

EDUCATION

Recent Environmental Events at UNC

Expert panel discusses energy, sustainability and global climate change



Bill Johnson, president and COO of Progress Energy

As part of the CEP's 2005-2006 Environmental Seminar Series, on January 23, 2006, a panel of experts representing academia and industry explored the connections between energy use and global climate change in a free public event at UNC. The panel included Duke Energy Chairman and CEO Paul Anderson, Progress Energy President and COO Bill Johnson, UNC Professor and CEP Director Doug Crawford-Brown,

and James B. Duke Professor and Duke University Nicholas School of the Environment and Earth Sciences Dean William Schlesinger. UNC's Professor of Public Policy Mike Luger moderated the discussion. The event was co-sponsored by UNC's Center for Sustainable Enterprise and Sustainability Office.

Campus celebrates Sustainability Day

On October 26th, 2005, UNC students, staff, faculty and administrators gathered at Rams Head Plaza to celebrate Campus Sustainability Day. Rams Head Plaza is the site of the first "green," or vegetated, roof on campus, and incorporates a variety of other environment-friendly design features in its new dining hall and recreation center. At the event, which featured exhibits, information booths and free local and organic food, Nancy Suttentfield, then vice chancellor for finance and administration, officially received the 2005 Campus Sustainability

Report (available online at <http://sustainability.unc.edu>), which highlights many campus-wide accomplishments in sustainability. Suttentfield and Roger Perry, a member of UNC's Board of Trustees, presented awards to people and programs that have contributed significantly to UNC's sustainability efforts. ■



▲
UNC-Chapel Hill Trustee Roger Perry speaks at the 2005 Campus Sustainability Day (left), as then-Vice Chancellor Nancy Suttentfield (center) and UNC Sustainability Office Director Cindy Pollock Shea look on.



►
UNC student Dan Waxman with the award certificate he won at the 2005 UNC Campus Sustainability Day. Waxman graduated in December 2005.

Carolina Environmental Program

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Upcoming 2006 CEP events

CEP Annual Commencement Reception:

May 14, 2006, 1:00 p.m.,
Miller Hall Lawn, UNC-



Chapel Hill.
Speaker:
Jane Preyer,
Regional
Director,
Environmental Defense

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RESEARCH

Understanding the Environment's Effect on Human Health

With an EPA Human Studies Facility right on our campus, Carolina is an international leader in this key environmental area

Concern over environmental links to human health is society's greatest driver of environmental regulations. These links include the effect of air pollution on asthma, or of drinking water on gastrointestinal disease, for instance, and in particular their impact on children, the elderly and other vulnerable populations.

For more than eight decades, The University of North Carolina at Chapel Hill has been at the forefront of environmental health. In fact, UNC's expertise in the environmental arena as a whole grew out of its launching of a sanitary engineering program to focus on health effects from water systems in the 1920s. Over the ensuing years, with the growth of the UNC Schools of Public Health and Medicine, UNC faculty began to examine a wide range of other environmental health impacts, from air, food, soil, the workplace and other sources.

In 1970, recognizing the expertise that existed on the UNC campus, the then newly formed U.S. Environmental Protection Agency (EPA) decided to locate their Human Studies Research Laboratory on the

Carolina medical campus. This led to significant research interactions between the two institutions. A decade later, Dr. Philip Bromberg recalled, "the EPA indicated they would welcome the establishment of a UNC center to coordinate the interactions between UNC and EPA, particularly as related to human research, to enhance collaboration, and to facilitate EPA access to UNC expertise for specific projects." Led by Bromberg, in 1979 UNC established a Center for Environmental Medicine (later adding Asthma and Lung Biology, called CEMALB) in the School of Medicine, which has enjoyed continuous EPA funding since 1980. Bromberg, who directed the Center until 2002, now serves as its scientific director.

Today, much of EPA's human health effects research is done in collaboration with CEMALB. In fact, the two entities share a research building, the EPA's Human Studies Facility in the heart of the UNC medical campus. The state-of-the-art facility features human exposure chambers that can mimic atmospheres found in pol-

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David Peden, director of the Center for Environmental Medicine, Asthma and Lung Biology in the UNC School of Medicine, in an exposure chamber at the U.S. EPA's Human Studies Facility.

