemary FitzGerald** visited **Suey Braatz** and **Laura Snook, D.F. '93,** in Rome in June. Suey led a field trip to Umbria.

1981

Class Secretaries

Fred Hadley
Mrm@evansville.net

Carol Youell
envstew@snet.net

Ann Clarke, D.F.E.S. '92, is the environmental chief at NASA Ames Research Center, Moffett Field, Calif.

■ **John Echeverria** writes: "After serving as executive director of the Georgetown Environmental Law & Policy Institute at Georgetown University Law Center for 12 years, I will join the faculty of the Vermont Law School as a professor of law in September 2009." ■ **Thea Weiss (Tarbet) Hayes** is a 16-year science teacher at Marysville School in Portland, Ore. She will be working with the Portland Bureau of Environmental Services, Johnson Creek Watershed Council, METRO, Oregon Sea Grant, Oregon Health Sciences University and Portland General Electric in her service learning and research projects with 7th- and 8th-grade students. She is the proud mother of Hanna, 20, a Sign Language Interpretation program college student, and Rachel, 12, a budding cook and David Douglas Swim Club team member. She is happily married to Angel, a mechanical engineering student and engineering technician. ■ **Keith Tait** is an EHS director at SUNY Plattsburgh. He was recently featured in an article in the Plattsburgh Press Republican about greening the campus.

1982

Class Secretaries

Barbara Hansen
bjhansen@fs.fed.us

Kenneth Osborn
forstman@fidalgo.net

Junaid Choudhury writes that he has worked on the National Forest Assessment and Forestry Outlook Report 2020 for the Food and Agriculture Organization. After his retirement in 2000 as conservator of forests for Bangladesh, he joined the International Union for Conservation of Nature and worked as head of Ecosystem & Landscape Management until 2004. He joined Pakistan's Forest Service in 1967. His wife, Juliana, and he live in Dhaka, and they have two daughters, Junna, a sociologist in Sydney, Australia, and Juhaina, an environmentalist who works for the British government in London." ■ **Evan DeLucia** writes: "Our older son, Nicholas, starts his sophomore year in college, and our younger son, Michael, begins his senior year in high school. After serving as head of the department of Plant Biology at the University of Illinois for seven years, I am stepping down this fall to assume the directorship of the School of Integrative Biology. An unexpected honor bestowed on me this year was an appointment as the G. William Arends Professor of Biology. This prestigious endowed position will provide additional financial support for my laboratory, which examines physiological and ecosystem responses to global change. I have initiated a major new research program examining the ecological consequences of the widespread deployment of biofuel crops on the landscape. Leslie and I often visit **Ed Ionata** on our travels east to visit family."

1983

Class Secretary

Stephen Broker
ls.broker@cox.net

Stephen Blackmer writes: "I left as president of the Northern Forest Center in April and will spend 2008-2009 as a Bullard Fellow with the Harvard Forest, based in Cambridge. During the year at Harvard, I'll

explore the growing interest in connecting environment and spirituality, including how I can more fully integrate my own spiritual interests with my work in conservation. On the home front, both kids are away, traveling and in college, and my wife, Kelly, continues her conservation communications work.”

sdblackmer@gmail.com ■ **Mary Ann Fajvan** writes: “Since 2004, I have been a research silviculturist with the USFS Northern Research Station. Even though I am stationed in West Virginia, some of my field studies of hemlock woolly adelgid allow me to travel to southern New England, where I run into other alumni and forestry friends from Yale and the University of Maine. I was elected chair of the Allegheny Society of American Foresters, and I am honored to be joining the ranks of other F&ES alumni who have held this position, including Gifford Pinchot, who was the first chair from 1922 to 1923.” ■ **Domenic Forcella** is on sabbatical from his position as an environmental health and safety officer at Central Connecticut State University. He will be working on college sustainability issues and the role of the EH&S staff. He is serving his last year as a board member of the Blues Foundation in Memphis and is writing a blues column for daily papers around Connecticut called Blues Beat.

■ **Bob Glass** writes: “I’ve been at Sandia National Laboratories for the past 20 years. In the last few, I’ve moved away from subsurface flow and transport (primarily the vadose zone) and on to complex adaptive systems that include human and social response. As a part of the National Infrastructure Simulation and Analysis Center, I’m working on problems that range from thwarting the next influenza pandemic to preventing congestion and cascading in financial payment systems. I’ve started to turn my attention to the global energy system and the constraints on acceptance of global carbon treaties.”

■ **Paul Watson** writes: “Retired, remarried and relaxed in Victoria, B.C. I’m not doing any more forestry activities, but the environment is always on my mind. Online stock trading is a pleasant way to spend the mornings. Measuring houses to

produce house plans for realtors, appraisers and architects occupies the latter part of the day. Golf figures in there somewhere. The days at F&ES were great and are never far from my mind.”

1984 *25th Reunion Year*

Class Secretaries

Therese Feng
therese_feng@yahoo.com

Roberta Tabell Jordan
rjordan@clinic.net

Shere Abbott notes that she left D.C. three years ago for Austin, Texas—a funky, blue blip in the state. She’s directing the Center for Science and Practice of Sustainability in the provost’s office at the University of Texas at Austin and co-chairs the President’s Task Force on Sustainability, which is focusing on reducing the campus’ carbon footprint and developing a campus culture of sustainability. Her husband, Jim Steinberg, is the dean of the LBJ School of Public Affairs. ■ **Shelley Dresser** and **Dave Gagnon ’85** are living happily ever after in Brattleboro, Vt., with their three kids, Heather, Alex and Hope. Shelley obtained another master’s in education from Smith College and is teaching mathematics at Eaglebrook School, an all-boys independent boarding school in Deerfield, Mass. Dave is the interim executive director at the Organic Trade Association, a national trade group, and he also serves on several boards. The Gagnon-Dresser family spends a good deal of time with Anita and **Ned Childs ’83** and their family in Dummerston, Vt., all having enjoyed Schroon Lake in the Adirondacks this summer. ■ **Rose Harvey** is the Trust for Public Land’s Mid-Atlantic regional director. The trust’s work on an ambitious plan to acquire thousands of acres along the shore of the Chesapeake Bay and five of its largest tributaries for conversion to public park land was highlighted in the July 14, 2008, edition of *The Baltimore Sun*. “The concept,” Rose is quoted as saying, “is parks for people that will in turn protect the bay. We call it green-printing.” Environmental officials have said they plan to focus on water quality and habitat in deciding which land to purchase. ■ **Nobby**

Riedy writes: “I’m living on the central coast of California (50 miles south of San Francisco) with my wife and 4-year-old daughter. I work from home developing and implementing philanthropic programs to support land conservation in California.” nobby@wildspaces.net ■ **Susan (Huke) Stein** is managing the “Forests on the Edge” project for the U.S. Forest Service. She works with scientists throughout the Forest Service and others to produce publications that draw attention to the importance of conserving forests. Susan and husband Bruce are enjoying raising their two boys, Ben, 9, and Noah, 7, and getting them and their new field spaniel out in the woods as much as possible.

1985

Class Secretary

Alex Brash
abrash@npca.org

Gaie Alling writes: “I am president of the Biosphere Foundation, which has several projects to inspire intelligent stewardship of our biosphere, and have been engaged with the Planetary Coral Reef Foundation. I am living in California with my partner, and my son is a musician in college.” www.biospherefoundation.org

■ **Ed Backus** writes: “I am living on the Oregon coast, in Newport, with my wife Jessica, a professor of marine fisheries ecology at Oregon State University. I am the vice president for fisheries at Ecotrust. I am working on the development of market approaches to fisheries bycatch (cap and trade) in the Bering Sea, and have also developed a mission loan fund for financing community fisheries trusts to acquire fisheries quotas along the West Coast and Alaska.”

■ **Brent Bailey** writes: “I’m living in Morgantown, W.Va., a small post-industrial university-centered river town 75 miles south of Pittsburgh, with my wife, Liz, and two daughters, Zannah, 17, and Lily, 12. I am director of the Appalachia Program with The Mountain Institute, a conservation and community development nonprofit. My time is occupied by environmental education and citizen science programs for teachers and students, management of a high-elevation preserve, a landfill methane

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class notes



project, fund-raising to support programs and a staff of about 20. Outside of work, I am on the town's tree board and the Stewardship Council of the Appalachian Trail Conservancy and am a nontenured faculty member in biology at West Virginia University. I garden, bake, hike and watch birds." ■ **Helen Ballew** writes: "I'm getting a graduate degree in education. My aim is to knit together my 15 years of professional experience in conservation and environmental protection with my long-time (volunteer) commitment to inner-city public schools in order to help push back against our culture's growing alienation from nature. I'll be teaching K-8 science for a while. I'm married to David, chair of biology at Trinity, and our three strong little women—all bilingual—are thriving at ages 7, 9 and 12. World travels in recent years have taken us to South Africa (twice), Tanzania and central Mexico." helenba@sbcglobal.net ■ **Dorie Bolze** is the executive director of a Nashville conservation organization, the Harpeth River Watershed Association. Her kids are now in middle and high school. ■ **Rick Boyce** got tenure a few years ago at Northern Kentucky University, and his boys, Nathan, 14, and Seth, 10, are in Cincinnati with his wife, Martha. On sabbatical this fall, Rick will be in Burlington, Vt., studying the effects of calcium deficiency on spruce and fir in northern New England. ■ **Alex Brash** is the N.E. Regional Director for the National Parks Conservation Association, an organization dedicated to protecting our national parks. He lives in an old Victorian house in Riverside, Conn., with wonderful partner Jane and their kids. Among other projects, Alex edited and published a compendium on the natural history of New York City. He also worked with an array of alumni to hold a conference in Acadia in October on the future of Maine's North Woods. ■ **Jim Coleman, Ph.D. '87**, is vice provost for research at Rice University. Adele, his wife, is still living in Missouri, and stepson Chuck is in Reno, so Houston has been an adjustment. Jim and **Jay Arnone '81, Ph.D. '88**, collaborated on a paper published in *Nature* in early fall relat-

ing to ecosystem carbon dynamics. ■ **Haydi Boething Danielson** has spent the last 10 years running a private K-8 school in Santa Cruz, but is stepping aside because she and her family are moving to the Carmel area. She plans to work a few days a week with the family tree nursery, helping out in production planning, process improvement and team building at the two northern California locations. ■ **Louise de Montigny** has conducted silviculture research with the B.C. Ministry of Forests for the past 17 years. Her husband, Raoul, is the director of the Canadian Wood Fibre Centre in Victoria; their oldest son, Jaspar, is in his second year of mathematics at the University of Victoria; and their youngest son, Oliver, is a high school junior. ■ **Jock Conyngham** writes: "I am a research ecologist for the USACE Environmental Lab in Evaro, Mont., office in Missoula. I work on dam removal, river and riparian restoration and fisheries restoration. I also run a consulting business that keeps my field skills up and my hands dirty. The money is good and, at this point, I only agree to fun or strange projects. I'm a faculty affiliate at the University of Montana." ■ **Jeff Diehl** writes: "In 1997, I co-founded Albion Environmental, a consulting firm that does biological and archaeological studies. I no longer get to do fieldwork, but I'm having a blast running a small company. We have about 30 employees and three offices in northern and central California. Life is good in Santa Cruz. I live in a great neighborhood three blocks from the beach and a 10-minute bike ride from my office. Rob, my partner, graduated with a Duke MBA and has worked in corporate finance with HP. He'll be ordained as an Episcopal priest in the coming year." ■ **Chris Donnelly** is an urban forester with Connecticut DEP. **J.J. Earhart** is chair of the Global Environment Fund and works on its \$350 million emerging markets forestry fund with the firm of **Clark Binkley '79**. With his wife, Analia, J.J. spends half the year in Buenos Aires and the other half in Portland, Ore. His kids are finishing up at university, where Sara just received her master's degree in marine conservation and

Nico will complete his bachelor's in international studies this winter. ■ **Caroline Eliot** worked on land use and natural resource issues facing Maine's North Woods, but left to take care of her kids. ■ **Deborah Fleischer** has a consulting practice, Green Impact, to provide services in sustainability strategy, program development and written communications. She recently helped launch The Institute at the Golden Gate. ■ **J.B. Friday** writes: "Greetings from Hilo, Hawaii, where **Katie Friday** and I have lived for the past 10 years. I'm the extension forester for the University of Hawaii. Most of my work these days involves restoration and management of native Hawaiian forests. I also work with people who are growing high-value tropical timbers on former croplands or doing agroforestry. I'm cooperating on a native forest restoration project in Palau, Guam, which is the most beautiful set of islands I've ever seen after Hawaii, and I was able to visit the village in the Philippines where we were Peace Corps volunteers over 20 years ago. My son, Nathanael, 15, is a sophomore in our local high school, and Hilda, 9, plays soccer and reads." ■ **Katie Friday** writes: "I am working with the Forest Service in Hawaii, American Samoa and Micronesia, trying to bridge the serious cultural differences between federal bureaucracy and indigenous value systems. My favorite projects are internship programs and training. Some of our major areas of emphasis are mangrove conservation, watershed restoration, agroforestry and invasive-species control. I visit Maine at least once a year, and it is deeply encouraging to see how much recovery has taken place since I was a kid—more rivers are swimmable, and there are more eagles and ospreys. My father has Parkinson's and in the couple of years since his diagnosis, we squeezed in extended-family canoe trips on the east branch of the Penobscot and the Allagash." ■ **Tara Gallagher** writes: "Life on the North Shore with Steve's and my three boys is good. This year I started consulting with Pure Strategies, specialists in corporate sustainability consulting. It has been interesting to take all those years of working in

state government and apply what I've learned to a comparable set of problems. I've also been teaching part time at Salem State for the past four years. I'm getting my mom finally settled in an assisted-living place near me, and it was a major feat representing a few years of U.N.-worthy negotiations. I imagine I'm not alone in facing such issues." ■ **Mark Judelson** writes: "Anna and I are in Chestnut Ridge, N.Y. I am the executive director of the Arts Council of Rockland, where I've been for 14 years. My connection to the woods is maintained—still cutting and selling firewood and playing with the *Paulownia* I've planted and tended at my home. For the past 11 years, I've written and performed several one-man shows telling true stories of individuals who respond to violence and genocide with artistic and peaceful gestures. I've received four grants to perform in high schools and prisons. Anna directs a Suzuki program, teaches violin, performs and conducts a youth orchestra. Our daughter Maija, 32, directs a Suzuki program in Newton, Mass., teaches violin and performs in and conducts an adult orchestra. Max, 20, after two years of working as a bike messenger in Paris and Manhattan, is about to begin at the Boston Conservatory of Music, where he will study classical bass. Anna and I visited **Ruth Yanai, Ph.D. '90**, who threw me regular lifelines in Binkley's class. I'm still grateful to her." www.storiesofpeace.com ■ **Asmeen Khan** is still hard at work for the World Bank. After a few years at the Trust for Public Land in New York City, **Evelyn Lee** took time off to take care of her family. Her oldest daughter, Bonnie, is now entering her junior year at Yale as an EEB major, while her younger daughter, Emily, is entering senior year of high school. While on sabbatical, Evelyn wrote two books for the Soundprints habitat series for children. Last summer, she undertook a greenhouse gas emissions inventory for the Regional Plan Association. **Stephen Lowrey** of Tolland, Conn., is in municipal planning and has helped add over 800 acres of open space to the town and wrote regulations to encourage open space. His older daughter is working on a master's in entomology at the

University of Connecticut; his son is in the Air Force, having gone to Iraq in October after serving in Afghanistan for three years; and his youngest daughter just finished at the University of Connecticut. **Gretchen Meyer** is managing the field station for the University of Wisconsin-Milwaukee that is located north of Milwaukee. She is responsible for administering programs, teaching occasionally and advising students. She served as a host for the recent Ecological Society of America meeting in Milwaukee and, with her husband Fred, enjoys bicycling and swimming in the summer and skiing and ice skating in the winter. ■ **Rolfe Larson** writes: "I created my own consulting business, serving nonprofits, and teach marketing and entrepreneurship at the University of St. Thomas in Minneapolis. I also wrote a book on business ventures for nonprofits, and was lucky to get Paul Newman of Newman's Own to endorse it. My consulting work led me to a wide variety of interesting, effective and sometimes struggling nonprofits around the United States, all seeking to incorporate or expand earned-income strategies to help them pursue their social or environmental mission. Most of my environmental work has been done as a volunteer. After graduate school, I worked for almost 10 years as a senior manager at Minnesota Public Radio. My major focus was developing successful earned-income ventures for MPR. I also served for six years on the board of The Nature Conservancy in Minnesota. I was the board chair during our successful capital campaign to raise more than \$15 million for conservation acquisitions and maintenance in Minnesota and the region and I guided a process that led to investing a portion of this endowment to support conservation in Guatemala. After leaving MPR in 1995, I married and moved to Denver. Last year, Peg and I adopted an incredible girl, Mariela, from Guatemala." ■ **Jon Nute** has had a 20-year career with the University of New Hampshire Cooperative Extension. He and wife, Anne, live near Concord, and their daughter, Sarah, is at UNH. Jon was honored as the Society of American Foresters'

