



catalyst

ENVIRONMENTAL LEADERSHIP CENTER

FALL 2007

WARREN WILSON COLLEGE

WWC AND CITY OF ASHEVILLE SIGN CLIMATE COMMITMENT PARTNERSHIP



WWC President Sandy Pfeiffer and Asheville Mayor Terry Bellamy

This summer, Warren Wilson President Sandy Pfeiffer and Asheville Mayor Terry Bellamy signed a formal partnership agreement in support of the City and the College's climate commitment pledges.

In 2005, the City of Asheville signed onto the US Conference of Mayors "Mayors Climate Protection Agreement" to express Asheville's commitment to climate protection. Last year Asheville became a member of the International Council for Local Environment Initiatives (ICLEI) and resolved to reduce greenhouse gas and air pollution emissions as part of the Cities for Climate Protections Campaign.

In January, Pfeiffer signed a letter of intent for the American College & University Presidents Climate Commitment (ACUPCC), an initiative modeled after the US Mayors Climate Protection Agreement. Warren Wilson and UNC-Chapel Hill, founding signatories, were the first North Carolina schools to sign the commitment.

David Easterling, Ph.D., Chief of the Scientific Services Division at NOAA's National Climatic Data Center in Asheville, NC will serve as science advisor to the partnership. Easterling was a Contributing Author to the Intergovernmental Panel on Climate Change (IPCC) Second and Third Assessment Reports, a Lead Author for the IPCC Fourth Assessment Report and a Convening Lead Author for the US Climate Change Science Plan (CCSP) Synthesis and Assessment Product (SAP) 3.3 on Climate Extremes.

"This partnership makes sense," said Bellamy. "The City and the College share a common concern about the scope of global warming, and we share a belief in the power of community to overcome this challenge." Pfeiffer noted, "We all cherish this region. Everyone has a role to play addressing the threats to its well-being, including climate change. Government, higher education, individual citizens, faith communities - we are more effective working together."

Environmental Leadership Center Director Margo Flood is collaborating with City Council's Sustainability Advisory Committee for Energy and the Environment to develop partnership projects. According to Flood, "We hope to inspire other ACUPCC institutions to join hands with local communities to engage their student-citizens in the issue of our time - climate change."

WWC's EcoDorm is Case Study For New NC Conservation Bill

The North Carolina legislature just ratified S668 - AN ACT TO PROMOTE THE CONSERVATION OF ENERGY AND WATER USE IN STATE, UNIVERSITY, AND COMMUNITY COLLEGE BUILDINGS. Data provided by the Campus Greening Crew for Warren Wilson's EcoDorm served as the case study for an energy efficient building, and was put forth by the North Carolina Sustainable Energy Association (NCSEA) to promote the legislation.

This past spring, Warren Wilson's Campus Greening student crew provided McCayne Miller, Business and Outreach Manager for the North Carolina Sustainable Energy Association, with information on the environmental performance of the EcoDorm. The EcoDorm, built in 2001, is pending LEED Platinum certification. Though it is commonly known that LEED designed buildings can save up to 50% in electric usage, monitoring energy usage in efficient buildings is not yet a common practice. Warren Wilson students captured and analyzed this data and their efforts were well-rewarded.

According to Miller, "Warren Wilson College provided the North Carolina Sustainable Energy Association (NCSEA) with data analysis and building techniques for the EcoDorm. This information was given to the State Construction office and elected officials who participated in

Findings and Legislative Intent. The General Assembly finds that public buildings can be built and renovated using sustainable, energy efficient methods that save money, reduce negative environmental impacts, improve employee and student performance, and make employees and students more productive. The main objectives of sustainable, energy efficient design are to avoid resource depletion of energy, water, and raw materials; prevent environmental degradation caused by facilities and infrastructure throughout their life cycle; and create buildings that are livable, comfortable, safe, and productive. It is the intent of the General Assembly that State owned buildings, The University of North Carolina, and the North Carolina Community College System be improved by establishing specific performance criteria and goals for sustainable, energy efficient public buildings based upon recognized, consensus standards with scientifically proven basis and demonstrated performance.