Carolina Environmental Program

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OUTREACH

Chapel Hill is first U.S. town to commit to carbon reduction (CRed)



Aided by CEP, town follows lead of United Nations, England to reduce emissions



Doug Crawford-Brown

to a carbon reduction goal advocated by the United Nations.

Last year, the CEP's Field Site in International Environmental Assessment and Energy Policy in Cambridge, England, a summer program for UNC undergraduates, partnered with the City Council of Cambridge to offer a Capstone (senior group research) project

Encouraged by the Carolina Environmental Program, the Town of Chapel Hill, North Carolina has become the first town in the United States to commit

to give students experience working on an important environmental issue.

The British government had just committed to a 60 percent reduction in carbon dioxide emissions countrywide by 2050 – the most dramatic commitment of any country thus far on carbon dioxide reduction. As part of that commitment, the government helped to create the Carbon Reduction (CRed) Project at the University of East Anglia in Norwich, England. CRed identifies partners throughout England: businesses, industries and individuals who are willing to make a formal commitment to a 60 percent reduction and then to sign on to a set of strategies they'll implement between now and 2050 to bring about that change.

"Up until this year, there had never been an entire city that committed to carbon reduction. Then Cambridge stepped up and agreed to be the first carbon reduction site in England," said CEP Director Doug Crawford-Brown, who leads the Cambridge Field Site. "Our students have been working with the Cambridge City Council to design short-term (a year or so), medium-term (over a decade) and long-term (over several decades) strategies to achieve a 60 percent reduction by 2050."

In fall 2005, Crawford-Brown and the field site students returned to the UNC campus and decided to pitch the CRed project to the Town Council of Chapel Hill. In September, the Town Council

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RESEARCH

New CEP post-doctoral fellow focuses on river restoration

Cailin Huyck Orr has joined the Carolina Environmental Program and the UNC Department of Geography as a post-doctoral fellow. Orr was drawn to UNC from the University of Wisconsin-Madison for a chance to work with Assistant Professor of Geography Martin Doyle.

“He’s trained as a geomorphologist, and I’m trained primarily as an ecologist,” noted Orr, who had worked with Doyle at several field sites over the years. “We both felt we needed to know more about the other one’s disciplines, so this is a great opportunity to work on projects that are mutually interesting, but from opposite perspectives.”

According to Doyle, “Cailin did her PhD at the preeminent limnology and stream ecology program in the country, and she brings the twist of stream biogeochemistry to our ongoing research program on river restoration, dam management and dam removal. She really wants to be interdisciplinary, so rather than doing a post-doc in her native field of ecology and biogeochemistry, she came to UNC to work with hydrologists and geomorphologists to learn a new field.”

Upon arriving at UNC in August, Orr immediately joined a research team studying a dam removal project on the

Deep River near Carabonton, North Carolina. The team, led by Environmental Sciences and Engineering graduate student Adam Riggsbee, studied how the sediment that built up behind an existing dam and was released in the process of removing the dam impacted the downstream ecosystem. In particular, they measured the nitrogen, phosphorus and carbon content of sediments that had come from agricultural sources upstream, and the impact of these excess nutrients on algae production downstream.

“Cailin has been a real asset to our river ecosystems research community here at UNC,” said Riggsbee. “She brings with her considerable training in field, laboratory and experimental techniques. Her contributions to my research are very much appreciated, as I could not have accomplished a significant portion of my efforts without her collaboration. UNC and the CEP are lucky to have her.”

Orr’s inspiration for her career came at age 16, when her middle school math teacher and his wife took her on a 30-day, 400-mile canoe trip across Northern Manitoba to Hudson Bay. “I realized then how unusual it is to have 400 miles of unregulated river, and how special it was to have the opportunity to see that. At



Cailin Huyck Orr on a field research trip.

that point, I realized that I needed to do restoration work.”