New Hampshire Forester of the Year in 2004. **Molly Harriss Olson** works on a National Business Leaders Forum on Sustainable Development, which brought Al Gore to Australia in 2003, and she has an article coming out in *Austral Ecology*, as well as a book called *Ten Commitments: Reshaping the Lucky Country's Environment*. She and her husband have two boys, Atticus, 10, and Aaron, 8, and live in a little historic rural village called Gundaroo just outside Canberra. **Lorna Perkins** is a mother of two, wife of David for 23 years, teaches biology part time at Salem State College and is a freelance editor. **Whitney Tilt** leads the Everlands Conservation Initiative, which is an equity-based club for those who share a love of the outdoors while being committed to giving something back in the form of conservation and stewardship. ■ **Kathy Schwartz Spencer** writes: "Our son, Will, is a freshman at Cornell. There is a lot of excitement for all he will learn and discover, mixed with profound sadness for us as parents, as we close the door on this chapter of our family life. We have our daughter, Christie, 16, but really need to get rolling on her college search almost immediately. I work part time (about three days a week) as the environmental specialist with a planning/grant-writing firm in Rochester, N.Y. We work mainly with small upstate New York communities, helping them get funds to build public water and sewer utilities. A couple of years ago, we were acquired by an engineering firm, so our projects are widening in scope. I also volunteer with our local land trust, which was established just after I moved to Rochester about 20 years ago. My husband, Tim, works for Kodak." Tkspencer3@aol.com ■ **David Steckel** writes: "I have worked for Natural Lands Trust—a regional land trust focused on eastern Pennsylvania and southern New Jersey—and lived in southeastern Pennsylvania since graduation. The first 20 years were spent in the stewardship department as director of land stewardship. I now divide my time between the development and planning departments. My wife, Claudia, is a consulting botanist. We live in Allentown,

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where we spend much time caring for home, gardens and aging relatives.” ■ **Gregor Wolf** writes: “After nearly 10 years in Brazil, initially with the German Development Bank and then the World Bank, where I ran the G-7 Pilot Program to Protect the Brazilian Rainforests, I am at World Bank headquarters in Washington, D.C. After a two-year stint in our forest policy team at the World Bank’s Environment Department, I was promoted to sector leader in charge of the bank’s project portfolio for infrastructure, energy, rural development and the environment. I am married and have two boys, Alex, 11, and Sam, 13. ■ **Ruth Yanai, Ph.D. ’90**, writes: “I’m at the Ecosystem Center of the Marine Biological Laboratory in Woods Hole, Mass., for the semester (sabbaticals are a nice feature of academic life), and my daughter Nora is in her first school. I have projects at the Hubbard Brook Experimental Forest, and I work with Tom Siccama, **Mary Arthur ’83** and **Steve Hamburg ’77, Ph.D. ’84**. I’m most excited about an experiment to test whether forests are approaching phosphorus limitation after all the nitrogen we’ve been applying in air pollution.” ■ **Steve Young** writes: “I am living on the North Shore of Massachusetts with **Tara (Gallagher)** and our three boys, Dylan, 14, Nathan, 9, and Joshua, 9. I am chair of the Department of Geography at Salem State College (one of the public colleges of Massachusetts). I love working at SSC and in geography. My specialty is satellite imaging and global vegetation change. One of my projects is the Earth Exposed, an art gallery exhibition that explains how geographers study the Earth from space. The show has traveled to a few East Coast cities, the headquarters of the National Science Foundation, Australia and, in August, Tunisia.”

1986

Ken Andrasko writes: “I’m living in Washington, D.C., with my wife, Julie, and our two daughters. I left the EPA to join the World Bank and work in the innovative carbon finance unit that manages \$2 billion in funds and projects that address

climate-change emissions mitigation. About five of us are developing the Forest Carbon Partnership Facility, a \$300 million partnership fund among developing countries with tropical forests, donor countries and the bank to reduce deforestation at the national scale, use remote sensing to monitor reductions and then create a carbon asset to be traded on international markets in the post-Kyoto Protocol climate regime.” kandrasko@worldbank.org ■ **Dave Braun** is a tree and forest consultant in Hood River, Ore. Work includes native plant restoration and forest fuels treatment; he enjoys climbing around in trees as part of the diagnosis of health or hazard issues. He does research on bark beetles and eco-restoration, is developing techniques for making wildlife trees with Timothy Brown and is co-authoring a book on the same with Tim, Chris Maser and Bill Laudenslayer. He just landed a contract with Tim to diversify a 40-year-old montane conifer forest by putting in about 50 small stand openings—at 40 to 60 feet off the ground to leave vertical structure for habitat. Becky, his partner, is a nurse practitioner at the regional jail (NORCOR). Son Zev, 15, will give you a Halo tutorial or trombone lesson—your choice.” ■ **Eric Carlson** and his consultancy E2C2 provide LEED, green-building and advisory services for numerous public projects in the mid-Atlantic region. He is also a senior advisor to a green-business startup in Portland, Ore., called Shorepower. He is an adjunct professor at the Corcoran College of Art & Design in Washington, D.C., where he teaches sustainable practices for designers. www.e2c2inc.com; www.shorepower.com ■ **Maggie Coon** celebrated 20 years with The Nature Conservancy. In the past five years, she’s been deeply involved in the creation and leadership of the Washington Biodiversity Council, charged by the governor with safeguarding Washington’s natural heritage. ■ **Tom Duffus** writes: “I am the Upper Midwest Director with The Conservation Fund and am having fun with some large forestland conservation projects in the Great Lakes,

as well as large river conservation projects on the Mississippi and Missouri rivers. Nell and I live in Duluth, Minn., on Lake Superior. I am playing bagpipes and have joined the Minnesota Police Pipe Band, which is headed to the World Championships in 2010. My son starts college this year, so I am feeling old.”

■ **Michael Wells** is a freelance consultant on international environmental topics from his home in Norway, now aided and abetted by two teenage daughters. Recent assignments have included leading independent evaluations of the Critical Ecosystem Partnership Fund; the Gordon and Betty Moore Foundation’s grants to Conservation International; UNDP’s \$3 billion global environment and energy program; and the Millennium Ecosystem Assessment. Other clients include the World Bank’s Development Marketplace, NORAD and a variety of Global Environment Facility activities, including the flagship GEF Small Grants Programme. These have provided rich opportunities to interact with dedicated environmentalists carrying out marvelous work worldwide, including F&ES alumni. Family vacations have provided a critical balance, most recently, sea kayaking among killer whales north of Vancouver Island in British Columbia.

1987

Class Secretaries

Christie Coon
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Jean Brennan is senior climate change scientist of the science program at Defenders of Wildlife. She has been recognized for her vital contributions as part of the Intergovernmental Panel on Climate Change that helped win the 2007 Nobel Peace Prize for the IPCC. As science officer for the U.S. Department of State, Office of Global Change, she was part of a federal interagency working group and a member of the U.S. delegation at international negotiations of the Intergovernmental Panel on Climate Change under the U.N. Framework Convention on Climate Change. She also coordinated tech-

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nical reviews and submissions on behalf of the United States to the IPCC and U.S. Interagency Technical Advisory Team on the IPCC Special Report & Publications: *Aviation and the Global Atmosphere; Land Use, Land-Use Change and Forestry; Technology Transfer; and Emission Scenarios*. ■ **Julie Dunlap, Ph.D. '87**, writes: "I got to visit **Anne Hooker Clarke '81, D.F.E.S. '92**, in California this summer, and we visited Yosemite and the Mariposa Big Trees together." ■ **Anne Hartley** writes: "I've joined the faculty of Florida Gulf Coast University in Fort Myers. It's the youngest Florida state university, and its mission is environmental sustainability and service learning. I'm a new member of Coastal Watershed Institute, a group of exceptional marine scientists working on problems of nutrient loading, harmful algal blooms and fisheries in the Gulf of Mexico." ■ **Joshua Royte** focuses on large forest conservation projects and the Penobscot River Restoration project, a massive project to restore millions of sea-run fish to Maine's largest river, for The Nature Conservancy in Maine. His primary role for the conservancy is ensuring that baseline measures are in place before dam removal begins and coordinating the identification and mitigation of hundreds of smaller barriers in the watershed with federal, state and other NGO partners. Josh lives happily with his wife, Leigh Baker, in Yarmouth, Maine, and they had the opportunity to get together in August with the families of **Laura Falk McCarthy, Libby Moore and Bobby Moore '86**, and **Melissa Paly** at Melissa's home in Kittery Point, Maine. ■ **Joel Seton** writes: "Greetings from the Setons in Jerusalem. Laura and I are enjoying our second year of marriage. I run a tour company that brings people from abroad for study tours of Israel. Laura does freelance writing and editing, in addition to writing songs in English and Hebrew and other creative pursuits. We love the fascinating historical sites, dynamic culture and great hiking routes in this ecologically diverse and beautiful country. We are also involved with the Yale Club of Israel."

explicit, specific and decisive entry into the biotic community and prompted life-long philosophical and moral reflections. In one sense, the biotic community and predator-prey relations are amoral, natural realities and processes spawned by the Crafty Blind Tinkerer (Darwin's nature). However, for us humans, biotic communities and natural processes have come to hold a deep, complex cultural and moral significance. We know, however imperfectly, that these processes are how Earthly life, including human life, comes into being—an Earthly life laced with innumerable values moral and other (aesthetic and spiritual, centrally concerning life's innumerable and incredible forms, capacities and interactions). This amounts to stunning, bedrock philosophic and spiritual revelation. We also know that all these values, forms, capacities and interactions are mortal, finite and vulnerable to harm.

Why might recognition of our aboriginal status in nature, our membership in the biotic community—prompted by hunting, fishing or whatever other means—matter so much? Precisely because the recognition so radically underscores our moral situation and demands that we face squarely ultimate responsibilities. There are several forms of stewardship or caretaker ethics which enjoin us to care for the Earth and all the creatures that dwell therein. But if we do not explicitly and emphatically count ourselves as among Earth's creatures and as integral participants in Earthly communities, we all too easily let ourselves off the moral hook. We consider nature as not essentially mattering to us humans. However, if we own up to our membership in the biotic community, we must recognize that we are a central and significant factor in immediate and future threats to nature and, ultimately, to ourselves.

For example, there are too many of us human ones (6-plus billion and growing) in Earth's biotic communities, consuming too many of its material resources and wreaking too much havoc to ongoing evolutionary and ecological processes. What are we going to do about this daunting human overreaching and natural injustice? No doubt the Earth and evolutionary, ecological processes will survive our human onslaught, perhaps with a new abundance of biological species, but at what cost? What goodness and values, including those of human life, painstakingly evolved over natural (evolutionary, ecological and geological) and cultural time, will be lost? Ought we to collectively condone such moral and spiritual guilt, such sins against Earthly life and being?

If deep, existential recognition of our charter membership in the biotic community would help to stem this disastrous moral slide, then we must morally educate, or re-educate, ourselves in a hurry. If hunting and fishing, among other means, are effective avenues to explicit recognition of membership in the biotic community and its attendant moral responsibilities, then readers of Leopold should move past their ethical puzzlement and ponder anew his and others' hunting and fishing in their widest, biotic-community contexts. Nature's complex, dynamic and uncontrollable interconnectedness and interactions defy moral simplicity, easily drawn bright lines between good and bad, right and wrong. If we are morally going to return to our native home and community, we need to grow up, culturally and morally.

In marginalizing our membership in biotic communities and, specifically, our implication in predator-prey relations, we marginalize central, fundamental moral issues that already confront us. Let me be more specific, at risk of repetition.

In the United States and elsewhere, whether by intentional design or not, we have extirpated large predators from their native landscapes and ecosystems, with real, usually negative, consequences. Consider metropolitan areas—Chicago, New York and others—with newly engendered species and ecosystem problems, for example, an overabundance of deer,

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Canada geese and even wild turkeys. This overabundance threatens regional flora and fauna, as well as human well-being (Lyme disease, car accidents and more). What should we do in the absence of former large predators that were a natural check to species overabundance? Arguably, we must take over their roles in keeping regional ecosystems healthy and resilient. For the sake of the biotic community as a whole, we should cull the superabundance by whatever means we deem most morally appropriate and acceptable. The roles of these large predators have become our moral responsibilities.

But this is only the beginning of our responsibilities as members of the biotic community. Actually, it is not the deer, geese or turkeys that are the greatest threats to regional landscapes and ecosystems. That prize emphatically goes to us. Again, despite the significant, innumerable and distinctive values of human existence, what are we going to do about our own superabundance and overpopulation of biotic communities, our overuse of their life-giving resources, our pollution and disturbance of natural structures and processes? As members of biotic communities, from the regional to the global, as in fact the community's most effective large predators, we cannot in good conscience evade these facts and attendant responsibilities. Of course, this is exactly what we are doing. Whether out of ignorance, neglect or willful amoral intention, the reigning large predators (ourselves) are undeniably and inexcusably irresponsible. Here is an issue that we must not duck, but resolve humanly—that is, responsibly.

Consider further ramifications of our present irresponsibility. Given our status in evolutionary, ecological and biotic communities, to undermine biotic communities is to undermine and threaten the future of humanity, its very bodily being, the quality of its life and whatever important capacities and values—from the bodily, psychic and mental to the moral, artistic, aesthetic, spiritual and other—it harbors. Robust, biologically and culturally diverse communities are as necessary to our inner selfhood and well-being as they are to our physically active bodies. We, our whole selves, emerge out of the world—natural and cultural—and do so ongoing until we die. To impoverish biological and cultural communities is to impoverish ourselves.

In short, to continue in our present cultural, political, economic and moral ways—not to recognize ourselves as predatory organisms with a long evolutionary, ecological and Earthly past, that is, as members of biotic communities—amounts to a form of nihilism, a willful destruction of Earthly, including human, values. If some find this ironic, odd or, indeed, blasphemous, so be it. It is, as far as we can see, the truth.

Did my own road of moral and philosophic reflection begin, at least in part, in hunting Hennepin's Windblown Bottoms? If so, what role does hunting, fishing or predation, in general, have in the genesis of civically important philosophic and moral landscapes (worldviews)? Leopold and other Darwinian naturalists, as champions of temporally deep biotic communities, would no doubt answer unequivocally a great deal, certainly more than urban, human-centered citizens might think. (The religious practices and rituals of traditional, especially hunter and gatherer, societies evidence as much.) The relatively unexplored relations of human predation (an inescapable fact of our existence) to the recognition of our deepest Earthly, moral responsibilities is a matter worth further pondering, hopefully informing evermore adequate practical and civic action. ■

1988

Class Secretaries

Diane Stark

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Holly Welles

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Jeffrey Campbell is the director of grant-making for The Christensen Fund. Born in the Himalayas and raised in the Punjab, Jeff has spent most of his life in South Asia and assumes his responsibilities with The Christensen Fund after 17 years at the Ford Foundation, serving as program officer for environment and development programs in India and Nepal (1991-1996) and Indonesia (1997-2000) and then as program officer, deputy director and senior program officer in the New York Office (2000-2008). An accomplished musician and multi-instrumentalist in classical and vernacular South Asian traditions, as well as in contemporary improvisational forms, he records with the band Orchestra naif, and recent albums include *Auf Garde*; *Les Bonbons*; and *Over an Hour*. ■ **Stephen Gorman** writes: "I've been working as a writer and photographer for various adventure and environmental publications, such as The Discovery Channel, the National Geographic Society, *Audubon*, *Sierra* and many others. I've also produced a number of large-format color photo books, with several more in production. This work, which was helped along by the social ecology classes I took at Yale, has allowed me to travel extensively throughout the North American wilds in search of images and stories, and it continues to provide me with opportunities to explore the places I long to see. The last few years my work has centered on the Alaskan and Canadian High Arctic from ANWR to the Northwest Passage and beyond. I see a lot of **Melissa Paly '87** and her wonderful family at their place in Maine or in the White Mountains; and **Steve and Cilla Kellert '81** are practically neighbors at their hideaway just over the ridge from my wife, Mary, and me and two dogs in Norwich, Vt." ■ **Karen LeAnn McKay** writes: "I have been managing a nonprofit fair trade store

in Portland for the last several years. I'm now in Indonesia looking at fair trade and forestry stuff, before I leave the store manager position to become blissfully unemployed for a while." ■ **Alexandra Pitts** writes: "I have been living in Fair Oaks, Calif., and for the last four years I have handled communications and congressional affairs for the regional director of the U.S. Fish and Wildlife Service in Sacramento. My daughters are now 10; my son is 6; and they are all turning into California kids. My husband, Keith, and I just celebrated our 16th anniversary (10 married). The most interesting project I am working on right now is a deal with 26 local partners and a hydroelectric company to restore the Klamath River, so salmon can access 300 more miles of river and the wildlife refuges can have adequate water (among a lot of other important things)." ■ **Manuel Ramirez** writes: "I am director for Southern Central America for Conservation International in Costa Rica, conducting conservation work in both marine and terrestrial ecosystems and regions in Nicaragua, Costa Rica and Panama." ■ **Tom Strumolo** writes: "I spent the first part of my career shoulder-to-shoulder with Bill Burch and other pioneers of atmospheric defense through efficiency, conservation and alternative energy, before I met most of my classmates. I'm now back in a lot of boiler rooms and on a bunch of roofs, most enjoyably in St. Thomas, where 40 cents per kilowatt hour of electricity and 300-plus days of sunshine are finally combining to make photovoltaics unbelievably cost-effective. I am in touch with **Anthony Irving**, **Peter Connorton** and **Mike Gregonis**—the Connecticut eco mafia." ■ **Holly Welles** writes: "I created my own consulting firm called Summit Environmental Consulting. My primary client is Climate Central—a new and exciting organization in Princeton created to provide information to help the public and policy-makers make sound choices about climate change."