The EcoDorm Manual



EcoDorm Manual of building features created by WWC students.

the committees on Commerce, Small Business and Entrepreneurship, and Energy and Energy Efficiency. This was a successful case study because it was laid out in a way that was easy to make the connections between energy, water efficiency and building techniques and included performance standard tracking. The students, staff and faculty should be proud and share in celebrating this accomplishment - you played an important role in affecting change."

Legislative bill S668 describes energy conservation in sustainability language - its benefits impact environmental, economic and social/cultural well being. An excerpt follows:

1st Mountain Green Conference Draws 200 to Warren Wilson



Robert Deutsch with keynote Robert Kee and Carol Deutsch

Warren Wilson, with its LEED certified buildings and numerous energy conservation practices, is regarded as one of the best demo sites in western North Carolina for sustainable building

practices. The College's Environmental Leadership Center leads hundreds of interested visitors each year on its Green Walkabout®. Asheville attorney Robert J. Deutsch, a trustee of the College who also serves as an advisory council member for the Environmental Leadership Center, recognized how appropriate it was for Warren Wilson, a model site, to convene a dialogue about sustainable development practices in western North Carolina.

With encouragement from Warren Wilson president Sandy Pfeiffer, Deutsch worked with Phillip Gibson, the Environmental Leadership Center's Director of Community Outreach, to develop the conference, *Mountain Green: Sustainable*

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A letter from the ELC Director

Dear Friends,

Environmental stewardship has been central to the ethos of Warren Wilson College for a long time. Each generation of students that attend our College indelibly preserves this legacy.

The campus is etched by early encampments of native people, the Asheville Farm School in the late 1800's, and the faculty and the staff of the early 70's, inspired by the first Earth Day, who formed one of the earliest environmental studies majors in the country and began to implement a number of conservation practices on campus.

In the 80's, we established the first recycling program in Buncombe County. In the early 90's, we adopted Pattern Language to organize principles of campus life and preserve the character of the land. And then in 1996, we established the Environmental Leadership Center - one of the first environmental centers in the nation at a college or university.

Since 2000, we have built the first LEED Gold building on a college campus in North Carolina, established a program to purchase renewable energy credits for 100% of the College's electricity usage, and were designated, in 2006, as western North Carolina's Conservation Farm Family of the Year. In 2006, we were also distinguished as the most sustainable campus of our size, in the nation, by the Association for the Advancement of Sustainability in Higher Education.

In a recent article in *Time* magazine, "Getting Schools to Think and Act Green," the author comments on the surge of new environmental and sustainability concentrations across the nation: "The programs and policies can give a school instant cache as a cutting-edge institution, which can be a competitive advantage in student recruiting."

We are grateful to have come by this cache organically. Through the essential Warren Wilson experience - the Triad of academics, work and service - students

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WWC Founding Member of Higher Education Climate Commitment Leadership Circle

Sandy Pfeiffer, WWC President

Global warming and environmental crises represent a major threat to our way of life and finally are receiving well-deserved attention. As one of many responses to these urgent problems, the academic world recently issued the American College and University Presidents Climate Commitment (ACUPCC), which all academic presidents are being asked to sign. Recently I agreed to become a Founding Member of the ACUPCC Leadership Circle.

By signing this agreement, I committed the College to several substantive actions that will continue the leadership Warren Wilson has shown in sustainability and environmental action. As noted in the FAQ on the ACUPCC web site (www.presidentsclimatecommitment.org), the agreement aims to "neutralize greenhouse gas emissions by mid century" by having campuses reduce emissions and purchase "carbon offsets" (such as investments in wind energy firms) that counter remaining emissions on campus. Specifically, the agreement requires that we (1) assemble a plan in the next two years that describes how we will reach climate neutrality on our campus, (2)



Student Liina Laufer, WWC '07(l) with WWC President Sandy Pfeiffer and student Ryan Morra, WWC '08

begin at least two actions in the interim that will reduce greenhouse gases, such as offsetting the greenhouse gases generated by air travel conducted by college employees, and (3) make certain that all documents related to our ACUPCC commitment be made available to the public through the Association for the Advancement of Sustainability in Higher Education.