Orr – who is funded through the CEP – is collaborating on a large project “to improve our understanding of how natural processes respond to restoration efforts so we can improve restoration techniques.” She is working with a team from several universities at the National Center for Earth Surface Dynamics, using a large, indoor model river (a “flume”) to simulate the physical changes to rivers that happen during restoration and to measure the biological response. Then, she and several UNC colleagues

will repeat the same experiment in a real stream near the UNC campus by making the same type of physical changes and measuring the responses to see how what they learn in the flume can be applied to real rivers. To further her river restoration work, Orr is also planning to build several simulated floodplain pools near the UNC campus, where she can conduct experiments to determine how river restoration can improve water quality that’s been degraded because of upstream agricultural practices. ■

PHILANTHROPY

Recent gifts to the environment at UNC

Progress Energy has provided a \$150,000 grant to create the Center for Sustainable Energy, Environment and Economic Development (SEED) at the Carolina Environmental Program. SEED is a collaborative initiative that will focus on the ways in which society can respond to growing needs for energy associated with economic development, while also improving environmental quality. The grant will be used to establish three Progress Energy Student Fellowships, three Progress Energy Faculty Fellowships, an undergraduate Capstone project and a seminar series.

“Perhaps the most pressing issue of sustainability in North Carolina is how we will bring sorely needed economic growth while coping with the energy demands this creates and the environmental impacts of energy use,” said CEP Director Doug Crawford-Brown, a co-director of SEED and a Progress Energy Faculty Fellow. “Progress Energy has been very far-sighted in this gift, helping the Carolina Environmental Program position itself as a resource to the state in moving forward on economic development in a sustainable way. The first impact will be on our ability to assist the new N.C. Legislative Commission on Global Climate Change in their planning. We appreciate Progress Energy’s vision and generosity through this wonderful gift.”

“As an energy and utility company and a respon-

sible corporate citizen, Progress Energy has a strong interest in the environment, sustainable energy and economic development and prosperity,” said Progress Energy President and Chief Operating Officer William D. Johnson, who is a member of the CEP Board of Visitors. “These topics are inextricably linked, and all are important to finding balanced solutions to address our energy needs in the future. We are pleased to be able to support the CEP in its work on these issues.”

The Wallace Genetic Foundation provided a one-year, \$75,000 grant to fund Decision Support for Identifying Sustainable Patterns of Development in North Carolina Watersheds, a continuation of the Health-Based Policy in the Neuse River Watershed component of the CEP’s larger Center for Earth Systems and Health. The project is aimed at developing material focusing on the issue of how development patterns in the Neuse River Basin affect the natural services provided by ecosystems, the presence of microbial pollutants and, ultimately, human health. Funding from the Wallace Genetic Foundation, which comes on the heels of the Foundation’s previous, generous support for the Health-Based Policy in the Neuse River Watershed program, will be used to support a CEP research associate

devoted to this project, as well as providing support for two UNC undergraduate Capstone (senior) project teams working on this issue and their graduate teaching assistants.



Phil Singer, director of UNC’s Drinking Water Research Center, co-chaired the CEP’s Safe Drinking Water Symposium.

availability, water resources executives from the public and private sectors, graduate students, water resources policy staff from governmental agencies and non-profit staff focusing upon water issues. ■

The CEP received a \$24,750 grant from **The Educational Foundation of America** to support a professional symposium entitled Safe Drinking Water: Where Science Meets Policy. The large, two-day symposium, which was held at UNC-Chapel Hill in March, brought together national and international experts in water quality and water

PHILANTHROPY

Four join CEP board

The Carolina Environmental Program is pleased to welcome four new members to its Board of Visitors. We appreciate their willingness to volunteer their time to serve the CEP.

Ken Eudy is a founder and CEO of Capstrat, a strategic communications firm based in Raleigh. A UNC graduate in journalism and an inductee into the North Carolina Public Relations Hall of Fame, he has previously been a TV news correspondent for stations in Raleigh and Charlotte, chief political writer for *The Charlotte Observer*, and senior vice president of public relations at FGI. Eudy, who has been ranked among the 20 most influential lobbyists in North Carolina, served as executive director of the N.C. Democratic Party. For 10 years, he taught *Writing for the Media* as visiting lecturer at Duke University. He serves in numerous local and state civic roles.