1989 20th Reunion Year

Class Secretaries

Susan Campbell
susan.campbell@comcast.net

Jane Freeman
jane@ewalden.com

Sasimana Ketty Faichampa writes: "I got a bachelor's of science degree in nursing from the University of Maryland in May 2008, and am now starting my second career in the Open Heart and Thoracic Surgery Stepdown Unit at St. Joseph Medical Center in Towson, Md." ■ **Dawn Gelderloos** writes: "I own my own company, Silver Wings Coaching and Consulting, in Boulder, Colo. I am an executive/career coach and a communications trainer. I partner with clients across the country to help them produce extraordinary results in their careers, businesses or organizations and their lives. Through the process of coaching, my clients deepen their learning, heighten their self-awareness, improve their performance and enhance their quality of life. My coaching specialties include career planning and development, home-to-work transitions, public speaking and effective communications, life purpose and work/life balance. I enjoy living in the mountains in Boulder with my husband, Dave, and our three kids, Ben, 16, Maddie, 15, and Nevin, 12."

■ **Stephen Kelleher** is deputy director of the International Union for Conservation of Nature's Forest Conservation Programme and joint coordinator of the Livelihoods and Landscapes Initiative. ■ **Laurie Reynolds Rardin** loves living in Concord, N.H., with her family, where she has been freelancing for several local magazines, helping to start a green committee at husband Jed's church and generally promoting the connection between spirituality and environmental protection. rardins@aol.com

1990

Class Secretaries

Judy Olson Hicks
Carolyn Anne Pilling
capilling@gds.org

Seema Bhatt is an independent

consultant. Since early 2008, she has been managing a project titled "Adapting to Climate Change in Asia: Identifying Critical Knowledge Gaps," for the Institute for Social and Environmental Transition Network. This project has been supported by Canada's International Development Research Centre and the United Kingdom's Department for International Development. She has also co-authored a book, *Ecotourism Development in India: Communities, Capital and Conservation*, which was published by the Cambridge University Press in its Foundation Books series. She received a Fulbright Fellowship under the Indo-American Leadership Program and will spend three months in the United States beginning in early 2009. ■ **Peter Jipp** writes: "I just completed 10 years of service with the World Bank and am now based in Thailand, working in Cambodia and Laos on biodiversity conservation, community forestry and land titling. Our family is doing well—Priya's network of environmental economists (www.sandeeonline.org) is growing. Tulsi, 9, and Kabir, 6, are growing too, and they really enjoyed our stay at Timberlock this summer." ■ **Christine Laporte** writes: "My family and I are moving to Asheville, N.C. I will continue managing the South Atlantic Regional Research Project while I seek local opportunities and work on my wildlife rehab license." cslaporte@gmail.com ■ **Laura Simon** continues her animal advocacy work for the Humane Society of the United States, focusing on humane solutions for wildlife problems. Right now a major project is helping towns learn how to avert beaver flooding problems. Her 5-year-old, Jack, seems to be following in her footsteps, having just rehabilitated his first baby skunks and turtle! ■ **Susannah Troner** writes: "I am working with the Miami-Dade County's new Office of Sustainability. We are focusing on getting a handle on the county's fuel consumption baseline and establishing routine reporting by departments, implementing the county's new sustainable building ordinance (requiring LEED silver for new buildings and LEED

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certified for major renovations) and trying to figure out how to pay for efficiency retrofits and solar installations for existing buildings. Two children of our friends in Italy spent part of the summer with us. Things turned out wonderfully, although we did feel obliged to feed them a good dinner every day instead of sneaking in an occasional meal of cold cereal.” trones@miamidade.gov ■ **Mark Van Steeter** writes: “**Carla Wise** and I have a lovely 9-year-old daughter and a yellow lab. We are living in Corvallis, Ore. I have tenure at a nice little university, and Carla has transformed herself into an environmental writer. Check out the September-October *Utne Reader*, ‘Green All the Lawyers.’”

1991

Class Secretary

Richard Wallace
rwallace@ursinus.edu

Anne Harper writes: “I have been the vice president of education for Heifer International in Little Rock, Ark., for the past three years. Brady is 27, has a delightful 1-year-old daughter named Eliza Jane and lives in New York City with his family most of the time. This summer Andrea is the production manager for the Brevard Music Center in North Carolina; Brady is the sound engineer; and Eliza Jane is enjoying the opportunity to play outside on the lawn. Megan is 24, and she is a licensed massage therapist and energy healer traveling with a team that uses the trapeze as a challenge course. They have taught her to fly on the trapeze and coach new students, too.” ■ **Chip Isenhardt** writes: “**Jill Isenhardt** and I live in Boulder with our two kids, 7 and 9. We help run ECOS Communications, a company we originally started with **Don Whittemore '89** and **Dawn Amato '89** just after we finished at Yale. This year I co-founded a new company called Bio-Logical Capital. The firm is developing large-scale projects and investment opportunities in a variety of emerging environmental markets, including carbon, water, biodiversity, renewable energy, ecotourism and, where appropriate, environmentally sound real estate development.

Bio-Logical Capital has a solid conservation mission and is well-funded, both operationally and for project seed money.”

chip.isenhardt@biologicalcapital.com

■ **Anne Southworth Marsh, Ph.D. '96**, is starting her fourth year at The Heinz Center, where she has worked to develop national environmental indicators for the State of the Nation's Ecosystem's project. Anne and her husband, David, split their time between Bethesda, Md., and Gibson Island, Md., where Anne chairs the island's conservation committee.

They have two children, Thomas, 10, and Elizabeth, 8. ■ **Juan Pablo Ruiz Soto** is living in Santa fe de Bogotá, Colombia, and is a senior natural resources specialist for the World Bank. He is a manager for such projects as Andean region conservation and sustainable use of biodiversity in Colombia; regional integrated silvi-pastoral approaches to ecosystem management in Costa Rica, Colombia and Nicaragua; the Colombian National Protected Areas Conservation Trust Fund in Colombia; and expanding partnerships for the National Parks System in Venezuela. He also writes on a variety of environmental issues.

1992

Class Secretary

Katherine Kearse Farhadian
farhadian@verizon.net

Kathy Fallon Lambert is the sustainability manager at Dartmouth. She founded and ran a consulting practice, Ecologic: Analysis & Communications, from 2003 to 2008. ■ **Lisa Lumbao** writes: “I am working on sanitation issues in the Philippines and the Asia region. Josh is working for the Center for Clean Air Policy on climate change issues. Both Susan and Karl are longtime government employees, working for NOAA and the Forest Service, respectively.” ■ **Robin Maille** writes: “My husband, **Peter Maille**, and I moved to La Grande, Ore., in late August. Peter is teaching economics at Eastern Oregon University and is finishing his Ph.D. in natural resource economics at West Virginia University. I have been working as a WVU county extension agent since last September and will

be looking for a new job soon. Our two boys, Nathan, 13, and Simon, 8, are happy about being closer to my family in Tacoma, Wash.”
narope@aol.com

1993

Class Secretaries

Dean Gibson
deang@duke.edu

Molly Goodyear
bvidogs@cox.net

Heather Merbs
h.merbs@comcast.net

Patrick Baker writes: “I am a lecturer in plant ecology at Monash University in Melbourne, where I've set up Australia's only dedicated tree-ring lab. I continue my long-standing work in Thailand with the Smithsonian's Center for Tropical Forest Science and the Thai Department of Natural Parks. I have research projects reconstructing historical drought severity across eastern Australia, investigating forest dynamics and disturbance histories in Thailand and southeastern Australia and estimating carbon storage in Southeast Asian forests. I am starting a joint project with the Chinese Academy of Sciences and CTFS working on long-term carbon dynamics and forest history in the mountains of eastern China.”
www.ozdendro.org ■ **Cynthia**

Barakatt is director of content development for the *Encyclopedia of Earth*. A collaborative effort between Boston University and the National Council for Science and the Environment, the encyclopedia is a “wiki” site, but only scientists with expertise in the specific topics are allowed to be editors and reviewers of the information that gets posted. Part of Cynthia's job is to recruit scientists to contribute content and serve as editors. barakatt@bu.edu

■ **Susan Helms Daley** adopted an adorable boy (Jackson) from Kazakhstan about three years ago, and six months later, she and her husband, Sean, had a girl, Emeline. Susan is working hard at home teaching her children about the environment. ■ **Andre Eid** writes: “I just finished working for three years with UNEP and UN-HABITAT for

the Norwegian Government in Nairobi. Now I'm back in Oslo, a very different world, and working for NORAD (USAID) and providing Norwegian experience on sustainable exploration of oil and gas to countries worldwide." ■ **Erik Esselstyn** is living a great life with his wife in Vermont, having retired a few years ago. ■ **Molly Goodyear** writes: "Our 15th reunion this year in New Haven was a blast. It was great to be back at Sage Hall, enjoying TGIF and feeling like it was 1993 again. **Cynthia Barakatt**, **Susan Helms Daley**, **Erik Esselstyn**, **Lisa Gustavson**, **Kathy Roy Hooke**, **Paul Jahnige**, **Bill Kenny**, **Sally Loomis**, **Lois Morrison**, **Bill Mott**, **John Norwood**, **Tom O'Shea**, **Susanne Schmidt '92**, **Erika Svendsen**, **Wolfe Tone**, **Margaret Williams** and I were all there to celebrate. I have been a development consultant for the Yellowstone to Yukon Conservation Initiative for 2.5 years. My children, Peter, 10, and Ella, 7, love to ski, play soccer, ice skate and skateboard, and my husband, Mike, is having a great time working in membership development at our newly opened YMCA." **bvidogs@cox.net** ■ **Josh Foster** writes: "I am manager for climate adaptation at the Center for Clean Air Policy in Washington, D.C. I will be working under the Urban Leaders Adaptation Initiative, a Rockefeller Foundation-funded project partnering with nine cities and counties representing major metropolitan areas across the United States, helping them prepare for and become more resilient to the impacts of climate change. For the last decade or so at NOAA, I had been working on the development of climate services, including some work on the Nobel Prize-winning IPCC reports."

■ **Meg (Holliday) Kelly** writes: "I live in Weston, Mass., with my husband, Jonathan, our three daughters, 13, 11 and 7, an adolescent chocolate lab and a 17-year-old cat that adopted me when I was at F&ES. I am the president of our town's land trust and serve on three other local open space or organic farm boards, as well as a new nature preserve in the Adirondacks." ■ **Tom Kalinosky** works in PricewaterhouseCoopers'

accounting, valuation and financial reporting advisory practice. He leads the firm's work in environment-related financial reporting, auditing and advice. He is also involved with sustainability data assurance and reporting, as well as environmental, health and safety performance improvement. ■ **Kate Lance** is working on a Ph.D. in geographic information management at Wageningen University ■ **Lois Morrison** is the executive director of a small foundation in Chicago. She is married to Justin and has two young daughters.

■ **John Norwood** lives in Iowa, works for a wealthy individual with a vision for public greenspace and has a son who loves baseball. ■ **Tom O'Shea** is the assistant director of wildlife for the Massachusetts Division of Fisheries and Wildlife.

■ **Erika Svendsen** had a baby in late spring and brought him to reunion weekend 2008 in New Haven for a day. ■ **Ann Tartre** works for Avoided Deforestation Partners. She organized a roundtable discussion and luncheon for policymakers and key stakeholders with Nobel Laureates Al Gore and Wangari Maathai in New York City in September. Ann enjoys the surfing lifestyle of Southern California and visits from F&ES alumni, most recently **Cynthia Barakatt**.

ann@adpartners.org ■ **Wolfe Tone** is married with twins and works for the Trust for Public Land in Portland, Maine. ■ **Margaret Williams** testified before Congress last spring in support of listing the polar bear on the Endangered Species list. She lives in Alaska, but travels a lot to D.C. and Russia. ■ **Tim Wohlgenant** writes: "I am the Colorado state director for The Trust for Public Land. My wife, Annie, and I follow our two girls, Zoe, 12, and Clio, 9, around on their various after-school activities, shake our heads in amazement at how quickly they've grown and try to squeeze in a few adventures during the year."

15th Reunion Year

1994

Class Secretaries

Jane Calvin
jcalvin@prospeed.net

Cynthia W. Henshaw
chenshaw@eqlt.org

Jane Whitehill
janewhitehill@hotmail.com

Geoff Blate writes: "I moved with my wife, Sujata, and two children, Daniel, 3, and Sabina, almost 2, to Bangkok, Thailand, in mid-September for two to five years. I will be coordinating World Wildlife Fund's climate change initiative in the Greater Mekong region (Thailand, Cambodia, Laos and Vietnam). My two-year AAAS fellowship at EPA just ended. It was a great experience and I highly recommend the fellowship program to anyone interested in gaining a deeper appreciation for how the federal government 'works' and how science is used (or not) in policy-making. During my fellowship, I co-authored three chapters in a government report that reviewed adaptation options that resource managers could use to cope with climate change. The report can be downloaded at www.climate-science.gov/Library/sap/sap4-4/final-report/." ■ **Chris Cosslett** writes: "I've been working in various capacities (expert, consultant, etc.) with the Global Environment Facility since graduating. Most of my time these days is spent formulating biodiversity conservation projects for UNDP-GEF. I'm working on projects in China, Kazakhstan, Turkey and Congo. This mostly involves support to terrestrial and marine protected-area systems. I'm also starting to work in the area of Reducing Emissions from Deforestation and Degradation. I happen to be living in Tirana, Albania, at the moment." **chris.cosslett@gmail.com** ■ **Tad Gallion** writes: "I've left my position with the Senate Appropriations Committee and we've moved to Brookline, Mass. Short-term I'll be focusing on assisting with the launching of my wife's new career and keeping Emma, 11, and Claire, 4, on track." ■ **Alexis Harte** writes: "I have been pursuing a music/song-writing career full time. In May, I signed a publishing deal with Lionsgate Entertainment to provide songs for films and TV shows. On a recent trip to New York City, I connected with **Scott Mathison** and **James Jiler '95**." futuresealevel.org ■ **Diana Wheeler** writes: "We have

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two kids and live in Austin, Texas. My husband, **Don Redmond**, is an attorney with the State Environmental Agency, and I'm a programmer at Dell."

1995

Class Secretaries

Marie Gunning
mjgunning@aol.com

Ciara O'Connell
cmoconnell@comcast.net

Dwight Barry is living in Port Angeles, Wash., with his wife, Tami, and kids, Kate, 5, and David, 3. Dwight is the coordinator of the Elwha Research Consortium, a group of over 100 scientists studying the world's largest dam removal and fisheries restoration project. [dwightb@pcadmin.ctc.edu](mailto:dwrightb@pcadmin.ctc.edu)

■ **Gregory Dicum** writes: "Nina (**Luttinger**) and I are having a baby in December." ■ **Amy Dumas** writes: "As of March 2008, I have been the California program lead for the Bureau of Land Management's Wild Horse and Burro Program. I am based in Sacramento." adumas@ca.blm.gov

■ **Felton Jenkins** writes: "I was appointed to the Chatham County, Ga., Resource Protection Commission. It's a new commission, with the goal of protecting lands with high natural-resource and historical significance, using acquisitions and easements where possible. I am an investment portfolio manager with Minis & Co., and my wife, Karen, and I are enjoying downtown Savannah with our dogs, Lucy and Hooch. We're fighting high gas prices and greenhouse gases by walking to work." ■ **James Jiler** left New York City and his work on Rikers Island and is residing in Miami, Fla., where he's raising three daughters—Nina, Niki and Nadia—and developing environmental programming for the Florida State Prison System. His book, *Doing Time in the Garden* (New Village Press, 2006), continues to "inspire gardening programs for at-risk groups in different settings around the country."

■ **Tetsuro Mori** writes: "I am a freelance consultant and auditor for environmental management systems, corporate social responsibility, macrobiotics and LOHAS (lifestyle for health and sustainability)."

www.shiawasesoken.com ■ **Liz Galli-Noble** is the director of the Center for Invasive Plant Management at Montana State University-Bozeman. ■ **Nina Rooks-Cast** writes: "This past summer I spent eight weeks in Guatemala learning Spanish, since 65 percent of my students in Providence are Latino and I have an ESL physics class. Any alumni living in the Providence area who would like to help prepare students to compete in the Science Olympiads, I'm searching for volunteers." ■ **Kristen Steck** works for Chevron. She was given the CARROT (Climate Action Registry Recognizing Our Team) award, which is given by the California registry staff to a select group of individuals who have gone above and beyond the call of duty to support the California registry's program.

1996

Class Secretaries

Kathryn Pipkin
kate@goodisp.com

Julie Rothrock
jarothrock@verizon.net

Matthew Auer, Ph.D., was appointed dean of the Hutton Honors College at Indiana University in July 2008. He maintains his appointment as professor of public and environmental affairs at the university's School of Public and Environmental Affairs.

■ **Karen Beard, Ph.D. '01**, and **Andrew Kulmatiski '99** welcomed their first child, Andrew Paul Kulmatiski, on June 19, 2008. Karen got tenure at Utah State University, and Andrew is starting a tenure-track position at the University of Alaska, Anchorage, in January 2009.