My additional commitment to being a member of the ACUPCC "Leadership Circle" means that I'll

promote the agreement when possible and sign a letter of invitation to be sent to thousands of college and university presidents that have not yet signed the agreement. To promote the ACUPCC initiative, I co-chaired a roundtable on the agreement at the March 3-6, 2007, National Conference on Trusteeship in Phoenix, sponsored by the Association of Governing Boards. Attending the meeting with me was Joel Adams and Ron Hunt, then chair and co-chair of the Warren Wilson Board of Trustees.

Our participation in the climate agreement will push our "walk the talk" approach to social, environmental, and social sustainability to new levels. In fact, it has become the basis of a partnership we have formalized with the City of Asheville to assist one another in the achievement of our respective climate commitments. Yet it's important to note that Warren Wilson, with the leadership of the Environmental Leadership Center, already has met some of the ACUPCC goals. Our continued efforts will help us fulfill our vision of becoming the nation's premier liberal arts college with sustainability at the core of its programs and practices.

WWC to Convene Mountain Green Dialogue in Coming Year

Building on the success of the 1st Mountain Green Conference in June of 2007 (see article on page 1), Warren Wilson's Environmental Leadership Center will offer a series of programs in the coming year to engage the community in a conversation about best development practices for our mountain region. We invite the public to a monthly Mountain Green Lunch & Learn series on campus (see box below for scheduled events); regularly scheduled Green Walkabouts[®] to learn from the College's LEED buildings and other sustainable practices; and the 2nd Mountain Green: Sustainable Technologies Conference, June 25th, 2008. This initiative will be supported by Warren Wilson's Sustainable Community student work crew who will research best practices in sustainable development, and provide regional organizations with information about technology and trends.

Census projections tell us that in 2050, the population in our region will double. How we choose to grow will indelibly impact future generations. Sustainable development weighs the environmental, economic, and social/cultural impact of our decisions to insure a desirable quality of life, generations from now, for everyone in our region.

Join this important conversation in the coming year. Contact Phillip Ray Gibson for more information at pgibson@warren-wilson.edu or 828.771.3781.

Walking the Sustainability Talk

Margo Flood, ELC Director

Not a week goes by without a new article in the media about sustainability in higher education. In one brief paragraph, we might learn that a university or college has many *campus greening initiatives*. Its *environmental commitment* is well-developed. It recycles. Its students are *environmental leaders*. It is...*sustainable!* What does that mean – *sustainable?* Are we sustainable if we recycle? Switch to compact fluorescents? Boast a LEED certified building?

Sustainable is employed as a synonym for *environmental*, an adjective, a proper noun, an outcome, a growth model for developing nations, a marketing brand, and a process. The confusion generated by semantics alone is catalyzing the fevered debate that precedes new paradigms.

At Warren Wilson, our mission declares we foster environmental responsibility. We have a Campus Greening Crew that implements green practices; an Environmental Commitment Statement; an Environmental Leadership Center; a "Sustainability in Curriculum" Task Force; and, in 2006, we were designated by the Association for the Advancement of Sustainability in Higher Education (AASHE) as the most *sustainable* campus of our student size in the nation.

For decades, we have used environmental superlatives that denote how well we preserve

and protect the 1,200 acres we are privileged to learn upon. *Campus greening* and *environmental leadership* are terms we have used to describe our commitment to preserve and protect the environment. *Sustainability* heralds a change in understanding. What is viewed as a responsible environmental decision *now* is more complex than before. As an institution, we are mid-stream assessing whether our *environmentally responsible practices are sustainable*.

The United Nations' Bruntland Commission, whose work defined sustainability, concluded that we must calculate the environmental, economic and human impacts of our decisions. There is a fundamental relationship between these realms that connects global warming to population growth, consumption behaviors in developed nations to underserved nations, and environmental degradation to poverty. Deforestation, as an example, is not harmful only to trees. These calculations, weighed together, inform a responsible decision – a *sustainable* decision.