Mary Lambertson Hill, a resident of Chapel Hill, is a very active community volunteer and philanthropist. She currently serves on the Foundation Leadership Council of the Triangle Community Foundation, the board of North Carolina Environmental Defense and the N.C. Museum of Natural Sciences Governor's Advisory Commission. Her recent gifts and pledge to UNC established Mary and Watts Hill, Jr. Funds supporting two professorships, internship awards and unrestricted support for the CEP and the UNC Marine Sciences Program. Her late husband, Watts Hill, Jr., was a founding member of the CEP Board of Visitors, and her daughter, Debbie Hill, has served on our board.

John A. J. Ward is an attorney at Ward and Davis, LLP, a private

practice in New Bern. He is a 1967 graduate of UNC-Chapel Hill, where he was a Morehead Scholar, and earned his J.D. at the UNC School of Law in 1973. Active in community service, he has served on many boards, including those for the Tryon Palace Commission, N.C. Coastal Land Trust, Swiss Bear, United Way and the YMCA. At Carolina, he has served on the UNC Board of Visitors and the UNC Marine Sciences Board of Visitors.

Thomas ("Tom") L. White, Jr. is a native of Lumberton, N.C. and a long-time resident of Manteo, N.C. He is a '60 A.B. and '70 J.D. graduate of Carolina. A retired attorney, White served for 31 years as the attorney for the Town of Nags Head, and also as the attorney for the Town of Southern Shores and the Dare County Board of Education; he is

now of counsel with the law firm of Hornthal Riley Ellis & Maland. Before attending the UNC School of Law, White served in the U.S. Navy. He is a member of the RBC Centura Bank local Board of Managers and president of the Coastal Wildlife Refuge Society. Formerly, White was a member of the board of directors of the Girl Scout Council of Colonial Coast (12 years) and The Roanoke Island Historical Association Board of Directors (18 years), during which time he held the offices of general counsel, chairman and producer of the *Lost Colony* outdoor drama. He is a strong supporter of the CEP's Manteo-based Albemarle Ecological Field Site. ■

Understanding the Environment's Effect on Human Health – continued from page 1

luted areas or study a particular pollutant such as ozone or particulate matter. UNC and EPA scientists, graduate students, postdoctoral fellows and staff work side by side to examine the effects of various environmental pollutants on human health, and particularly on the lungs and heart.

UNC-Chapel Hill is perhaps the only university in the U.S. that has its environmental, medical and public health programs on the same campus and hosts a major EPA research facility, noted Doug Crawford-Brown, director of the Carolina Environmental Program, which facilitates interdisciplinary research, teaching and service across the Carolina campus. This synergy enables UNC researchers to approach environmental health issues from all angles: from translating what we know about environmental causes of disease into physicians' daily work with individual patients; to developing approaches to prevent or mitigate the incidence of environmentally linked diseases in the population.

For the EPA, basing its human studies unit at Carolina provides ready access to a suite of disciplines and research groups that covers a broad spectrum of established and new techniques and approaches: from studying the mechanisms of various pollution-related health effects and the causes of individual susceptibility, to how changes in the environment affect those processes, and ultimately to the changes needed in society and public policy to improve environmental quality and, in turn, reduce adverse health effects.

Dr. David Peden, who now directs the CEMALB, points out: "Our tour de force is that the only species we study in this building are humans, and we have devel-

oped expertise in safely and ethically studying the effects of controlled exposure to low levels of various pollutants in diseased as well as healthy volunteers. This is essential

because, although you can obtain data from animal studies or from molecular and cellular research, and can find associations in studies of large populations or of selected panels of subjects, you need that middle zone of translational research to understand the risk to individuals. This Center is one of the top research groups in the world for this kind of work."

One of CEMALB's most notable contributions to environmental

policy has been its role in providing the scientific basis for the EPA's current eight-hour National Ambient Air Quality Standard for ozone. CEMALB scientists collaborated with the EPA on studies that showed that exposure to low levels of ozone for six to eight hours can cause adverse health effects in normal, healthy volunteers. This knowledge drove the decision to move from a one-hour to an eight-hour sampling timeframe during which measurements of ozone levels are taken, and to lower the acceptable level of ozone during that time period.