■ **Topher Buck** is a senior project manager for GreenBlue, a nonprofit in Charlottesville, Va., that specializes in making "commercial activity ecologically and socially sound through the creative use of product design." His program, CleanGredients, helps formulators of industrial and institutional cleaning products identify surfactants that have potential environmental and human health benefits, and provides an opportunity for surfactant manufacturers to showcase such ingredients. ■ **John Gunn** writes: "I am a senior scientist

with the Manomet Center for Conservation Sciences based in Brunswick, Maine. I'm working in their Natural Capital Initiative on projects related to carbon sequestration and other forest-based ecosystem services. I live in the town of Hebron in western Maine with my wife, Lori." ■ **Christian Kull** has lived in Melbourne, Australia, for the past five years and works in Monash University's School of Geography and Environmental Science, where he continues his research and teaching on the social aspects of resource management. He has investigated debates over fire use in Madagascar, reported in the book *Isle of Fire* (University of Chicago Press, 2004), and works on conflicts of interest over introduced and invasive species. For this project he has followed different species of Australian acacia trees in their travels around the Indian Ocean, to India, Madagascar and South Africa. ■ **Lara (Nachiem) Swenson** writes: "I am teaching environmental science at my son Joseph's private Christian school. Joseph is 12 years old. I'm very excited to be able to teach this subject in a place where I can talk about the Christian basis for stewarding the Earth, and I'll be glad too for the tuition break that we'll receive as a result of my teaching there. We recently enjoyed a visit from Reinhold Hubner (F&ES German exchange student from 1994 to 1995), Joseph's biological father. On the horizon for Joseph are trips to Germany, Austria, Italy and France with the Hubner family."

1997

Class Secretary

Paul Calzada
paul.calz@gmail.com

Keegan Eisenstadt writes: "My wife, Kristy, and I live in Missoula, Mont., with our precocious 2-year-old son, Spencer, and an assortment of house mascots. Lots of biking, skiing, kayaking, climbing and fun here in Big Sky country. Occasionally, I bump into **Dave Gaillard** and **Tonya Opperman**, who are both in Montana. I've founded a new company that designs and implements climate-change mitigation projects around the world. Initially it was mostly

reforestation in the tropics, but now we are involved in a number of projects of "various types." www.clearskyclimatesolutions.com ■ **Alexander Evans, Ph.D. '06**, writes: "I'm looking forward to the release of a report I've been working on about the sustainable use of woody biomass from forests. My two boys, 4 and 1, have gotten me outside for some great hikes this summer." www.biomass.forestguild.org ■ **Alex Finkral, Ph.D. '05**, and **Liz Kalies '04** welcomed their daughter, Pri Myers Finkral, in May 2008. The new family is living in Flagstaff, Ariz., where Alex is working toward tenure and Liz her Ph.D., both at Northern Arizona University. ■ **Carlos Guindon, D.F. '97**, writes: "This summer I worked for Maine Audubon and the Rachel Carson National Wildlife Refuge, conducting point counts of marsh birds and assisting with saltmarsh sharp-tailed sparrow research. The Rachel Carson Reserve biologist is **Kate O'Brien '95**. I am also doing shorebird and waterfowl monitoring within the Rachel Carson Reserve during the fall, along with teaching an introductory biology course at North Shore Community College in Danvers, Mass. I will also be working on the translation into Spanish of a book written by Kay Chornook and my dad, *Walking With Wolf: Reflections on a Life Spent Protecting the Costa Rican Wilderness*. Our oldest is a senior at Cornell and, this year, our youngest, Sergio, is off to college at Carnegie Mellon." ■ **Vicki Hornbostel** writes: "I got married in December 2004 and we had our first baby, Michael John Scotto, on March 14, 2008. He was 8 pounds and 15 ounces at birth. I left my last job working for a town wetlands agency to care for the baby, but would like to get back into ecological research eventually." ■ **Kristen (Needham) Jordan** writes: "Five years ago, my husband, Bruce Jordan, and I started a business called Sea Cider Farm & Ciderhouse. We bought a farm on Vancouver Island and planted an organic cider apple orchard, and this past year we began selling hard cider. Besides the orchard, we have several acres of forest and have been harvesting some agroforestry crops (mainly stinging nettle, which we

make into tea). It has been a labor of love, but very rewarding to see the business grow. Evelyn, 8, and Thomas, 5, are big helpers." ■ **Jon Kohl** writes: "In Costa Rica, my wife and I and several other Costa Ricans are making progress in establishing Querencia, an ecovillage. We're in the process of creating a cooperative. Aside from these largely volunteer activities, I am working on a number of fronts to promote a new kind of park planning that depends on adaptive management and learning. I also have been studying integral theory and evolutionary spirituality and would be interested in hearing from anyone else who wants to apply these approaches to their work." www.jonkohl.com ■ **Gus Le Breton** writes: "I run a nonprofit trade initiative promoting the commercialization of nontimber forest products from southern Africa. Last year I sailed to Antarctica and climbed a small mountain there. This year I finally learned to snow ski in South Africa. Next year I'm taking a six-month sabbatical with my family to drive the length of Africa." gus@phyto-tradeafrica.com ■ **Linwood Pendleton, D.F.E.S. '97**, writes: "Last year I quit my tenured job at UCLA to create a research center at the Ocean Foundation. I am living with **Jessica Morton '01** and our two girls in Sandwich, N.H., and on our boat in Ventura, Calif., with shorter stays near Cobscook Bay in Lubec and an undisclosed surf spot in the Caribbean. I recently held a congressional briefing regarding a report I published with Restore America's Estuaries, which led to several features on Greenwire.com and an hourlong radio show on the Outdoor Talk Network, America's largest hunting and fishing radio program with 17 million listeners. This summer I spent some quality southern California surf time with **Marc Luesebrink '95**." www.coastalvalues.org ■ **Shalini Ramanathan** writes: "I am a project developer with RES Americas, a leading developer of wind-power plants with a portfolio of generating assets using solar, biomass and other renewable-power technologies." ■ **Scott Rehms** writes: "My wife, Wingfield, my three boys, ages 8, 5 and 3, and I

finished spending two years in the island nation of the Republic of Palau on the western edge of Micronesia. While there, I was a senior EBM (ecosystem-based management) advisor to the Palau Conservation Society, and Wingfield worked as a dermatologist, as well as coordinated the strategic planning process for the Bureau of Public Health. In mid-August, we moved to Vancouver, B.C., where I co-lead a new grant-making entity that manages \$120 million to support conservation and sustainable economic development activities in 27 First Nations on the coast of British Columbia. The Coast Opportunity Funds grew out of a decades-long effort to resolve conflicts over forest management in an area often called the Great Bear Rainforest." scott@rehmus.com ■ **Mary Tyrell** writes: "I'm the executive director of Yale's Global Institute of Sustainable Forestry. Besides running the institute, I've been working on land use change affecting our Northeastern forests and changing forestland ownership in the United States. It's wonderful to continue to interact with F&ES students and I enjoy life in New Haven, in between travels for work and pleasure and hikes in the mountains." www.yale.edu/gisf ■ **Deb Weiner, Dan Shepherd '99** and their two daughters, Haley and Lucy, moved to Quito, Ecuador, about 18 months ago after more than eight years in Washington, D.C.

1998

Class Secretaries

Nadine Block
nadine.block@verizon.net

Claire Corcoran
corcoran_claire@verizon.net

Jeff Adams is vice president of ICF International. He recently relocated to Baltimore with **Kristen Adams '99** and their three children, a 2-year-old and 8-month-old twins. ■ **Luisa Cámara Cabrales** writes: "I am now at Tabasco State in southern Mexico. I work in the UJAT, the local Tabasco State University, as a teacher and researcher. I am in charge of three projects, one about secondary succession of tropical dry forest and two regional projects about forestry assessment and planning for the

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National Commission of Forestry. I also am in charge of four nurseries for the local state forestry commission, where we produced three million seedlings of native trees and introduce species for forestry plantations and reforestation programs. On the weekends I am a beekeeper and I check my 100 hectares of forestland—fire line breaks are important to check very often, because this forest is surrounded by cattle ranching. I have been taking care of this land for about 18 years. It is in different stages of successions, some parts becoming a tropical forest, so the bees and I are happy.” ■ **Seth Cook, Ph.D. '04**, writes: “I am attending an intensive Chinese language program at Tsinghua University in Beijing until June 2009. The Inter-University Program has waived most of my tuition.”

■ **Tormod Dale** writes: “I live in my hometown, Kristiansand, in Norway. I work in the forestry sector, for the last six to seven years on projects in former Yugoslavian countries, and most often through a network company called Norwegian Forestry Group.” ■ **Kevin Drury** writes: “I finished a postdoc at the National Center for Ecological Analysis and Synthesis at the University of California, Santa Barbara. During that time I traveled to the Kruger National Park in South Africa to develop software for ecological modeling of park wildlife populations. I am an assistant professor of biology and ecology at Bethel College in South Bend, Ind. My oldest daughter, Danielle, is a senior in high school.” kevin.drury@bethelcollege.edu

■ **Michelle Ernst** writes: “My organization, Tri-State Transportation Campaign, has become interested in New Haven’s proposal to tear down Route 34. The project could serve as a great regional model for highway removals. We’ve pulled together an upcoming symposium on the plan.” www.tstc.org ■ **Brad Kahn** and his wife, Erin, welcomed their son, Ezra, on June 16, which also happens to be Brad’s birthday. ■ **Natalie Keller** writes: “I got a second master’s degree at the Harvard School of Public Health in environmental health. I have been a literacy volun-

teer with K-2 students in Cambridge elementary schools with their English immersion program.” ■ **Kris Morico** is the global leader of the General Electric water program headquartered in Fairfield, Conn. She joined G.E. in 2006. She and her husband, Shaun, reside in Cheshire, Conn.

1999 10th Reunion Year

Class Secretaries

Jocelyn Forbush
jforbush@ttor.org

Jennifer Garrison Ross
jennifer_garrison@aya.yale.edu

Christiana Jones
christiana@jonesfamilyfarms.com

Kirsten Prettyman Adams writes: “**Jeff Adams '98** and I have moved to Baltimore to be closer to family and friends and the ocean. We have three little ones, Lily, 3, and Meg and Colin, 1. I am the head of the Upper School at the McDonogh School.”

■ **Timothy Allred** writes: “My wife, 9-month-old son Beckett, and I live in Rosendale, N.Y. For the past several years, I have been redeveloping an old 800-acre family resort into a LEED-certified resort and residential community focused on healthy living and the outdoors. The project is in the permit phase—we are drafting our environmental impact statement—and the experience reminds me of almost every class I took at F&ES, including a few of my business classes. The name of the project is Hudson River Valley Resorts.” tallred@canopydevelopment.com ■ **Lena Brook**

writes: “Jonah and I are living in San Francisco in a duplex Victorian that we own with **Bhavna Shamasunder** and her husband, Patrick. Our younger daughter, Talia, turned a year old on May 31, and 5-year-old Ava started kindergarten in late August. I am on the staff of the San Francisco Bay chapter of Physicians for Social Responsibility. My work is focused on sustainable food in the health care sector, and we’ve seen great progress in California in recent years. This is part of a national campaign coordinated by Health Care Without Harm, and one of my colleagues in Boston is **Michelle Gottlieb '95**.” ■ **Don Chen** is a program officer at the Ford Foundation

in New York. ■ **Nancy Fresco** is working as a postdoctoral fellow at the University of Alaska, Fairbanks, doing climate change research. She is also busy with her 2-year-old twins.

■ **Andre Heinz** writes: “After three years of work, I am happy to announce the closing of the Sustainable Technology Fund, which I co-founded to invest primarily in expansion of Nordic clean technology. This means that my time is spent heavily in Sweden, where we have an office, as well as in other Nordic countries.” ■ **Rachel (Schwartz) Louis** writes: “I am assistant director of the Center for Development Economics at Williams College.”

■ **Eli Sagor** is in his ninth year with the University of Minnesota, St Paul. He is working on private forest stewardship, with a primary focus on peer-to-peer learning through woodland-owner networks. Eli and his wife, Amy Kay Kerber, are expecting their second child in January 2009.

■ **Terry Terhaar, Ph.D. '05**, writes: “I’m a lecturer at the University of California, Santa Cruz, where I teach in the environmental studies college and the writing program. I also serve as executive director of the International Society for the Study of Religion, Nature and Culture.”

■ **Laura Williams** writes: “After two productive years in Kamchatka setting up a regional office for the World Wildlife Fund, I have returned to my home in the village of Chukhray in western Russia this fall. My book, *The Storks’ Nest*, published in March 2008, is about my life with my husband, Igor Shpilenok, in this village. (See Bookshelf, page 28) Igor and I are beginning to homeschool our 7-year-old son, Andrei, and our 4-year-old son, Makar. I will also start work on a new book about my experiences in Kamchatka and continue consulting for WWF in Russia. I also hope to spend more time promoting my husband’s nature photography business. You can see his work at www.shpilenok.com. Copies of *The Storks’ Nest* are available at Labyrinth Books in New Haven.” www.wild-russia.org ■ **Shiju Zhou** received a Ph.D. from Xiamen University, China. He is the deputy

director of the Provincial Science and Technology Bureau of Fujian Province, where he is responsible for agricultural and forestry-related scientific development. He met **Yajie Song '89**, D.F.E.S. '95, in Fuzhou, China.

2000

Class Secretaries

Erika Schaub
easffe@hotmail.com

Zikun Yu
info@ayuglobal.com

Huei-An Chu (Ann) and **Chi-Hung Liao** (Charles) write: "Our son, Samuel Mu-En Liao, was born in Enloe Medical Center in Chico, Calif., on August 4, 2008." ■ **Susan (Weuste) Ellis** has been with Cameron-Cole for over four years now. She writes: "I am based in Pleasantville, N.Y., and am the manager of our sustainability practice on the East Coast. We've been very busy working on GHG inventories, annual sustainability reports and greening the supply-chain projects. I adopted a puppy that we named Nani, which means beautiful in Hawaiian. She is a golden retriever/lab/mystery mix, and is the cutie of the neighborhood."

■ **Chris Kemos** writes: "My wife, Tanya Stadnick, and I moved from San Francisco to Kentfield in Marin County. We just had our second child, Alexander Leo, this May. I am a civil litigator at a firm in San Rafael, Calif., and putting my F&ES skills to use dealing also with local land use and planning issues."

■ **Yuki Matsuoka** writes: "Since 2005, I have lived on a southern island in Japan near Okinawa. Here, I grow mango, potato, peanuts, papaya and cassava organically for sale. Also, I'm working for a local authority to set up a farmers' market on the island. It requires setting up a farmers' organization, skills sessions and market development. Integrating daily life and work gives me full satisfaction. Besides my current work, we are going to purchase a piece of land on the island." ■ **Carlos Pineda** lives in San Francisco with his wife, Azita Ghafourpour. cpineda@aya.yale.edu ■ **Christie Pollet-Young** married Frenchman Grégory Pollet-Young in California in the summer of 2007.

The couple met in Lima, where Christie was a conservation planner for The Nature Conservancy in Peru. Their outdoor wedding was celebrated with friends **Anne Eschtruth**, **Elsa Hatanaka**, **Caroline Kuebler**, **Laura (Dunleavy) Nelms** and **April Reese**. Christie is a biologist for EDAW, an environmental design and planning consulting firm based in San Francisco. Her projects range from focused surveys for special-status species to land management plans and the occasional environmental-compliance document. ■ **Ashley (McAvey) Prout** writes: "Our first child, Elle Upperu McAvey, was born on February 27, 2008. My husband, Ken, Elle, dog Jackson and I are living in Shelburne, Vt. Before the birth of Elle, I was the senior development officer at The Rubenstein School of Environment and Natural Resources at the University of Vermont, Montpelier." ■ **Kristin (Sipes) Riha** writes: "My husband, Mike, and I are living in Concord, Calif., with our daughter, Lily. I work with trucking and rail companies through a voluntary program at the EPA's Region 9 Office, called the West Coast Collaborative."

2001

Class Secretaries

Leigh Cash
lcash@jhsph.edu

Adam Chambers
achambers@aya.yale.edu

Jennifer Grimm
jennifergrimm@aya.yale.edu

Cordalie Benoit is the president of the Connecticut Community Gardening Association. She writes: "There are about 80 programs in Connecticut's 169 towns, and six programs in New Haven alone, one being the Greenspace Program at our own URI. In our spare time, my husband, David Eliscu, and I are restoring my family's antique house and grounds in Westerly, R.I."

■ **Dave Ellum, Ph.D. '07**, writes: "I'm beginning my second year of teaching at Warren Wilson College in Asheville, N.C. The college's emphasis on academics, work and service, combined with a 650-acre school forest, makes for a great setting

to teach silviculture and forest management at the undergraduate level. Townes has begun first grade and is hitting pitched balls. Seija is full of life and keeping us busy. Mona continues to keep us all organized along with her own engineering work."

■ **Lisbet Kugler** writes: "I am in D.C. enjoying what the city has to offer—especially running into F&ES friends at Jazz in the Sculpture Garden. I am working at Environmental Resources Management and about to start working at the International Finance Corporation part time." ■ **Pradeep Kurukulasuriya, Ph.D. '06**, is based in New York City and works with the United Nations Development Programme. He works with a team within UNDP's Bureau of Development Policy that assists developing countries with accessing global funds for, and designing programs and projects on, adaptation to climate change. Pradeep and his wife, Sharmila, are expecting their second baby in December 2008!