Environmentalists, scientists, the business community, economists, social service agencies, developers, faith communities, realtors, artists, and policy makers all have a role in this decision making process. The Bruntland Commission describes *sustainability* as "intergenerational

fairness." Fairness is a likely outcome of the deliberations of such diverse stakeholders.

Warren Wilson has a mission-driven commitment to environmental responsibility. We have practiced environmental leadership for decades. As we review what we regard as our best environmental practices, we find that many of them – from our LEED buildings to our purchase of renewable energy credits for 100% of our electric usage – are also exemplary sustainable practices. They benefit the environment, the local economy, and the community. Sustainability, for us, is becoming the new gold standard. It defines *how* we practice environmental leadership.

What does it mean to us to have received the AASHE Sustainability Award? It confers an obligation to re-examine what *environmental responsibility* means to us. It provides an opportunity to decide, as an institution, whether meeting the terms of *sustainability* is fundamental to planning for a desirable and equitable future. And if we agree that it is, then to fulfill the essential goal of a liberal arts education - to graduate students capable of problem solving society's complex problems - we are obliged to walk and talk *sustainability*.

Come to Mountain Green Lunch & Learns

Warren Wilson College
Gladfelter Dining Hall
Meirke Room B

September 17
Margo Flood, Director, Environmental Leadership Center, Warren Wilson: How we make sustainable decisions.

October 8
Taylor Barnhill, Executive Director, SouthWings: Photographs and stories of changes in our mountain region.

October 29
Chuck Smith, Director, Sustainable Development Program, Appalachian State University: How ASU leverages change in the High Country.

November 12
Robin Cape, Asheville City Council: How the City of Asheville is addressing sustainable development.

Further dates to be announced.

Lunch Cost: \$5.00

Conference Draws 200 continued from pg 1

Development Technologies for the Mountain Region. Inspired by a similar event called Greenprints, which his daughter helped organize through her work with the Atlanta-based Southface Energy Institute, Deutsch said, "I've learned a lot about community outreach from my daughter's work with Southface Energy Institute that I bring to my work with Warren Wilson. With all the real-estate development and the pressures on the land in western North Carolina, I thought it would be very beneficial to do a Greenprints-type conference here."



Vendors display technologies at Conference.

A steering committee of leaders in Asheville's real estate and economic development sectors - the Asheville Home Builders Association, the Asheville Board of Realtors, the Council of Independent Business Owners, the Western North Carolina Green Building Council, the Council on Aging for Henderson County, Equinox Environmental and the Community Foundation of Western North Carolina - assisted in planning the conference. A number of businesses served as sponsors.

Bank of America's Senior Vice President, Robert Kee, delivered the keynote address, speaking of Bank of America's \$20 billion initiative over the next 18 years to support the growth of green businesses that address global climate change. Deutsch introduced plenary speakers such as Warren Wilson trustee Joel Adams of Raymond James Financial Services, Biltmore Farms president Jack Cecil, City of Asheville Mayor Terry Bellamy, and Gordon Small of the Haywood Waterways Association.

Following the plenary session, experts led breakout sessions on such topics as renewable energy systems, sediment and stormwater controls, and energy efficient building design. A Green Walkabout© of Warren Wilson's LEED buildings allowed for more focus on actual green building practices and the latest policy debates regarding growth management and affordability. The conference closed with an update on proposed steep slope regulations in the City of Asheville and in Buncombe County.

Over 200 developers, REALTORS™, business owners and financial institutions attended this one-day conference. Seventeen vendors also participated, exhibiting a variety of sustainable technologies. Following the conference, Deutsch stated, "The thing I'm most proud of is that we've been able to bring together a number of organizations in the community that haven't always been on the same side of this issue. We're at a tipping point. The economics of the supply and the demand are coming together. You've got consumers demanding green building practices and wise policy, and technology available to meet their needs. It's the right time for convening this conversation."