CEMALB researchers are currently conducting studies that could implicate coarse airborne particulate matter as a significant source of disease, particularly in asthmatics, and are looking at other potentially susceptible populations, such as those at-risk because of obesity, diabetes or age. In collaboration with environmental scientists and epidemiologists in the School of Public Health, they are studying the links between environmental air quality and markers of health effects in larger populations. In addition, UNC scientists across the campus are linking human health studies with modeling approaches

to air pollution.

In addition to extensive collaborations with the EPA, CEMALB investigators are funded by the National Institutes of Health to study the effect of inhalation of certain bacterial pollutants on asthmatics and to investigate whether medications such as inhaled steroids can decrease the effects of these pollutants. The NIH's National Center for Complementary and Alternative Medicine has designated the CEMALB as a center of excellence and is funding a study to determine whether antioxidants, vitamins and other less conventional therapies or nutritional supplements may also be protective for asthmatics. The National Institute of Environmental Health Sciences (NIEHS) is funding a study of specific genetic factors that make some people more susceptible to the effects of certain pollutants. Another NIEHS grant supports a study of the effect of diesel particles on influenza virus infection of human airway epithelial cells.

UNC's goal is not simply to understand these relationships between environment and health, but to translate that knowledge into measures that will improve public health and help physicians identify and treat susceptible individuals.

"I am pleased to celebrate the very important work done at UNC in environmental medicine," said Dr. William L. Roper, dean of the UNC School of Medicine and CEO of the UNC Health Care System. "The Center for Environmental Medicine, Asthma and Lung Biology is a vibrant part of the UNC School of Medicine and the UNC Health Care System. It informs what we do in many areas, including health care, environmental and public policy, and in furthering our understanding of basic disease mechanisms."

For more information about the Center for Environmental Medicine, Asthma and Lung Biology and its research, visit www.med.unc.edu/envlung/welcome1.htm. ■

"This Center is one of the top research groups in the world for this kind of work."

RESEARCH

Federal grants fuel environmental research at UNC

SEVERAL ENVIRONMENTAL RESEARCH projects underway at Carolina are being funded by federal grants, including these major initiatives:

The U.S. Environmental Protection Agency has awarded UNC's Carolina Environmental Program \$1.4 million over five years to continue to lead the agency's Community Modeling and Analysis System Center (CMAS). The CMAS Center was established by the EPA in 2001 to leverage the modeling community's knowledge of air quality modeling and analyses in order to support policy maker decisions on air pollution control and regulation. The Center oversees the development, maintenance and support of a publicly available and scientifically sound air quality modeling system used to simulate the occurrence of ozone, particulate matter and other toxic pollutants in our air. It also is used to simulate visibility problems such as those occurring in North Carolina's mountains.

Scientists use the data generated by the air quality modeling system to study how pollutants may affect human health, visibility in national



parks and other air quality challenges, and to search for ways to reduce these impacts. Policy makers also use these simulations to make the best possible regulatory decisions about air quality issues such as allowable ozone and particulate matter levels.

CMAS (www.cmascenter.org) sponsors an annual conference that brings about 200 worldwide attendees to North Carolina's Research Triangle to discuss using air quality models to find solutions to critical environmental issues. CMAS also serves as an education hub for those who want to learn about air quality and emissions models and their uses.

THE EPA HAS ALSO AWARDED \$4.5 million over five years to UNC to create the Carolina Environmental Bioinformatics Research Center. The new UNC Center is one of only two such centers funded by the agency in the nation. It was initiated through efforts of the Carolina Environmental Program and will be led by the university's Carolina Center for Genome



Fred Wright, in Biostatistics at UNC, directs the new Carolina Environmental Bioinformatics Research Center.

Sciences.

Bioinformatics is the use of computers in biological research to analyze or predict molecular composition and evaluate changes to genes and proteins in an organism. The research conducted by the Center will focus on how chemicals can adversely affect health and the environment and provide predictive models to screen and test chemicals, as well as improve human health and ecological risk assessments.