■ **Jeff Luoma** is a garden and forest manager at North Country School near Lake Placid, N.Y. He and his partner, Betsy, have a nice guest room in the farmhouse, and it's in the heart of the Adirondacks. www.nct.org ■ **Tracy (Scheffler) Melbiness** writes: "I am a contractor from our home in Boise, Idaho, with the Fish and Wildlife Service on wolf conservation issues in the Southwest. My husband, Eric, and I are expecting our second child at the end of September." ■ **Michael Montag** writes: "My new firm, Beyond Compliance, does environmental regulatory and sustainability consulting. The firm focuses on environmental-compliance support (permitting, environmental management, etc.). We also do auditing and environmental-management systems implementation and "sustainability implementation." www.beyondcompliance.net ■ **Chris Nyce** has moved to Nicaragua. He is working in the U.S. Embassy in Managua for two years—a year of consular work and a year on a portfolio of environment-, science- and technology-related issues in the economic section. His wife, Rukmini, two daughters, Rasa and Priya, and dog Kayso would love to host any

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visitors passing through Central America. cnyce@hotmail.com

■ **Jen Osha** writes: "I am facilitating a participatory mapping project regarding the impacts of mountaintop-removal coal mining in southern West Virginia. I am also producing a CD to raise money and awareness about the social and environmental injustice in the coalfields through the nonprofit I founded, *Aurora Lights*. A first CD was called *Moving Mountains*, and we raised \$6,000 for local grass-roots groups. My son, Elijah Storm, is 5 now and spends most of his time in the woods." jenosha@auroralights.org

■ **Lisa Schulman** is a senior engineer in the area of environmental risk assessment at Merck & Co. Lisa and her husband, Dotan, reside in New Jersey with their two sons, Asher, 2, and baby brother Jonah, born in July 2008.

■ **Mark Urban, Ph.D. '06**, was awarded the 2008 Young Investigator Prize from the American Society of Naturalists. He teaches in the Ecology and Evolutionary Biology Department at the University of Connecticut.

2002

Class Secretaries

Catherine Bottrill
cbottrill@hotmail.com

Roberto J. Frau
rfrau@aya.yale.edu

Cesar Alcacer writes: "Life's treating **Paola Amador** and me well here in old Europe. I have accepted an offer from the company I used to work for six years ago in the United Kingdom to develop a business line in ecohydrology, my lifelong field of expertise. It's good to know that the consultancy world seeks business opportunities in sustainable water management projects. This also meant leaving Spain once again, although after 12 years wandering around I am getting used to that. Regarding Paola, she is enjoying her role as mother of Hector, 2." ■ **Barb Bamberger** writes: "I work for the State of California Office of Climate Change for the Air Resources Board, in the group designing its cap-and-trade program. My particular focus is on environmental justice and how it will be integrated into California's Climate Plan." ■ **Catherine Bottrill**

writes: "The highlight of my summer was tramping around music festivals doing an audience travel survey for some of the major U.K. festivals—**Roberto Frau** saw me just before heading to Glastonbury." ■ **Becca Brown** married Jason Dzubow on September 7, 2008, at a family friend's horse farm on the shore of the Chester River on the eastern shore of Maryland. Since graduating, Becca has been working at EPA in Washington, D.C., and Jason is an immigration lawyer there. Attending the wedding were **Suzanne Sessine, Sarah Garman '03, Meg Roessing '03, Vic Edgerton '03, Rachel Fertik, Becca Jensen Bruhl '03** and **Stephanie Perles**. ■ **Gwen Busby** finished her Ph.D. at Oregon State University and is an assistant professor in the Department of Forestry at Virginia Tech. ■ **Matt Clark** released an album, *Funny Little Fella*, about his son, Rowan's first year of life. Rowan's mother, Abby, sings and plays cello. Matt is an executive director of Johnson Creek Watershed Council in Portland, Oregon. www.mattclarkmusic.com

■ **Roberto Frau** writes: "I am in Mexico City and working for Environmental Resources Management on sustainable development projects that run the gamut from carbon footprint calculations to social-impact assessments. This year I've had mandatory happy hours with many classmates, including **Catherine Bottrill, Maria DeRijk '03, Erika Diamond, Rachel Fertik, Curtis Robinhold '03, Liz Rowls** and **David Vexler**."

■ **Michael Funaro** and **Zhanna Beisembaeva-Funaro** write: "Michael took a job with ESRI, so we moved to San Antonio in June. Our daughter, Danna, started sixth grade in August. She plays French horn in her school band and plays in tennis tournaments every weekend. Kair turned 2 in May. He speaks English, understands Russian and is learning Spanish now." zhanna.beisembaeva@aya.yale.edu

■ **Shalini Gupta** received an Archibald Bush Foundation Leadership Fellowship and is based in Minneapolis. For the next year and a half, she will do an independent study of energy and climate change policies from a social-equity perspective. She'll travel to India and South Korea, as

well as network with other policy institutions and social justice grass-roots groups in North America. Her mother was diagnosed with breast cancer in early 2008. Shalini and her husband, Jim, went on a work/vacation trip to Vienna and Paris this year. shagupta77@yahoo.com

■ **John Homan** writes: "After two years in private banking, I have moved to the Wealth Advisory Division of U.S. Trust, Bank of America Private Wealth Management. This new role continues to include managing relationships for high-net-worth clients while, at the same time, providing hands-on experience in portfolio management. I hope to complete my certification in financial planning in 2009, while continuing to expand my knowledge of socially responsible investments."

■ **Elizabeth Levy** writes: "My husband, Ryan, and I just purchased a condo in Somerville, outside of Boston. He is working on his Ph.D. in green chemistry." ■ **Cheryl Margoluis** writes: "I am living on the Pacific coast in Costa Rica. Richard and I have two kids now, Sylvana and Kian. I am doing a ton of consulting still and started a little school down here. We just finished building a house, so we are hoping to have F&ES friends come visit!" cmargoluis@earthlink.net

■ **Chris Nelson** and **Nina Arnold** welcomed Finn Thomas in late March. Finn loves gazing up at the trees during his daily walks around town, and his first big visit to the woods appropriately took place at Great Mountain, with Star Childs serving as guide. Chris has been busy implementing the Regional Greenhouse Gas Initiative (RGGI) in Connecticut, and he collaborated with colleagues from the other RGGI states to prepare for the nation's first auction of CO₂ allowances in late September.

■ **Rachel Novick, Ph.D. '08**, writes: "In May I finally graduated and, in June, we moved to South Bend. I'm the education and outreach coordinator for Notre Dame's new Office of Sustainability. Tzvi is an assistant professor in Notre Dame's theology department, and Aiden is attending the Notre Dame daycare center."

■ **Nalini Rao** finished her Ph.D. ■ **Rebecca Rundquist** is living in

Yarmouth, Maine, and working for the Private Operating Foundation and Family Foundation, both created by Burt's Bees Founder, Roxanne Quimby. Rebecca is raising her 3-year-old daughter, and she won't work full time until the little one is in school. ■ **Becky Tavani** writes: "I am a forestry officer at FAO in Rome, traveling often to Zambia for a land use assessment inventory." beckytavani@gmail.com ■ **Dylan Taylor** is the roads and wildlife program coordinator for the Southern Rockies Ecosystem Project. ■ **Corey Wisneski** writes: "My husband, Brian, and I had a daughter, Amelia Lynne, on June 30, 2008."

2003

Class Secretaries

Brian Goldberg

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Scott Threadgill

michael.threadgill@aya.yale.edu

Rebecca Ashley Asare writes: "In November I gave birth to a baby girl, Claire Adjoa Asabea Asare. Richard and I are living in Accra, Ghana. He is working for the International Institute of Tropical Agriculture on their Sustainable Tree Crops Program, and I am slugging away at finishing my dissertation." ■ **Ryan Bennett** writes: "I'm living in San Francisco and involved in private equity for renewable-energy developments. I am engaged to my sweetheart, Jessica." ■ **Becca Jensen Bruhl** writes: "I live in Houston with Aaron and our 2-year-old son, Elliot. I work part time as a staff scientist at the Mickey Leland National Urban Air Toxics Research Center, and I'm working on my doctorate at the University of Texas, Houston, School of Public Health in the environmental and occupational health division." ■ **Chuck Brunton** and **Laura Pyle** were married in New Jersey on September 22, 2007. They celebrated the evening with **Andrew Clack**; **Ellen Denny '97**; **Anne Eschtruth '00**; **Mary Ford '01**; **Heather (Peckham) Griscom '00, Ph.D. '04**; **Bronson Griscom, Ph.D. '03**; **Pete Hill '01**; **Illisa Kelman '99**; **Caroline Kuebler '00**; **Roy Schiff, Ph.D. '05**; **Trey Schillie**; **Carla Short**; **Kirsten Spainhower**; and **Sarah Vogel**.

■ **Daniela Cusack** writes: "I did my last field season in Puerto Rico for my dissertation, and then I moved to Santa Cruz to live with my boyfriend. I have a writing grant for this academic year." dcusack@nature.berkeley.edu

■ **Aspasia Dimizas** and her husband welcomed their baby girl, Myrto Maurides, on April 4. She has already gone hiking with them in Switzerland, where she greatly enjoyed "talking" to big trees during their walks in the mountains.

■ **Cherie LeBlanc Fisher** writes: "I got married at Malabar Farm State Park in Ohio in May. The park let me and my husband, Charles, plant a tree in honor of our wedding. I do urban social science research in Chicago for the research division of the U.S. Forest Service." ■ **Sarah Garman** writes: "I work at the EPA in the Office of Policy, Economics and Innovation. The bulk of my work is dedicated to addressing climate change and energy security. In addition, I have worked on developing regulations related to water and solid-waste permitting. I relocated to New York City this August." ■ **Brian Goldberg** writes: "I'm building a public park along the Coney Island boardwalk, as well as leading an environmental planning study of Libya's desert coast." ■ **Karen Hardigg** and her husband, Nick, welcomed a healthy baby boy, Ashe, on July 30. She works at The Wilderness Society on national forest policy in Anchorage. ■ **Orawan Intarakomalyasut** writes: "I am the mother of two sons, Obi-One and Anda." ■ **Krithi Karanth** and her family moved to D.C. She will defend her Ph.D. from Duke in November and will start a postdoc fellowship at Columbia University. ■ **Cherie Lim** is an environmental manager with JMK Environmental Solutions and was designated a California Registered Environmental Assessor as of July 2008. ■ **Brendan McEneaney** writes: "I am the green-building program advisor for the City of Santa Monica. I oversee green-construction requirements in the city, as well as incentive programs, education and outreach. I have been here for a little over a year and I enjoy it very much. I'm also on the board of the U.S. Green Building

Council, Los Angeles chapter. We have over 1,800 members." brenden.mceneaney@aya.yale.edu

■ **Florence Miller** writes: "I'm running an innovation grants program for the National Audubon Society that is intended to inspire the Audubon network to reach new audiences while developing innovative techniques for tackling environmental problems. I work from home in Vermont, but travel to Washington, D.C."

■ **Fuyumi Naito** writes: "I live in Geneva and work for the Japanese Mission to the United Nations. I cover the Basel Convention, Convention on International Trade in Endangered Species and some other multinational environmental agreements. My 1-year-old son enjoys his life here, and my husband, who works in Brussels, comes to Geneva every weekend." ■ **Kabir Peay** and **Alison Forrestel** were married in Yosemite in October 2007. Kabir's next big challenge is writing his dissertation and hopefully graduating by the end of this year. After that he expects to be showered in money and offered lots of jobs.

■ **Bryan Petit** writes: "I am in the early stages of forming a walking tour of interesting trees in the downtown area of D.C., a project of our local Society of American Foresters chapter." ■ **Soni Pradhanang** writes: "I am writing a couple of manuscripts on my Ph.D. research. I am hoping to finish writing my dissertation by the end of this year." ■ **Holly Sage** writes: "We have a baby girl. Olivia Sarah Green was born in March 2008. We live in Maryland and I am working for the EPA's water quality standards program." ■ **Abdalla Shah** writes: "I am a national technical advisor for the Kilombero Valley Ramsar Project in Tanzania. The main objective of the project is to develop an integrated management plan for the Kilombero Wetlands. I traveled to Cuiaba, Brazil, to attend the International Wetlands Conference." ■ **Jay Shepherd** is an acquisition and development manager for contaminated properties nationwide and in Guam for Weston Solutions in D.C. Jay has almost completed a second master's from Johns Hopkins in real estate development and seeks to continue his effort to

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revive urban communities blighted by decades of environmental harm. www.westonsolutions.com

■ **Laura Tam** and Darryl welcomed their son, Liam Asher Knudsen, in February 2008. Laura has been trying to persuade the City of San Francisco not to build a new natural gas power plant that was permitted in their community.

2004 5th Reunion Year

Class Secretaries

Jennifer Vogel Bass
jennifer_vogel@yahoo.com

Keith Bisson
keith_bisson@yahoo.com

Daniela Vizcaino
Daniela.vizcaino@aya.yale.edu

Laura Wooley
le.wooley@gmail.com

Jessie Barnes writes: "David Kneas '05 and I got engaged, and I am back in New Haven to write my Ph.D. research on irrigation in Egypt."

■ **Jennifer Vogel Bass** and her husband, Gordon, welcomed Henry William Bass in June 2008 at their home in Queens. ■ **Marco Buttazzoni** and **Valerie Craig** welcomed their son, Giulio, in April 2008. ■ **Suzette Carty** writes: "I live in Louisville and work for Brown-Forman Corporation, leading our environmental stewardship initiatives." ■ **Jonathan Cook** writes: "I spent the past year living in Laos and working with World Wildlife Fund's Greater Mekong Program on agriculture. I also found time to climb Mount Kinabalu in Malaysia, run the Angkor Wat 10K and attend Hahn-Ning Chou's epic wedding in Manila. I'm now at my old job with WWF in Washington."

■ **Alvaro del Campo** writes: "I am the international field programs manager of ecology, culture and conservation, coordinating all rapid inventories (social and biological) and some of our tropical ecology courses in Chicago and in the field. We conduct rapid biological and social inventories to promote effective conservation action in threatened regions of high-biological diversity and uniqueness. We are working in the tropical rainforests of Peru, Bolivia and Ecuador. I lead the advance teams in the country, and

since I am also a nature photographer, I take most of the pictures during the inventories for the reports and other articles. I also help edit the post-inventory reports and write articles about our experiences and outcomes in the field for local media." ■ **Tasha Eichenseher** is the science editor for the National Geographic website.

■ **Margarita Fernandez** is living in Oaxaca, Mexico, working with an organic certifying agency. On June 7, 2008, she and **Benjamin Hodgdon '03** welcomed their first baby, Carmen Delia. ■ **Alphonse (Buddy) Fletcher Jr.** married Ellen Pao last year and they had a daughter, Matilda Pao Fletcher, whom they call Mei.

■ **Betony Jones** is director of program development at the Sierra Business Council in Truckee, Calif., trying to pioneer the new green economy in the Sierra Nevada. Betony is working with land trusts to finalize forest conservation projects for carbon sequestration in order to secure funding for long-term management and restoration of private forests in the region. She writes: "I'm also getting ready to launch an ambitious energy efficiency program that will tie rural economic development opportunities to energy conservation. Other than that, I tried to get out backpacking a lot this summer. I went on a five-day excursion to the astoundingly beautiful Evolution Basin with my boyfriend and **Alison Forrestel '03**, **Kabir Peay '03**, **Ilmi Granoff**, **Garret Miller** and **Alice Bond '05**." ■ **Amanda (Farris) Mahaffey** writes: "I got hitched on August 2 in Brunswick, Maine, to Kevin Mahaffey. I am active at Stantec, formerly Woodlot Alternatives, and am also pursuing a degree in music."

■ **Rose Mannik** writes: "I have been working in Melbourne, Australia, for the last two years. I worked first in the spatial, and now the water resources, section of the engineering consulting firm Sinclair Knight Merz." ■ **Susan Tambi Matambo** writes: "We have returned to the United States after a three-year stint in Southeast Asia and have settled in Bethesda." ■ **Megan Mattox** writes: "I am based in the Bay of Islands with my husband, Rowan, and I am working for New Forests Asset Management, overseeing operations

in New Zealand and Hawaii."

■ **Shona Quinn** is the sustainability leader for the clothing company Eileen Fisher. ■ **Christopher Riely** writes: "I have alighted in Providence, R.I., and am a watershed forest manager for Providence Water, the public utility providing drinking water to Rhode Islanders." ■ **Nalin Sahni** writes: "I'm in law school at the University of Toronto but on exchange in Amsterdam until the end of 2008." ■ **Dani Simons** is living and working in New York City. This summer she helped the city's Department of Transportation create Summer Streets, a seven-mile car-free route through the heart of Manhattan on three consecutive Saturday mornings to encourage more people to re-imagine the way we use streets as public spaces and to promote biking, walking and other sustainable and healthy modes of transportation. danisimons@hotmail.com ■ **Abigail Weinberg** writes: "I've been developing a research program focused on understanding the impacts of new investment vehicles on forestland conservation for the Open Space Institute. Our next project is examining the current ownership of the 67 million acres of old industry lands in the United States—who owns them and what's to come as Timberland Investment Management Organization investors move overseas. I married my love of 12 years last September, and we're living in Brooklyn. We have just taken up sailing, and getting out on the Hudson is a great escape from the city." ■ **Kevin Woods** writes: "I will be starting my Ph.D. at the University of California, Berkeley, in environmental science, policy and management."

2005

Class Secretaries

David Cherney
david.cherney@colorado.edu

Dora Cudjoe
dcudjoe@thegef.org

Virginia Lacy
virginia.lacy@aya.yale.edu

Benjamin Urquhart
bnurquhart@gmail.com

Maura (Leahy) Adams lives in Concord, N.H., and is manager

of environmental stewardship for St. Paul's School, a private boarding school. maurakadams@gmail.com

■ **Lauren Baker** enjoyed some time off in Peru and California and returned to F&ES in August to do her Ph.D. with Michael Dove and Robert Bailis. ■ **Cherelle Blazer-Higgins** writes: "I am a community activist, green builder and business owner. I have a little boy and girl."