The next *Mountain Green* Conference is scheduled for June 25th, 2008. Contact Phillip Ray Gibson of the Environmental Leadership Center for more information at 828-771-3781 or pgibson@warren-wilson.edu. Visit <http://www.warren-wilson.edu/~pgibson/sustainabledevelopment.shtml> to learn more about the *Mountain Green* Conference.

Sustainability Workshop For WWC Faculty

This past May, Warren Wilson faculty experienced new ways to infuse sustainability education into their curriculum. Warren Wilson biology and environmental studies professor Paul Bartels, who leads the College's "Sustainability In Curriculum" Task Force, received support to fund a faculty sustainability workshop from the Fussler Fund, a grant program at Warren Wilson established by Lynn and Tom Padgett to inspire new thinking about environmental problem solving.



WWC professor Laura Lengnick leads soil field trip for workshop participants.

Nationally recognized educator and consultant Peggy Barlett, of Emory University's Piedmont Project, provided a hands-on workshop at the College for fifteen Warren Wilson faculty. Barlett, professor of anthropology at Emory University and author of several books including her most recent, *Urban Place: Reconnecting with the Natural World*, helped to found the Piedmont Project several years ago. At that time, Emory's sustainability initiatives focused on operations - reducing campus energy use, encouraging alternative transportation, and constructing green buildings. In 2000, Barlett participated in Northern Arizona University's Ponderosa Project for curriculum reform and when she returned to Emory, she started a similar project at Emory with Arri Eisen, a biologist who directs Emory's "Science and Society" Program. Since that time, faculty from many colleges and universities have participated in Piedmont Project sustainability workshops including the group from Warren Wilson College.

Commenting on her experience at Warren Wilson, Barlett said, "I was very impressed with the Warren Wilson faculty group and how con-

structively they interacted. It was a fun day of brainstorming and rethinking. Warren Wilson was a real inspiration to me - you have engaged sustainability at a deep level. The thoughtfulness of your attention to environmental issues is also evident in the beauty of the ways architecture and landscaping embody change - something not seen on many campuses that are struggling to "go green." Warren Wilson's attentiveness to process, to broad discussion among all stakeholders, was very impressive."

Workshop participant Lou Weber, Warren Wilson's Chair of Environmental Studies noted, "In developing a course during the small group session, I finally understood what a team-taught sustainability course would look like. It also gave me a better idea of how to organize a particular course project I'm pursuing: I'll add more economic material as a result. Thanks to the workshop I'll know what to look for as I promote sustainability as a department chair."

Contact Paul Bartels at pbartels@warren-wilson.edu or 828.771.3069 to learn about Task Force initiatives in sustainability.

The mission of Warren Wilson College's Environmental Leadership Center (ELC) is to raise awareness of local, national and global environmental realities and to inspire caring citizens - especially our youth - to reflect, to communicate, and to act as responsible caretakers of the earth.

THE ENVIRONMENTAL LEADERSHIP CENTER

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ELC Student Crew 2006 - 2007

Heather Aziz, Annie Hasz, Aaron Baughman, Kayleigh Burgess, Courtney Cochran, Elizabeth Crenshaw, Aubrey DeLone, Kevin Lane, Kaycie Loparto, Leslie Selgestad

Campus Greening Crew 2006 - 2007

Lauren Baker, Amanda Davis, Liina Laufer, Mandy Monroe, Sarah Murphy, Julia York

Letter from ELC Director continued from pg 1

put theories and values to action. They come to understand the complexities of environmental leadership. They hold us accountable to the highest standards and learn what it means to champion change.

Our campus is rich with examples of student-led initiatives. *The EcoDorm*. Students learned of plans for a new dorm and insisted on helping to design it green. *Our annual purchase of alternative energy to offset 100% of our electric use*. Students circulated a petition to the administration and brought a 1-ton coal truck to make their point about our responsibility to offset electric usage. *Recycling*. A student wrote a proposal to start a program in the 80's and the College began the first recycling center in Buncombe County. *The EcoTeam program and its partnership with the Jane Goodall Institute*. A student developed this curriculum in the 90's in a Warren Wilson Program Planning Class. Now more than 1,500 students in Buncombe County, and hundreds more nationwide are taught these lessons each year.