The new Center will work closely with the EPA's National Center for Computational Toxicology, located nearby in Research Triangle Park, and includes members from the UNC Schools of Public Health, Medicine, Pharmacy, and Information and

Library Science, and the College of Arts and Sciences.

"UNC has an incredible breadth of expertise in genomics, bioinformatics, statistics and toxicology," explained Fred Wright, PhD, associate professor in UNC's Department of Biostatistics, who will direct the Center. "This interdisciplinary Center will harness that combined expertise and direct it toward issues of interest to the EPA."

Dean of the School of Public Health Barbara K. Rimer, DrPH stated: "I am so pleased that our team competed successfully for this award. Understanding and improving environmental health is central to our public health mission. Increasingly, bioinformatics is the key to making sense of the huge amounts of data produced in research projects, especially in environmental research. I am confident that this research activity will lead to new insights about the environment and environmental health."

THE U.S. ENVIRONMENTAL PROTECTION Agency has awarded UNC's Carolina *continued next page*

Carbon Reduction (CRed) – continued from page 1

voted to become the first U.S. site to sign on to the Carbon Reduction Project and formally commit to the 60 percent goal by 2050. In December, the Council convinced the university to also sign onto CRed.



Chapel Hill Mayor Kevin Foy

"The Town of Chapel Hill is eager to collaborate with the Carolina Environmental Program on carbon reduction efforts because we realize that carbon emissions are a threat to the environment both now and in the future," said Chapel Hill Mayor Kevin Foy. "Our society is organized around carbon fuels, and it will not be easy to move away from them.

That's why we think it's good to start now, even though we recognize that this is a relatively small-scale effort. Changing our way of living – as a town, as a university, and as individuals – will take time and effort. But if we don't all do it, eventually we will destroy the earth."

The goal of a 60 percent reduction in carbon emissions by 2050 was set by the United Nations' Intergovernmental Panel on Climate Change, a group of about 2,000 scientists who collectively agreed that, in order to avoid potentially catastrophic effects of climate change, we must prevent a doubling of the amount of

carbon dioxide in the atmosphere over the pre-Industrial Revolution level. Through modeling scenarios, the panel determined that if the entire developed world cut its current emissions by 60 percent, we could prevent that doubling. England was the first country to commit to reaching this target by 2050.

Carbon dioxide emissions are produced by four sectors: transportation, industry, commerce and residential, Crawford-Brown explained. "Our pitch to society is that it can no longer afford to try to tackle this problem by only hitting industry over the head. It's going to take changes in all four sectors simultaneously: it's going to require changes in the way people choose to drive, in the kinds of houses they build, in the products they buy in stores."

Currently, the CEP is working with the University of East Anglia to establish the Research Triangle and East of England Carbon Reduction Alliance. The alliance will sponsor a series of workshops for people from both regions to meet and learn from each other how to bring together government, industry and non-governmental organizations to design effective carbon

reduction strategies while allowing for needed economic development.

Through the CEP's Sustainable Triangle Field Site, UNC undergraduate and graduate students are now helping the Town of Chapel Hill and UNC complete a "carbon inventory," the first step in any carbon reduction project, to determine exactly how much carbon dioxide is coming out of industry, commerce, residential and transportation in the town. Once completed, project participants will begin to determine the carbon reduction strategies they want to implement.

"Carolina is one of only four American universities ranked in the top 10 in both environmental policy and management and environmental engineering and health," noted Chancellor James Moeser. "We have also made great strides in the area of campus sustainability, improving storm water management, recycling more waste, and adopting transportation policies that favor alternatives to the single occupant vehicle. As a leading public university, we must do more. I look forward to working with the Town of Chapel Hill on this exciting carbon reduction project." ■

"It's going to require changes in the way people choose to drive, in the kinds of houses they build, in the products they buy in stores."

Doug Crawford-Brown

E D U C A T I O N

Student interns get hands-on experience in sustainability

Nearby Pickards Mountain Eco-Institute provides range of experiences for UNC undergraduates



CEP Students Aspen Price (left) and Elizabeth Pratt fastening wall poles to the floor frame on a Woodframe Yome.