■ **Alvaro Redondo Brenes** is a fourth-year Ph.D. candidate at F&ES. He is working on his dissertation on Costa Rica, studying the effects of land use, political and socio-economic factors on the conservation of wildlife in the Path of Tapir Biological Corridor, Costa Rica's Central and South Pacific Coast.

■ **Patrick Burtis** writes: "I've been in the United Kingdom since July 2006, investing in clean energy and environmental technologies startups on behalf of Amadeus Capital Partners, a leading European venture capital firm. I get to travel quite a lot in Europe for work and pleasure. I married Jennifer Thomas in London last July after four years of dating. We live in Notting Hill with our dog, Mimi. We hung out with **Kyle Jones '06** a lot when she was living in London, but sadly (for us) she has gone back to New York. We have seen **Andre Heinz '99**, who's living in Stockholm, and **Caley Johnson '06** when I was in Colorado on vacation. Jennifer and I also had dinner with **Arnulf Grubler** in Vienna in February—on his birthday, no less. A good time as always."

pburtis@amadeuscapital.com

■ **Sharifa (Gulamhussein) Crandall** is living in Boston and studying urban landscape design and restoration ecology through the Arnold Arboretum at Harvard. She's finding time to botanize, swim and play kickball on the weekends. ■ **Dora Cudjoe** had a boy, Jonathan Joel (Jojo) Fiifi Forson, in May 2008.

■ **Trisha Eyler** is living in Ashburn, Va., just west of Washington, D.C. She recently left her position as an enforcement specialist with the Virginia Department of Environmental Quality and began working for URS as a consultant in its air quality group. ■ **James Fergusson** writes: "I am financing a range of renewables

in a variety of countries—geothermal in Indonesia, wind in Chile and Pakistan and hydro in India for International Finance. Sarah and I are living in D.C. and expecting our first child in August." ■ **Carishma Gokhale-Welch** and **Aaron Welch** have gone to India. Aaron has been awarded a Fulbright Scholarship to research conservation in association with the Indian Institute of Technology in Mumbai. Carishma will integrate sustainable practices into the booming economy. This comes at the close of Aaron's Colorado Conservation Trust Fellowship with two land trusts and Carishma's continuing direction of a successful watershed management effort in the historic mining town of Creede. carishma.gokhale@gmail.com

■ **Emily Levin** writes: "I moved to Burlington, Vt., last September and am the planning manager for residential services at the Vermont Energy Investment Corporation. I do strategic planning and management for energy efficiency services in new and existing homes at Efficiency Vermont, the state's energy efficiency utility." ■ **Michelle Lichtenfels** writes: "I'm a program manager at Portland Energy Conservation, where I'm implementing large-scale commercial energy efficiency programs in California. Matt and I have had a busy year racing our bikes around Oregon and Washington—both cyclocross and road racing. I'm getting ready to upgrade to Category 3. At the end of the summer, we went to Vermont to see **Kelly Coleman** and her fiancé, Amir, then were off to Amsterdam and Egypt for a couple of weeks." ■ **Sarah Matheson** traveled to Peru, where she saw **Cesar Moran**.

She is starting a sustainability practice for an Australian consulting firm in Washington, D.C. ■ **Azalea Mitch** writes: "I am a project engineer with the Greater New Haven Water Pollution Control Authority. I bike to work on most days and have been happy to reduce my carbon footprint. We installed a solar hot water heater system last year. Bill and I canoed in Canada, and we work with Engineers Without Borders on a water project in Cameroon." ■ **Daniel Stonington** writes: "I'm a program manager for the Cascade Land Conservancy in

Seattle, lobbying local and state government for sustainable land use policy changes. I'm in my third year on the board of directors for *High Country News*, a magazine about social, cultural and environmental issues in the western United States. I had the pleasure of attending **Sam Krasnow's** wedding in Vermont this summer, where I also got to see **Ali Macalady '06** and her husband, Derek, and **Kelly Coleman** and her fiancé, Amir. ■ **Jim Cronan '06** and I are housemates living in north Seattle." ■ **Megan Sutton** writes: "This summer Andy Tait and I got hitched in a lovely high meadow out in the countryside of the southern Appalachian Mountains. Mary Alice and **Rob Lamb** played beautiful music throughout our ceremony."

■ **Carlisle Tuggey** writes: "I am an environmental attorney at Preti Flaherty law firm in Portland, Maine. I sail, ski, hike, enjoy Portland and have been getting involved with The Nature Conservancy, Sail Maine, United Way, the American Bar Association and some other nonprofits in my free time." ■ **Ben Urquhart** is a research associate at the Harvard University Center for the Environment, where he is working on international climate and energy policy. There might be some forestry and biomass energy project development on the side. ■ **Ethan Winter** reports that Savannah Hollins Winter was born in August 2008. Ethan is the New York conservation manager for the Land Trust Alliance and is responsible for a \$1.5 million annual capacity-building grants program and the state policy program.

2006

Class Secretaries

Flora Chi

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Susan Ely

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Jessica Albietz is doing watershed restoration in the northern Sierras

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class notes



for the nonprofit Feather River Coordinated Resource Management Group. ■ **Imelda Bacudo** is a conservation finance advisor at the Uganda Wildlife Authority, the government agency in charge of managing all protected areas in Uganda. She is establishing self-financing tools such as carbon credits, water payments, ecotourism and biodiversity offsets within Ugandan national parks and wildlife reserves. ■ **Jeni (Krencicki) Barcelos** writes: "I am a Gates Public Interest Law Scholar at the University of Washington, where I am researching how human rights law can be used to address the humanitarian crises caused by climate change."

■ **Mohamad Chakaki** is an environmental consultant with The Baraka Group. His area of expertise—social ecology problem-solving—is at the intersection of environmental management and community development. He consults on social ecology projects involving place-based education, sustainable design, urban planning and community-based natural resource management in the United States and Middle East. ■ **Flora Chi** writes: "Angela Quiros '05 and her family visited me in Hong Kong this summer. We caught up at a lofty bar downtown overseeing the beautiful night scene of Victoria Harbor. I also met O.M. Cordes, a close friend of Nell Larson, in a Harvard alumni gathering at Happy Valley Horse Racing Track. Did I bet on horses? Yes, I did, and my beginner's luck won me \$500 from a \$50 bet." ■ **Joel Creswell** writes: "I'm in the research phase of a Ph.D. in environmental chemistry at the University of Wisconsin, studying the production of methyl mercury in wetlands. I received an EPA STAR fellowship last summer to support my research." ■

■ **Radhika Dave** writes: "I have been working on climate change adaptation within the Center for Applied Biodiversity Science at Conservation International for the last year and a half. In the process, I have been lucky enough to travel back to Madagascar (where I conducted research for my master's project) on several occasions and reconnect with friends I made during my field work

there. I helped conduct a climate change impacts assessment workshop for biodiversity and natural resources-based livelihoods in Madagascar. The results of this vulnerability assessment are contributing to the formulation of a comprehensive adaptation strategy for incorporating climate impacts into conservation."

■ **Elizabeth Deliso** writes: "For the last two years I've been living in the cloud forest of Monteverde, Costa Rica. In 2007 I wrote a grant with Alan Pounds and conducted a project investigating the potential effects of climate change on the hummingbirds of Monteverde. The idea is to help La Reserva Biologica Bosque Nuboso de Monteverde develop and implement a research and biological monitoring program. I also spend time with my 8-month-old son and partner, Julio, and I welcomed Julian Santiago Medina Deliso into the world in December 2007."

phalarope@gmail.com ■ **Reilly Dibner** writes: "I've just moved back to Galway to begin a Ph.D. at the National University of Ireland, working on an ecology, environmental-engineering and forestry project. I've been racing triathlons, playing music (more mandolin, less bass) and learning how to make fancy hats out of discarded fabric. I visited with F&ESers at Kim Wilkinson's wedding in June and look forward to crashing on Jill Savery's couch near London sometime this year. This past summer I monitored gull nests in San Francisco under dive-bombing pressure by the (large) adults and conducted endangered butterfly counts on San Bruno Mountain."

■ **Konstantine Drakonakis** writes: "I opened a new office in New Haven for LaunchCapital, a new venture capital fund. We look to invest in a broad and diverse range of startups."

■ **Heather Eves, D.F.E.S. '06**, has been director of the Bushmeat Crisis Task Force based in Washington, D.C., since 2000. She has continued to focus on the bushmeat issue across Africa, most recently in Eastern Africa, and is working with the MENTOR fellowship program to provide training and support for mid-career wildlife professionals in

Eastern Africa to address the trade. A Fulbright Senior Specialist grant will enable her to continue work with the fellows in building an Eastern Africa network to complement a decade of effort on bushmeat in Central Africa. Heather has two children, Casey Savanna, 7, and Ryan Forest, 5, who recently accompanied their parents to Tanzania for a month, where mom and dad were working on African wildlife conservation efforts. www.bushmeat.org ■ **Debora Fillis** writes: "I am an environmental planner for communities in the New York City metro area and have moved back to my hometown in Eastchester, N.Y. In addition to environmental planning, I am going to marry Steve Ryba next spring."

■ **Erin Flanagan** writes: "I work for a big law firm, Thompson Hine, where I practice as a trial lawyer in the firm's business litigation group. I am involved in raising northeast Ohio's awareness to the region's clean-water and clean-air issues and am looking forward to becoming involved in the civic task force that is trying to bring the largest wind farm to the United States, to be located in the waters of Lake Erie."

■ **Jenny Frankel-Reed** writes: "I am a technical advisor for a project titled 'Adaptation to Climate Change in Rural Areas' in India with GTZ (German Technical Cooperation). I was in Eschborn, Germany, until September, and now am going to live in New Delhi through mid-2011. It has been a privilege to work with and learn from Pradeep Kurukulasuriya '01, Ph.D. '06, and Luis Gomez-Echeverri '91 while at the UNDP." jfrankelreed@aya.yale.edu ■ **Ross Geredien** writes: "Julie and I are doing very well after a belated honeymoon to Costa Rica, where we saw 189 species of birds. I manage the state's rare-, threatened- and endangered-species information at the Maryland Natural Heritage Program." www.goodmigrationsphoto.com

■ **Gonzalo Griebenow** is working at the World Bank Environment Department with the policy and economics team. He writes: "My work is about improving the integra-

tion of climate-change policies in developing countries. I am also carrying out research work in the Amazon, studying the potential impacts of climate change in the tropical Andes." ■ **Maria Ivanova, Ph.D.**, is an assistant professor of government and environmental policy at the College of William and Mary in Virginia. She is spending her sabbatical year in Washington, D.C., as a visiting scholar at the Environmental Law Institute. ■ **Kyle Jones** has moved back to New York City after two years in London. ■ **Taek Joo** writes: "I live in Korea and got a new job at Korea Green Foundation, an environmental NGO. I work on the international cooperation team."

■ **Jen Karanian** writes: "I'm living in Sudan and am a contractor for USAID, writing environmental evaluations for all its upcoming projects. I'm hoping to get a gig with the Wildlife Conservation Society in the fall, doing some work related to that enormous wildlife migration route they discovered in Southern Sudan."

■ **Alder Keleman** writes: "I've moved to Rome to be based at the FAO for a year. Here I'm working on the same old topics—crop diversity, markets and agricultural policy—but with a broader geographical scope." alder.keleman@gmail.com

■ **Chris Meaney** writes: "I was hired by the NMFS office of the Habitat Conservation Habitat Protection Division. I'm now a full-time federal employee."

■ **Shuichi Ozawa** writes: "I am an environmental consultant in Tokyo. I met **Gala Davaa '07** in Tokyo when he visited here for vacation."

■ **Tiffany McCormick Potter** writes: "I am head of origination for Equator Environmental, a private asset management firm with headquarters in New York City and the second-largest natural gas brokerage in North America. This position allows me the opportunity to follow my heart and potentially help change the way we value, invest and protect green spaces and to tap back into my expertise in forestry and conservation." Tiffany.Potter@equator.net

■ **Sarah Price** writes: "I'm working with Tropical Forest Trust and am based in Geneva. TFT works throughout the tropics to improve

sustainable forest practices, so I'm lucky to work on projects all over the place." ■ **Jill Savery** writes: "I moved to London and am the 2012 project manager for BioRegional. BioRegional and WWF co-authored the London 2012 One Planet Olympics sustainability strategy, and I am providing assistance to the organizers in meeting their targets."

■ **Dhyana Quintanar Solares** writes: "I am collaborating with the Ministry of Environment of Mexico City (Secretaria de Medio Ambiente del Distrito Federal), where I coordinate the Bikeway Master Plan of Mexico City." dquintanar.sma@gmail.com

■ **Dahvi Wilson** writes: "I am the director of sustainability at a new green neighborhood development called Mountainside Village, the executive director of a small non-profit called Mountainside Institute, the board chair of Teton Valley Community Recycling and a co-founder of a new collaboration of local green organizations and businesses that we're calling the Teton Valley Green Forum. **Jeni (Krencicki) Barcelos** and I continue our work advising and consulting as fellows of the Progressive Ideas Network, a strategic collaboration of several national progressive political think tanks, and we hope to call another meeting of these groups after the elections in November." ■ **Christina Zarrella** is assistant to the director of, as well as multistate conservation grant program coordinator for, the Association of Fish & Wildlife Agencies in D.C.

2007

Class Secretary

Rosi Kerr
rosi.kerr@alum.dartmouth.org

Heather Arrowood writes: "I'm a consultant for Vintage Africa, based in the Kigio Wildlife Conservancy in Kenya, but I may move to their Tanzania office in a few months."

■ **Joanna Carey** writes: "I'm monitoring stream flow at over 60 sites statewide for the Massachusetts Riverways Program, a division of the Department of Fish and Game. I examine how the streams are responding hydrologically to stressors

(water withdrawals, upstream barriers, stormwater)." ■ **Amanda Cowan** writes: "I am in my second year in a doctoral program at Oxford University. I'm in the marketing department at Oxford's business school, and my current research is on U.S. environmental activism around the issue of climate change."

■ **Beth Jamie Feingold** writes: "I completed the first year of my Ph.D. at Johns Hopkins School of Public Health in the Department of Environmental Health Sciences. I'm about to start research on the environmental health effects of large-scale factory farms. I get to catch up with **Bridgid Curry, Caroline Simmonds '06, Fuphan Chou '06** and **Steve Rhee '00**, among others. I just built a road bike and am excited to ride it."

■ **Dawn Lippert** writes: "I have been developing a strategy for Hawaii to reach 70 percent clean energy by 2030—including electricity, efficiency and transportation—for Booz Allen's renewable-energy team. It's related to my experience at F&ES working with **Marian Chertow, Ph.D. '00**, and four other students on a sustainable energy plan for the Big Island."

■ **Charlie Liu** writes: "I'm a Ph.D. student in the Biology Department at University of California, Berkeley, working in Jay Keasling's lab on biofuels (not related to corn or ethanol)." ■ **Susan Marriott** is an associate of Philips Lytle in Buffalo. Her practice concentrates on environment and energy, telecommunications and land use, and zoning law, along with climate-change policy.

■ **Colleen Morgan** is starting a program called Bayou Rebirth Wetlands Restoration and Education in New Orleans. She has spent the past year networking, promoting and testing her idea while working at the Audubon Nature Institute as the volunteer coordinator of its nature center in New Orleans East, an 86-acre property that was destroyed by Hurricane Katrina. She manages a volunteer restoration project there to remove the invasive species, Chinese tallow, and replant native bottomland hardwood species. www.bayourebirth.org ■ **Hannah Murray** writes: "I'm working at Forest Trends and the Katoomba Group in

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& Environmental
Studies website at
environment.yale.edu



Washington, D.C., on market incentives for forest conservation in Latin America.” ■ **Jim Nordgren** writes: “I’m the executive director of the Northeast Wilderness Trust in Boston, protecting wilderness land across northern New York and New England.” ■ **Stephanie Ogburn** writes: “I’m the outreach and development coordinator for a rural recycling program, the Four Corners Recycling Initiative. It’s an effort to boost recycling in my part of the country—Montezuma County, Colo. I’m also working part time on an organic farm and blogging about those experiences at Grist.org’s blog, *Gristmill*. In my spare time, I’m working on starting a new nonprofit to support community food and farms in southwestern Colorado.” www.stephanieogburn.com; www.4cornersrecycles.org

■ **Mike Perlmutter** is the Bay Area conservation coordinator for Audubon California, which is partnering with the U.S. Fish and Wildlife Service to initiate tidal restoration on Tubbs Island, part of the wetlands that make up the San Pablo Bay National Wildlife Refuge. I’m working on setting up a monitoring protocol to measure the success of our restoration actions in improving habitat for wetland birds and plants.” www.ca.audubon.org

■ **Pedro Piris-Cabezas** writes: “I am working for the Environmental Defense Fund in Madrid and on my dissertation as a student at Rey Juan Carlos University.” ■ **Krishna Roka** writes: “I am a Ph.D. student in rural sociology and the human dimensions of natural resource management at Penn State. I will be working on governance and forest management in Nepal. In May 2008 we had a baby girl, Avani, who joins our 2-year-old son, Diptanshu.” ■ **Tenley Elizabeth Wurglitz** writes: “I am a program assistant with the Sonoma Land Trust in Santa Rosa, Calif. I am assisting two senior staff members with all aspects of land and conservation easement acquisitions.”