Our students live into our pledge to environmental responsibility with zeal. They give us hope. We dedicate this issue of *Catalyst* to them.

Margo Nottoli Flood

Margo Nottoli Flood, ELC Director

heartstone Appalachian Celebration

Join us for a celebration of poetry, prose, music and art

November 28, 2007

7:15 p.m.

Canon Lounge

Warren Wilson College

Free and open to the public

North Carolina's poet laureate Kathryn Stripling Byer will be joined by Thomas Crowe, Keith Flynn, Holly Igesias, John Lane, Sebastian Matthews, Glenis Redmond and Catherine Reid.

Old Time Music and dance will be provided by the Appalachian Music Program, regional art will be on display and a book signing will follow the celebration.

Heartstone is the environmental journal of Warren Wilson College's Environmental Leadership Center.

This event is co-sponsored by the Environmental Leadership Center, the Appalachian Music Program, and the Undergraduate Writing Program.

Call Ellen Querin at 828.771.3006 for more information.

BridgeBuilders

We honor a BridgeBuilder in each issue of *Catalyst* – an extraordinary citizen who dedicates themselves to working in community to solve environmental challenges. In our work at Warren Wilson, we meet young people each day who are determined to change the world. Through the Triad of academics, work, and service, they translate their beliefs into action on campus and beyond. In this issue of *Catalyst* we pay tribute to these BridgeBuilders – our students. Several of them discussed their beliefs with former ELC director John Huie last spring and their comments follow.



BridgeBuilder students Rob Harman (l), Michelle Mockbee, Ryan Morra, Meghan Lucy, Artemis Quick, Meara Kelley, Nathan Ballentine (Mosher photo)

Nathan Ballentine, WWC '08: *I was walking up in the pasture with my friend Lateef, looking out over the mountains... I told the story about how I'd recently heard someone profess that all the great social movements are birthed when enough people stand up together and say, "No!" I think that's one of the biggest lies that's ever been fed to us. Movements are not birthed because someone says "no." No movement ever got started without "Yes." What are you saying "yes" to?*

Meghan Lucy, WWC '09: *I believe in humanity and that basic necessities should be enjoyed by everyone. When institutions fail to provide what they claim they will... I feel it is necessary for people to do what they can. Sometimes people just need help. I believe power lies in the people and their actions. Service learning at Warren Wilson, and witnessing the blatant disregard for human dignity and life in the aftermath of Hurricane Katrina in New Orleans has fueled my beliefs and motivation.*

Michelle Mockabee, WWC '08: *I don't deserve what I have anymore than any other person on this earth and until equality and respect ensue for the earth and the people on it, then I am not free of their chains or my own... What made it possible for me to begin acting on this belief was my WWC class, "Contemporary Appalachia." In the spring of 2005, I met members of Coal River Mountain Watch and went to West Virginia to witness strip mining first hand. That is the moment in which the rest of my life was decided.*

Artemis Quick, WWC '09: *I came to WWC because of its service learning program and my interest in doing social change work. I want to be part of a world where we are all conscious decision-makers – thoughtful about what we purchase, about health risks... We must up the standard of living in our global society for every group, not just one.*

WWC Students Develop New Local Foods Work Crew Elizabeth Pullan, WWC '09, Katie Miller, WWC '09

The Local Food Crew began as an environmental campaign in WWC professor Mallory McDuff's Community Organizing for Sustainable Living course. Four students - Loren Cardeli, Erin Fahey, Ellie Thomas and Katie Miller - all saw a disconnect between Warren Wilson's mission statement and the food served in the dining facilities. Their campaign was to work with the Work Program Office to create a Local Food Crew - two students who would work to increase local food purchasing and raise awareness of the importance of local food. A job description was written and an application process was implemented. Warren Wilson sophomores Liz Pullan and Katie Miller are the new crew members.