UNC students have a unique opportunity to participate in “sustainability internships” at Pickards Mountain Eco-Institute (www.pickardsmountain.org), a 350-acre natural habitat in rural Orange County established by sustainability advocate and CEP Board of Visitors member Tim Toben “to demonstrate that it is possible to reduce our dependence on the existing conventional economy and thus have less impact on the Earth, through growing our own food, producing our own energy, and making buildings from resources on the land.”

Student interns take part in a unique community. They work alongside Pickards Mountain residents and dedicated volunteers and paid workers to manage the garden, make biodiesel fuel, construct shelters and participate in weekly community meetings and brainstorming sessions. While at the site, the students have an opportunity to learn about four areas related to sustainable community design: protection and enhancement of natural areas, sustainable green building techniques, state-of-the-art renewable and alternative energy, and sustainable agriculture.

The Pickards Mountain community seeks to attract leaders and activists in the fields of green building, innovative waste management, permaculture gardening, energy efficiency and renewable energy generation, and sustainable community design, and to share its principles and practices with government and community leaders at the local and state level.

“Pickards Mountain internships are opportunities for students to get their hands dirty and apply what they’ve learned in a natural setting.”

CEP Board member Tim Toben

“Pickards Mountain internships are opportunities for students to get their hands dirty and apply what they’ve learned in a natural setting,” said Toben. “We have found that by actually building renewable energy systems, making their own vehicle fuel, growing healthy food and building simple living structures, they realize that the concept of sustainability can become a viable reality.”

Elizabeth Pratt, a UNC senior majoring in environmental science, interned at Pickards Mountain last fall. While other workers focused on making biodiesel fuel and installing solar panels and a wind tunnel, Pratt and her fellow intern Aspen Price worked with a team building Yomes: semi-permanent natural buildings that are combinations of a yurt and a geodesic dome. Residents of Pickards Mountain live in these Yomes, which will be linked to electricity generated by the wind turbine and solar panels. Each Yome will have a wood-burning stove for heat and hot water.

Pratt, who had taken courses on sustainability and alternative energy systems, enjoyed the chance to see firsthand these principles put into practice, and thinks the site will provide a great opportunity for UNC students to observe and study in detail things like wind turbines and Yomes that they can only hear about in the classroom. Each Wednesday evening, she and Price returned to Pickards Mountain for a communal dinner and discussion.

“I enjoyed seeing the community developing,” Pratt said. “Everybody comes from a different background and with different expectations, and one of the most interesting things was to watch as they figure out with each other what they want the Pickards Mountain community to be. It was also fascinating to get exposure to the different kinds of sustainability and the way that they’re being practiced there, to see people who actually make biodiesel or live in a Yome and are living completely off the grid.”

Based on her experience at Pickards Mountain, Pratt, who is considering going into the Peace Corps or Americorps before attending graduate school, likes the idea of working on another sustainability project in the future.

All CEP students can participate in the internships at Pickards Mountain. Eventually, the CEP hopes to create a semester-long field site experience focusing on sustainable community design. ■



Elizabeth Pratt leveling gravel and dirt for an Earth Foundation Yome.

Aspen Price taping together panels of roof insulation for a Woodframe Yome



A completed Yome.

Federal Grants – continued from previous page

Environmental Program \$599,103 to fund a three-year study of how climate change, air pollution and the interaction between them affect human health.

“Effects of Climate Change on Human Health: Current and Future Impacts” will use hospitalization and Medicaid records focusing on cardiovascular disease, asthma, influenza and heat syncope (fainting from expo-

sure to hot environments) to study the effects of climate change and air pollution on these heat- and cold-related illnesses.

The study will focus on North Carolina but is expected to produce results that will help policy makers and medical personnel understand how climate change and air pollution influence human health nationwide. These conclusions should help deci-

sion makers use environmental and climatic data to improve public health. Dr. Adel Hanna, CEP research professor and director of its Center for Environmental Modeling for Policy Development, will head the study, with collaborators from the School of Medicine and the College of Arts and Sciences’ Departments of Geography and Statistics and Operations Research. ■



Adel Hanna