2008

Class Secretaries

Angelica Afanador
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Kelsey Kidd
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Kim Yaun-Farrell
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Mariya Absar is at F&ES completing her master’s thesis on farmer behavior and adaptation to water shortages in Pakistan, and she is doing an independent study analyzing the precipitation patterns of the Rio Bravo watershed. She is also interning with the Pakistani mission at the United Nations in New York. ■ **Ali Akram** writes: “I went back to Pakistan, married Zahra, traveled to the Far East with her and now plan to come back to New Haven to start Ph.D. study at F&ES in environmental economics. Zahra is joining me in New Haven, and I hope to introduce her to some of the best pizza in the world.” ■ **Avery Anderson** has moved to Santa Fe, N.M., to be the program coordinator for a new conservation leadership development program called CARLY (Conservation and Ranching Leadership and Youth) for The Quivira Coalition, a conservation nonprofit that builds resilient communities and ecosystems in northern New Mexico. The CARLY Program will match eager young leaders with mentors in conservation and ranching for 24-month programs.

■ **Anamaria Aristizabal** is a consultant at McKinsey & Co. in Bogota, where she developed the carbon abatement plan for the office to reduce emissions by 10 percent by next year, coordinating with Latin American colleagues. She also developed a growth strategy for waste management for a sanitation company in Brazil, did organizational design and portfolio revamping for a Dominican bank and was involved in the running of a McKinsey-sponsored business plan competition. www.aldeafeliz.org ■ **Georgia Basso** writes: “I am working on a sustainable coffee project with The Nature Conservancy and the Center for Sustainable Markets at INCAE Business School in Costa Rica.”

■ **Genny Biggs** writes: “My family and I are getting settled in Winnetka, and I’m working remotely for the Moore Foundation.” ■ **Sara Bushey** and Ron Ohrel were married on July 11 in Pismo Beach, Calif. Joining them for the special event were **Audrey Davenport ’09**, **Benson Gabler ’09**, **Claire Gagne ’07**, **John Paul Jewell ’09** and **Lucas Knowles ’08**. Ron is director of the Marine Public Education Office, College of Marine and Earth Studies and Sea Grant College Program at the University of Delaware. Sara is taking some time to relax and do some pickling and outdoor exploring before starting to look for her next job. ■ **Kelsey Kidd** writes: “I’m an environmental scientist for Weston Solutions in Tempe, Ariz., and loving the desert.” ■ **Jennifer Lewis** writes: “I work at the New York University Center for Latin American and Caribbean Studies.” jen.lewis08@gmail.com ■ **Innocent Liengola** writes: “I am a project director in Salonga National Park with the Wildlife Conservation Society trying to preserve bonobos (*Pan paniscus*) and their habitat. Bonobos are pygmy chimps, the last of the great apes to be discovered. They are the closest relative to humans.” ■ **Kyle Meister** writes: “I finished a forestry internship with the Mercy Corps in Bogotá, Colombia, and I am now a certification forester with Scientific Certification Systems in the Bay Area of California. I will be working on certifying forests of North and South America under the Forest Stewardship Council standard. There is also a good chance that I will be working on forest carbon standards and certifications.”

■ **Xinwei Zhang** writes: “I moved to Melbourne, Fla., and started my first job at AgCert Services. I am a regulatory analyst—mainly keeping the company up-to-date on carbon markets and Clean Development Mechanism regulations. I also help develop carbon emissions-reduction projects in developing countries.”

Ralph Arnold '41 (1915-2008) died at the age of 93 on July 10 in Crossett, Ark. Ralph was born on February 9, 1915. A retired lieutenant commander, U.S. Navy Reserve, he served in World War II as a PT boat skipper in the Pacific-Solomon Islands. He earned a bachelor's of science degree in entomology from the University of Massachusetts before he studied at Yale. As a retired forester for Georgia-Pacific, he was a golden member of the Society of American Foresters and a member of the Arkansas Forestry Association, Louisiana Forestry Association and the Chamber of Commerce. He belonged to the First United Methodist Church, and he is remembered for his love of reading, golf and traveling. He was preceded in death by his wife, Lois Arnold of Tamarac, Fla. He is survived by a son, David of Flower Mound, Texas; two daughters, Sue Chesney of Arlington, Texas, and Cheryl Jule of Kerrville, Texas; two brothers, Waldo of Tamarac and Theodore of Franklin, Mass.; a sister, Helen Olsen of Wrentham, Mass.; and six grandchildren and four great-grandchildren.

Bruce Atkinson '64 (1934-2008) died in Green Valley, Ariz., on March 3 after a lengthy illness. Born on September 10, 1934, Bruce worked as a forester, logging manager and mill manager with MacMillan-Bloedel before and after his degree work at Yale. He was a founding analyst with Nawitka Renewable Resource Consultants in 1974, which ran forestry projects in 40 countries over 28 years. His other business interests in communications and real estate eventually reduced his involvement in forestry, but he continued analyzing mill and marketing opportunities in Chile. He is survived by his wife, Shirley; two sons, John of Vancouver Island, British Columbia, and Matthew of Vancouver, British Columbia; and a daughter, Sara, of London.

Charles O'Connor Baird Jr. '51 (1922-2008), a longtime resident of Sewanee, Tenn., died on April 4 in Chattanooga, Tenn., at the age of 85. During his 32-year tenure with the University of the South, Charles served as a professor of forestry, department chair, university forester and dean of men. He also helped develop the natural resources major, which has proven to be one of the strongest majors in the college. He graduated from Knoxville High School and earned his undergraduate degree in engineering from the University of Tennessee before continuing at Yale for a master of forestry degree. In 1962, he received a doctor of forestry degree from the Duke School of Forestry. During World War II, he served as an officer in the Army Corps of Engineers in the Philippine Islands. He received the Asiatic Pacific Campaign Medal with bronze battle star, the Philippine Liberation Ribbon with bronze star and the World War II Victory Medal. He was an Eagle Scout. Into his 80s, he played tennis and was an avid reader and outdoorsman. He is survived by his wife, Joan; a son, Charles; two daughters, Elizabeth Thoni and Julia Denegre; and eight grandchildren.

David Challinor '59, Ph.D. '66, (1920-2008) was a conservationist who combined his career as a top scientific administrator at the Smithsonian Institution with an equally intense pursuit of excellence as a champion oarsman, rowing competitively into his 80s. David died on March 5 at the age of 87 of congestive heart failure at his home in Washington, D.C. He was born in New York City on July 11, 1920, graduated from Harvard College a year early and, in 1942, enlisted in the Navy. He served in the Mediterranean and Pacific theaters during World War II, primarily on the escort carrier *Kasaan Bay*. After the war, he moved to Texas and worked as a cotton broker, farmer and mortgage broker.

In the late 1950s, he returned to the East to study forestry at Yale. In 1966, he left a job with the Peabody Museum of Natural History at Yale to be a special assistant in tropical biology at the Smithsonian Institution in Washington, D.C. Through the 1970s and 1980s, he oversaw the budgets, staff and general direction of the National Zoo, the National Museum of Natural History, the Harvard-Smithsonian Center for Astrophysics and other scientific units of the Smithsonian as assistant secretary for science and research. He was a member of the Charles Darwin Foundation, the African Wildlife Foundation and the Environmental Defense Fund. He is survived by his wife of 56 years, Joan of Washington, D.C.; three daughters, Julia of Amsterdam, Mary of Washington and Sarah of San Francisco; a son, David of Seattle; a sister; and six grandchildren.

Herbert Damon '49 (1917-2008) died peacefully at home in New London, N.H., on March 13 at the age of 90. Herbert was born on December 24, 1917, in Malden, Mass., and graduated from Phillips Exeter Academy and Amherst College. Soon after, he enlisted in the Navy, serving as an officer aboard the destroyer USS *Smith* in the South Pacific from 1941 to 1945. Having earned seven battle stars, he was second in command of the ship when he was finally transferred stateside to teach naval science at the University of Texas. He served with distinction as a citizen-soldier but is remembered as decrying war as a solution. In 1946 he married Margaret "Peggy" Damon, and he obtained his master's degree at the Forestry School as they were starting a family. After moving to North Conway, N.H., in 1949, he owned and operated several ventures, including the Carroll County Service Company, a propane gas and appliance business, and a sawmill. He also worked as a forester, real estate agent and car-



penter. From 1961 to the mid 1970s, he taught general science to hundreds of junior high school students in Conway and Tamworth. In 1975, he and Peggy moved to Tamworth, where they started Hollow Hill Farm, a pick-your-own apple and berry business. They fully retired in 1993 and moved to New London. He became Peggy's devoted caregiver when she developed health problems and continued until her death in September 2007. From his early experiences on a canoe trip down the Allagash River at summer camp, he fell in love with the woods, mountains and streams of northern New England, a love that is evident in his many watercolor landscape paintings. He was an early trustee of the Tin Mountain Conservation Center and, with Peggy, an avid birder for many years. Together they traveled from the Galapagos to Africa on birding and nature expeditions. He enjoyed young people, volunteering time with the Eastern Slope Ski Club, Junior Ski Program, Boy Scouts, Little League and the Community Center in North Conway. He was a loving father, grandfather, brother and uncle, and his lively, irreverent sense of humor will be missed. He is survived by a son, Edward of Concord, N.H.; two daughters, Martha Kane of Huntingtown, Md., and Susan Hurst of Grantham, N.H.; seven grandchildren; a brother, Stephen of Tamworth, and a sister, Patricia Niswander of Concord; and numerous nieces, nephews and in-laws. Besides Peggy, he was predeceased by an older brother, Harry of Grand Rapids, Mich.; and an older sister, Katharine Reed of North Conway.

Richard ("Dick") Dingle '47, Ph.D. '53, (1918-2008) died on June 1 in Bismarck, N.D., at the age of 90. Dick was born on January 5, 1918, and spent most of his childhood in St. Paul, Minn. He graduated with a forestry degree from the University of Minnesota in 1941 and served as a Navy lieutenant on a landing craft

during World War II in the South Pacific from 1944 to 1946. After earning his master's degree at the Forestry School, he taught in the Forestry Department at the University of Missouri, Columbia, from 1948 to 1953 while conducting his Ph.D. research. He taught in the Forestry Department at Washington State University from 1953 until he retired in 1983. He was dedicated to his students, the preservation and sustainable use of forests and the development of the naturally perfect Christmas tree. This quest took him on sabbatical to Europe in 1969, where he pursued a pure source of seeds of the rare Spanish fir. He later planted them at the Forest Experiment Station in Vancouver, Wash. In 1981 he joined a WSU-AID project in Indonesia, working with forestry faculty members at Universitas Hasanuddin in Ujung Pandang on the island of Sulawesi. He was an active member of the Pullman Presbyterian Church for many years and of the Society of American Foresters. He married the love of his life, Barbara, in St. Paul on June 6, 1947, sharing many adventures and world travels with her. They celebrated their 50th and 60th wedding anniversaries with friends and family and were just five days shy of celebrating their 61st when he died. He is survived by his wife, Barbara; two daughters, Mary of Portland, Ore., and Judy Soule of Alexandria, Va.; two brothers, A. Nelson and Gene; a sister, Dorothy Olson; a daughter-in-law, Tillay Christensen; a son-in-law, Robert Soule; four grandchildren; and a great-granddaughter. He was preceded in death by his brother Roy and sister Eunice.

Arthur Galston (1920-2008), professor emeritus of molecular, cellular and developmental biology at Yale, died on June 15 at the age of 88 at the Whitney Center in Hamden, where he lived with his wife, Dale. Born in Brooklyn, Art received his

undergraduate degree from Cornell and a Ph.D. in botany from the University of Illinois in 1943. He spent a year at Yale before becoming an assistant and then associate professor at the California Institute of Technology. He was a leading plant physiologist from the 1940s to 1970s. He contributed not only to botany, but also to international relations, especially in the Far East, and to the field of bioethics. He was also the Eaton Professor Emeritus of MCDB, professor emeritus at the Institution for Social and Policy Studies, where he served on the executive committee for interdisciplinary bioethics projects. He was chair of the Botany Department in 1960 and was instrumental in arranging the merger of the botany and zoology departments, chairing the newly merged department from 1985 to 1988. He was president of the Botanical Society of America (BSA) and the American Society of Plant Physiologists. He organized and presided over a bioethics and science seminar series held at the Joseph Slifka Center for Jewish Life at Yale. His pioneering research in plant physiology and hormones later led to corporate development of defoliants that were used for the production of Agent Orange during the Vietnam War. The consequences of this led to his passionate interest in bioethics as a discipline. At the time of his death, he was preparing a presentation for the 40th anniversary of his BSA Presidential Address, titled "Plants, People and Politics," which was to review how people "have not sought to ameliorate the damage caused by this largest chemical warfare operation in history."

George Hopkins '37 (1912-2008), a former resident of Ballston Lake, N.Y., died on May 18 at Kingsway Arms Nursing Home. Born in Brooklyn on December 7, 1912, George graduated from Burnt Hills Ballston Lake High School and received his biochemistry degree from

Tribute to William Burch

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Harvard. After earning his forestry degree, he worked at the GE Silicone Plant in Waterford, N.Y. He was a member and leader of the Ballston Center Associate Reformed Presbyterian Church. He is survived by his wife, Vernice, with whom he would have celebrated their 70th anniversary in June; a son, Richard of Charlton, N.Y.; twin daughters, Susan Malone of Guilderland, N.Y., and Sandra Knabner of Ballston Lake; eight grandchildren; 13 great-grandchildren; and numerous nieces and nephews. He was predeceased by two brothers, William and John; and two sisters, Alice Eyreman and Virginia Mayakis.

John Klinkam '41 (1917-2008) died at home on March 31 at the age of 90. Born on November 22, 1917, John lived in Seattle all his life. He graduated from Franklin High School and the University of Washington. After earning his forestry degree at Yale, he became a forester and then served in the U.S. armed forces during World War II. After discharge from the Army, he spent 43-plus years working for Boeing and earned a reputation for excellence in quality assurance for programs ranging from the B-17 bomber to space electronics in the 1980s. He enjoyed painting, music, poetry and carpentry, as well as camping, hiking, fishing, boating and berry picking, and is remembered for his sense of humor. He is survived by his wife of more than 50 years, Helen Sprague of Seattle; two daughters, Mary and Monica; two sons, Craig and John; four grandchildren; and a brother, Frank of Issaquah, Wash.

Morten Lauridsen Jr. '40 (1910-2008) died at the age of 98 on August 8. Morten was born in Seattle on April 30, 1910, and graduated from Queen Anne High School in Seattle and from the College of Forestry at the University of Washington with an undergraduate degree in forest management. During his college

years he was a seasonal worker for the U.S. Forest Service in Oregon and Washington, and he was later assigned to a research study of the timber resources in the Northwest being conducted by the Pacific Northwest Forest and Range Experiment Station in Portland. In late 1941, he transferred to the Internal Revenue Service (IRS) as a timber valuation engineer. During World War II, he was an intelligence officer in the Navy and was a graduate of the Navy's Advanced Intelligence School. After the war, he returned to the IRS in Portland, where he became the manager of a group of foresters and engineers. In 1973, he transferred to the Seattle district office of the IRS and was responsible for engineering and valuations audits in the five Northwest states, including Alaska. He retired from the IRS in 1975. In retirement, he was a consultant until 1988. He was a member of the Beaverton Elks Lodge, the Washington County Public Affairs Forum, the Pacific Northwest Forest Service Association and the Conductor's Circle of the Oregon Symphony. He is survived by a son, Morten Lauridsen III; and five grandchildren. He was predeceased by his wife, Evelyn; a son, Neal; and his sister, Helen Bucy of Bainbridge Island, Wash.

Peter Lewis '80 (1950-2008) died on August 26 at the age of 58. Born on May 8, 1950, Peter was raised in Rochester, N.Y. In 1970 he went to Yosemite National Park to work on a trail crew and fell in love with the mountains. He attended Columbia University and finished his graduate studies in forestry at Yale. His classmates at F&ES recall his trademark black cowboy hat and how he often carried his front bicycle wheel into class with him. He inspired thousands of young people to follow him into the backcountry for nearly 30 years through his work with the California Conservation Corps, where he helped to create and sustain a back-

area where the Earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain."

Burch fondly recalls how he was, at that time, part of a "coalition of nature lovers, pacifists and workers' rights activists."

"We had diversity before anyone even knew what the term meant," he says. "Even though the unity fell apart in the late 1960s, I still think that three-legged paradigm of nature-peace-labor was a good one and will return to the fore."

After his time with the Forest Service, Burch taught at Victoria University of Wellington in New Zealand and Syracuse University, before hearing about what he called "interesting developments" at Yale.

"The Yale Forestry School was looking for noneconomist social scientists," he recalls. "That's when Francois Mergen was dean. He knew that changes had to be made to broaden the forestry school, so he brought in Herb Bormann, Rick Miller and me."

Burch went on to author, co-author or edit 14 books on community development, natural resources and the environment, as well as 100 peer-reviewed journal articles. "The great benefit at Yale is that I didn't have to do esoteric, peer academic work," he says. "I could do other work."

Among this "other work" was the reorganization of the state's environmental protection department. In addition to the state government work, Burch was retained by the National Park Service as a researcher from 1984 to 1996. As such, he's left his mark around the country and the world.

Machlis took such teachings to heart.