The Crew is working with Warren Wilson's Sodexo Manager Brian O'Loughlin who is the Crew supervisor, and Mountain Foods, a wholesale fresh food distributor in Asheville. This semester they are compiling invoices from the last academic year to see what was locally grown, so that they can make a comparison between this year and last. They are striving to form bridges between the Local Food Crew and other members of the Warren Wilson community, as well as the greater western North Carolina community, to collaborate and work towards common goals. Partners include the Environmental Leadership Center, the Warren Wilson Farm and Garden, Sage Café, The Cowpie Café, and the Appalachian Sustainable Agriculture Project. One of the overarching goals is to make members of the Warren Wilson community aware of the choices they inherently make each time they eat in either Gladfelder or the Cowpie, and in their everyday lives. The first step in this process was to create labels to indicate what is local, so that people really know what food is sourced locally.

We believe eating locally grown food is a way to recapture a sense of community and to preserve local economies. To focus on mending globalized and fragmented food and farm systems is one way of searching for solutions to many environmental and social justice problems.

ELC Intern Field Notes

Warren Wilson students receive Environmental Leadership Center Internships each summer and work for the finest environmental organizations in the Americas. Here are some of their field notes.

**North Carolina Coastal Federation,
Kayleigh Burgess, WWC '09**

Cape Lookout National Seashore stands among the continuous stretch of barrier islands along North Carolina's coast as a 56-mile long testament to what used to be. One of the last remaining stretches of undeveloped sand along this inviting southern Atlantic Coast, it serves as an essential habitat to increasingly threatened plant and animal species, as well as an important educational opportunity for its thousands of annual visitors. As the state's largest coastal conservation nonprofit, the North Carolina Coastal Federation's mission is to rehabilitate and preserve North Carolina's coastline, as well as educate the community about the importance of doing so.

As the Coastal Federation's environmental education intern it is my main task to inform visitors of the crucial, diverse, and ever-changing ecology of the barrier islands, in the aptly named Barrier Island Ecology Walk. We also provide a glimpse into the life that exists just below the water's surface in a hands-on program titled Tidal Flats Exploration. These tasks take me to Cape Lookout National Seashore two to four days a week to do the kind of environmental education that I love: inspiring a deeper understanding and greater love for the natural world around us.

When I am not at Cape Lookout National Seashore, I work with graduate interns from Duke University, as well as the many employees of the Coastal Federation, on various projects they have rehabilitating living shoreline and crucial wetland habitats throughout coastal North Carolina. A recent Monday found me monitoring plant growth at North River Farms, the site of a 6,000 acre wetland restoration project that is turning agricultural land back into the essential ecological niche it once occupied as invaluable salt marsh. The rehabilitated wetland will provide crucial habitat and incalculable social services, absorbing storm water runoff and cleaning water.

Three days before this, I was hauling hundreds of bags of recycled oyster shells amidst the company of interns, employees and community volunteers. Seeded with oyster larvae, these bags were ready for transfer to an experimental oyster reef, one of many created by the North Carolina Coastal Federation, to counter the 90% decline in oyster population that the Crystal Coast has seen in past decades.

The experience has been rewarding, hands on, and as much a learning experience for me as for those I teach. Through this internship I have been able to discern what work I am most apt to enjoy and flourish in. This is an opportunity that will provide much for me in the coming years and an experience for which I am incredibly grateful.



Kayleigh Burgess, WWC '09 at work on the coast.

Programme for Belize, Mandy Monroe, WWC '08

We want to see the Howler monkeys. We have been in Belize as Environmental Leadership Center interns for four weeks. We have had intimate contact with the endless wonders of the subtropics that we never fathomed existed. Now we want to see the elusive Howler monkeys that wake us up on foggy mornings with guttural territorial groans.