"Bill emboldened me in my research by instilling in me that you don't have to go toward conventional acclaim. It has been 30 years and even though I am now his colleague [Burch and Machlis are collaborating on a book to be published in 2009 by Yale University Press.], I am still his student. I bought a place on Vieques, Puerto Rico, near his place just to keep learning from him. In my 35 years in academia, he is the one intellectual who is most capable of continued learning. Bill is the exemplar of lifelong learning." ■

A tribute to Tom Siccama will appear in the spring 2009 issue.



country trails program that is a national model. Graduates of this program have gone on to careers in parks and forests throughout the United States, advancing the stewardship ethic that they learned from him. His sons, Gabe and Forrest, have fond memories of their dad always sitting on the bleachers to watch their many sports events, hiking with him through the Sierras, his love of swimming in cold mountain lakes and rivers, how he enjoyed listening to talk radio and the way he loved to play the harmonica around the campfire. He is survived by his wife, Cheryl; his sons, Gabe and Forrest; a sister, Barbara Paulson; a brother, Scott; two nieces, Julie Sherman and Mariah Lewis; and a nephew, Walker Paulson. Visit the website, "Remembering Peter," at www.peterlewisccc.blogspot.com.

Howard "Hap" Mason Jr. '48 (1920-2008) of Russell, N.J., died on August 10 at Country Estates in Agawam, Mass., at the age of 87. Hap was born in Somerville, N.J., on September 24, 1920. From 1951 to 1982, he served as chief forester for Peck Lumber Company of Westfield, Mass. His consulting service, Forest Resource Specialists, served landowners and timber harvesters in western Massachusetts for many years. He was instrumental in pioneering the environmental movements and modern sustainable forestry practices in New England. He was a member of many public interest and trade associations, including the Connecticut River Watershed Council, Westfield River Watershed Association, Massachusetts Association of Professional Foresters, Western Massachusetts Wood Producers Association, New England Society of American Foresters, Massachusetts Tree Farm Committee, Northeastern Loggers Association, Environmental Lobby of Massachusetts, Appalachian Mountain Club, Massachusetts Forest Stewardship Committee and Berkshire

Pioneer Resource Conservation and Development Council. His faithful involvement with and support of the F&ES Alumni Association was deeply valued and will be greatly missed. He received awards for outstanding service from a number of these organizations for his dedication to the principles of natural resource conservation and sustainable development, and he served numerous local and regional groups. He is survived by three sons, David of Culver City, Calif., Bruce of Norwich, Vt., and Derrick of Russell; two foster daughters, Doreene Pangiarella of Ludlow, Mass., and Edna Hough of Pinebush, N.Y.; and 13 grandchildren. He was predeceased by a brother, David; a sister, Joanne Tryon; and his former wife, Louise Hadden Mason.

John Mattoon '50 (1921-2008), an outdoorsman who spent his career protecting wildlife and the environment, died of congestive heart failure on June 18 at his home in Falls Church, Va. John was 86. Born in Hartford on July 25, 1921, to Merwin and Margurite McLean Mattoon, he graduated from Penn State and received a bachelor of science degree in 1942. During World War II, he served on the aircraft carrier USS *Yorktown* as a Navy SBD (Scout Bomber Douglas) dive bomber pilot in the 88th Squadron. As a lieutenant, he took part in the sinking of a Japanese battleship under heavy fire. On another occasion, he dislodged a live bomb from the undercarriage of his squadron leader's aircraft—while in flight—using the wing tip of his own aircraft. His maneuver enabled the plane to land safely on the *Yorktown*. For his actions, he was twice awarded the Distinguished Flying Cross and received two Air Medals. In the early 1950s, he worked as a forest ranger in Washington, Oregon and Utah; he later served as an executive in the U.S. Forest Service. To help in preservation efforts for national forests and land, he mobilized national figures such

as actor Lorne Greene and singers Burl Ives and Pete Seeger. He helped develop the Smokey Bear and Johnny Horizon advertising campaigns for forest fire prevention. He also played a role in President John F. Kennedy's 1963 dedication of the Pinchot Institute for Conservation in Milford, Pa. From the mid-1960s to the late 1980s, he worked at the Department of the Interior on projects that included the Alaska Pipeline and the Endangered Species Act. He was an accomplished snow skier with the National Ski Patrol, a fisherman and a tennis player, and he belonged to the Episcopal Church of the Holy Cross in Dunn Loring, Va. Survivors include his wife of 55 years, Shirley of Falls Church, and a sister.

Roger Melrose '49 (1923-2008) died peacefully at home in Onouli, Hawaii, on June 26. Born in Seattle on November 23, 1923, Roger was a World War II Navy veteran who served in the Pacific theater. He held degrees in forestry from the University of Washington and Yale and a master's of divinity and honorary doctor of divinity degrees from the Church Divinity School of the Pacific. He was an Episcopal parish minister in Kahaluu, Oahu and Wailuku, Maui, before becoming the founding headmaster of Seabury Hall, a private secondary boarding and day school in Makawao, Maui, in 1964. He built and managed the school for 23 years before his retirement in 1987. He is survived by his wife, Charlotte; two sons, Kenneth of Kealahou and Jeffrey of Hilo; two daughters, Anne Lombardo of Oakhurst, Calif., and Nutie of Kula, Maui; a sister, Patty of Lake Oswego, Ore.; nine grandchildren; and two great-grandchildren.

Richard "Dick" M. Pierce '48 (1920-2008) died at Franklin Memorial Hospital in Farmington, Maine, on June 3 at the age of 88. Dick was born on February 21, 1920, in Gardiner, Maine, and graduated from

high school in 1937. He graduated from the University of Maine at Orono in 1943 and was valedictorian of his class. He was a replacement soldier for the 28th Infantry during the D-Day invasion of World War II. He was captured by the Germans in the Battle of the Bulge and was a prisoner of war for eight months before being liberated by U.S. troops at the end of the war. For his service, he received the United Nations Service Medal, the Oak Leaf Cluster and two Bronze Star Medals, the Korean Service Medal with two Bronze Medals and a Purple Heart and a second Oak Leaf Cluster. After the war, he became a fire warden for the Maine Forest Service, stationed in Daaquam. He earned a master's degree in wood technology. He left Maine to construct wooden rotor blades for Piasecki Helicopters in Swarthmore, Pa., and served as a researcher for new wood processing technologies at Timber Engineering in Washington, D.C. In 1950 he joined Fosters Manufacturing, where he worked for 14 years, taking time to serve in the Korean War as a combat engineer. He was discharged as a captain. He left Fosters as vice president of production and engineering in 1968 with a patent on part of the design of the wooden clothespin. He then was employed in Old Town as mill manager for Lily Tulip Cup, the largest paper cup manufacturing company in the United States at the time. He was a vice president at Highland Lumber before retiring in 1987. He liked working in his garden and wood shop and was involved in numerous organizations, committees and councils. He was an Eagle Scout. He is survived by a daughter, Marjorie of Waterbury, Vt.; two sons, Richard of Industry, N.Y., and David of Portage, N.Y.; two grandchildren; two step-grandchildren; and his German shepherd, Lady. He was predeceased by his first wife, Rita; and his brother, Phillip Pierce.

Hurlon Ray '49 (1921-2008) of Lonsdale, Ark., died on July 25 at the age of 87. Hurlon was born on April 25, 1921, in Owensville, Ark., and attended Saline and Garland County public schools, Arkansas Tech University, the University of Arkansas at Fayetteville, Utah State University, Yale, USDA Graduate School in Washington, D.C., and the Federal Executive Institute in Charlottesville, Va. He served in the Marine Corps during World War II in the South Pacific. In 1995, then Gov. Jim Guy Tucker appointed him a delegate to the White House Conference on Aging. He served as a member of Metroplan-Central Arkansas Regional Transportation Study, was legislative chair for the Arkansas State Federation of National Association of Retired Federal Employees and chair of the Arkansas Natural Heritage Commission. He sat on the board of directors of the Arkansas Wildlife Federation and the Arkansas Public Policy Panel. He was a member of the Saline County Planning Commission, was on the Saline County Public Facilities Board and worked for improving Arkansas Highway 5 and constructing a scenic turnout. He was also instrumental in helping to secure funds for the Owensville and Paron Water Association. Author of over 100 technical papers dealing with environmental pollution control, he received the EPA/ES Distinguished Service Award and was one of the principal architects of the Federal Clean Water Act. At 82, he was deeply involved in what he called the most important fight of his life: clearing up the Middle Fork of the Saline River, the Central Arkansas waterway on which he and four generations of his family grew up. He was a member of the White Oak Springs Hunting Club of Princeton, Ark., and the Owensville Baptist Church. He is survived by three sons, Harold, Daryl and Gaylon; two brothers, D.L. Ziegler and J.R.

Ziegler; three grandchildren; and two great-grandchildren. He was predeceased by his wife, TyJuana.

Robert Teeters '52 (1928-2008) of Stamford, Conn., died on February 29 at the age of 79 in Stamford Hospital after a short illness. Robert was born in Philadelphia on September 10, 1928, to Negley and Ruth Teeters. He attended Oak Lane Country Day School and graduated from Cheltenham High School in 1946. Summers were spent in Maine and on family farms in Minnesota, where his love of the outdoors and the belief in the necessity of government protection of natural resources were fostered. He received his bachelor's of science degree from Oberlin College, where he met and married Nancy Hays. After earning his master's degree in forestry two years later at Yale, he served as a medic in the U.S. Army in Stuttgart, Germany, and then relocated to Washington D.C., where he served in the Office of Management and Budget. In 1965, he joined the Army Corps of Engineers in the Policy, Programs and Legislative Directorate of Civil Works. In 1972, he received the Decoration for Meritorious Civilian Service for his work on the nation's environmental policy. He retired in 1985 as chief of research and policy for the U.S. Army Corps of Engineers. In retirement, he was a member and president of the Long Island Sound Task Force and was a world traveler. He is survived by his wife, Nancy; two sons, James and John; a daughter, Ann; six grandchildren; and his brother, Ralph.

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Dean's Message...

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January 2002 I went directly to the provost herself. We met and I followed up with this note:

Alison, I want to say honestly that this PSPP has been the most distressing and disappointing thing that has happened to me in a long time. ... There is simply no way on God's green earth that we can live with a new F&ES building anchored at one end by PSPP. Can you imagine how silly we would all look if Yale's first green building had at its heart the very technology we are trying to replace? I believe Pierre [the deputy provost] made a huge mistake in going along with Roberto's [Yale's energy czar] proposal to reverse his original plan to terminate PSPP.

I suggested...that someone creative and informed be asked to come up with least-cost alternatives to Roberto's current proposal. For a year and a half, no one has done that, unbelievably. For you to ask for that would not commit you or anyone to those alternatives.

This stalemate continued until finally my wife and I talked it over, and I decided that it was either me or the power plant—one of us was not going to remain at Yale. I communicated this to the provost. I'm shortening a very long story, but it has a happy ending. Imagine my delight and surprise when President Levin called to thank me for forcing the issue, because the university had actually found a way to save money through an alternative to keeping the PSPP!

A lesson from the building of Kroon and the greening of Yale is the importance of leadership. I have already spoken of Steve's. But given the way Yale works, we needed leadership elsewhere at Yale, and we soon got it. Some members of the Yale planning and facilities staff bought into our dream and began to lead. Even more, there was a wholesale turnover in personnel in key positions—including in administration, finance and facilities; with the arrival of John Pepper as a new vice president, who brought in people like Jerry Warren and John Bollier; in the new sustainability office led by Julie Newman. And, of course, the greening of Yale has not occurred without the greening of Yale's president. Rick Levin supported us every step of the way, determined to green Yale, and has taken the fight to protect our climate to universities around the world.

All of this new leadership has represented a sea change at Yale. That was the road taken, and as Robert Frost said, taking that road "made all the difference."

The final lesson I want to stress is the sheer amount of hard work that has been involved. And here I must pay special tribute to Deputy Dean Alan Brewster. Along with Steve, Alan has carried the ball for us in the huge effort to get the building's energy system right and has represented us in countless meetings with Yale facilities and planning and with our architects and our builders. He is now even fretting about where each faculty member's new office will be, getting the furniture and fixtures right, and so on. And a constant for Steve and Alan has been the point count on the way to LEED-platinum certification. There will be plaques in Kroon recognizing our donors, and they certainly deserve it, but I personally would like to put one there recognizing Steve and Alan. Their vision, constant attention and inspired presentations have also made all the difference.

Now, most of the big decisions and, I trust, all of the big struggles are behind us. Kroon is rising. It is fun to see it take shape, and it will be a joy to be in it. Soon we will be able to enjoy the gift that the remarkable generosity of Mary Jane and Rick Kroon, Ed Bass, Carl Knobloch, Gil Ordway, Jonathan Rose, Coley Burke, Adrienne and John Mars, Joan and Dick Tweedy, William Waxter and many others, has made possible. We have learned a lot from this process, from working with some of the most talented and committed people in the world, like the inspired architects at Hopkins and Centerbrook and the green-building gurus at atelier ten. It's been quite a ride. Yale has learned a lot. The whole process has brought the university forward. It has been a blessing and will be for a long time. ■

Saving Indonesia's Tropical Forests for Climate Fight

By Michael Coren '09

Standing in one of the hundreds of oil palm plantations in Borneo, on the ragged edge of Indonesia's agricultural frontier, I stared across a flat landscape at a lonely cluster of rainforest trees as conspicuous as ship masts in the open sea. The once-dense wall of tropical forest has been replaced by surgically precise rows of plantation palms. There are now over 23,000 square miles of oil palm in Indonesia; this will double to an area twice the size of Maryland by 2020.

Indonesia's forests are being lost in a wave of new plantations growing fiber, food and fuel, often accompanied by illegal logging. By 2020, the lush lowland rainforests of Borneo, which gave scientists an average of three new species per month during the last decade, will disappear. By mid-century, tropical ecologists estimate, most of the world's tropical forests will have also shuffled off into history.

I arrived in Indonesia in August 2007 to help rewrite that scenario. Almost a quarter of the world's greenhouse gas (GHG) emissions begin in the burning and clearing of tropical forests. If the worst of climate change is to be avoided, tropical deforestation will have to slow and then stop during the coming century. The market, once seen as part of the problem, could become the solution.

A global policy framework called REDD (Reduced Emissions From Deforestation and Degradation), intends to place a price on the carbon stored in forests.

The challenge is simple. “Forests are worth more dead than alive,” says tropical ecologist John Terborgh, author of *Requiem for Nature*. Clearing tropical forests may create wealth, but at a steep price to the 800 million people living in them; most of the world’s species (50 percent of known biodiversity can be found in tropical forests); and the climate, which is kept cool by the belt of tropical forests holding nearly as much carbon as the atmosphere. In the words of economists, unchecked deforestation is among the world’s largest market failures.

A successful REDD framework will turn this on its head. By giving poor countries access to a potential \$5 billion to \$12 billion market for forestry carbon credits—far more than the \$1.5 billion given for forests in developing countries as foreign aid each year—REDD puts a down payment on forests to reduce future GHG emissions. Industrialized countries can meet a portion of their emission targets by avoiding deforestation across the tropics, even as most emissions reductions come from energy and industrial sectors. If REDD works, it will do what no aid or government policy has done for the last 50 years: slow the rate of tropical deforestation.

How? In some countries it means stopping illegal logging by domestic and international law enforcement. In others, better planning and agricultural productivity will relieve pressure on the forest frontier. Brazil and Indonesia have

experimented with these measures with some success. But, ultimately, a savvy mix of development and conservation projects will need to conserve forest where it can—improving the environment and the lives of people who live there—and sacrifice some to the mounting pressures of economic development.

Last year, I joined a World Bank team of 60 international experts developing Indonesia’s strategy to recruit tropical forests in the fight against climate change. Working under Indonesia’s Ministry of Forestry in Jakarta, the team drafted a REDD proposal for the 2007 U.N. climate conference held in Bali. Since then, developments have rushed ahead. The meeting’s Bali Action Plan

Almost a quarter of the world’s greenhouse gas emissions begin in the burning and clearing of tropical forests.

pushes “demonstration activities” to create a global REDD policy for the next climate agreement that will replace the Kyoto Protocol, the current international climate treaty, in 2012. Indonesia, along with more than a dozen other countries, is preparing by building satellite monitoring systems; forest carbon inventories; equitable mechanisms to pay communities for forest conservation; and clear legal frameworks to handle transactions. The next

steps will be taken in Poland and Denmark, where negotiators plan to thrash out a new climate agreement by 2009.

But projects are happening now. During the last six months, along with research on forestry carbon markets, I have helped evaluate and design forestry conservation projects that will fit into this evolving REDD framework. These private-sector projects, quickly moving ahead of international negotiations, may lay the foundation for work that must be done globally. In places like Indonesia, success or failure will depend on rewarding developing countries fairly to conserve their



Harold Shapiro

Michael Coren '09

forests while delivering credible GHG cuts to industrialized countries.

If not, we will likely lose the last chance to save most tropical forests—already more than 50,000 square miles disappear each year—and find the future waiting for us in the rows of plantations blotting out the last forests of Borneo.

Faculty members of the Yale School of Forestry & Environmental Studies are now in video.

Watch F&ES professors on your desktop computer, mp3 player or on YouTube discuss their research. Go to the school's website (<http://environment.yale.edu>) and choose from a variety of videos in the multimedia section of the home page, including **“Religion and a New Environmental Ethic,” “The Mystery of Drowning Marshes,” “Sex and the Suburban Frog,” “The Environment and Economy in Collision,” “Calculating the Costs of Climate Change” and “The Predator-Prey-Plant Connection.”**

You can also subscribe to F&ES audio segments for free through iTunes or just listen to them by visiting the school's website. The segments include **“The Heart of the Matter,” “It's Not Easy Being a Frog,” “Biophilic Design: Opening the Door to Nature,” “Green to Gold,” “Global Warming and Species Distribution,” “Industrial Ecology: Why Waste Waste?,” “Poor Countries Pay the Price for Global Warming” and “Burn Trees, Save Energy.”**



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