Just outside Belize City is the Community Baboon Sanctuary, a haven for Howler monkeys. The neighborhood has dedicated an undeveloped portion of their land as a refuge for the baboons of the area. We pay five dollars each to have Rulfino, who is old and small and enthusiastic about the monkeys, guide us. "Come, come. Come." Rulfino beckons Howlers from the trees with mangos. We are skeptical until we hear the rustling of the palm leaves overhead. Adrenaline courses through our veins as four black, delicate, cuddly monkeys come down to greet us. They politely eat the mangos from our excited fingertips and then fight over the slippery seed of each fruit.

The moment of revelry we have been seeking passes. In our quest to find the Howlers, we did not dream that we would be intermingling our fingers with the monkeys, nor did we realize we'd be learning about the people who graciously share their land with the baboons. As we wait for the bus on the side of the country road, I realize that each individual here has a story. Dianely has nine siblings and works as a seamstress when she isn't cooking for eco-tourists. Bladimir can identify every bird in Belize, and Rulfino has befriended the Howler monkeys of the Baboon sanctuary.

Although I do not fully understand the complexities of Belizean culture, just as I have so much to learn about the subtropical ecosystem, I have discovered that every life in Belize has worth I hadn't considered before. I can appreciate the majesty of natural life systems and change patterns in my life to avoid the eco-apocalypse, but equally important is that I recognize the diverse passions and needs of humanity in a time of crucial social and environmental change.

2007 ELC Intern Speakers Bureau

The following Warren Wilson students completed Internships this summer at some of the finest environmental organizations in the Americas. They are available to meet with organizations in the region, such as civic organizations, faith groups and discussion groups about their summer experiences. Contact Stan Cross at scross@warren-wilson.edu or 828.771.3782 if you would like to arrange for one of these remarkable young people to meet with your group and share their inspiring stories.

Ronnie Anderson	Programme for Belize, Belize
Heather Aziz	Tropical Forestry Initiative, Costa Rica
Lauren Bangasser	EARTH University, Costa Rica
Rachel Buedel	The Washington Center, Washington DC
Kayleigh Burgess	North Carolina Coastal Federation, North Carolina
Delaney Burke	National Audubon Seabird Restoration Project, Maine
Aubrey DeLone	Tropical Forestry Initiative, Costa Rica
Ryan Exline	Smithsonian Environmental Research Center, Maryland
Taylor Johnson	CooperRiis Healing Farm, North Carolina
Kenmei Kato	Programme for Belize, Belize
Julia Mead	Tropical Forestry Initiative, Costa Rica
Zoe Minderovic	The Nature Conservancy, Mountain District, North Carolina
Sarah Pierce	National Audubon Seabird Restoration Project, Maine
Nora Purcell	The Nature Conservancy Long Island, New York
Amy Rowlett	Tom Yawkey Wildlife Center, South Carolina
Amy Woychowski	EARTH University, Costa Rica

Beyond the Classroom...

Last year, Warren Wilson students engaged in community-based research projects in many of their academic classes to examine the economic, environmental, and cultural/social realities of the campus and the region. Here are two examples.

Economic Development Class Conducts Research for HandMade in America

I had the students come and present the research themselves to our board. They were simply fabulous and did a great job under tough time constraints. The research done by the students was invaluable – it demonstrated the potential for the region to develop a viable economy that responds to the wealthy newcomers.

Becky Anderson
Executive Director,
HandMade in America

Warren Wilson economics professor Susan Kask, and her spring economic development class, worked with HandMade in America to assist them in the data collection and analysis needed to advance their regional work.

HandMade in America is an Asheville-based organization that “works to implement environmentally sustainable economic solutions developing entrepreneurial strategies for Western North Carolina’s crafts artisans.” HandMade has helped to increase the arts and crafts economy of North Carolina from 122 million in 1994 to over 145 million in 2005 – a 16% increase in the region!

Kask’s students served as consultants to HandMade, researching the region’s economic potential, describing new wealth streams, identifying consumer spending patterns and identifying entrepreneurial opportunities for the area’s artisans. Throughout the project, students applied Warren Wilson’s ethos of environmental stewardship and sustainability to their work. According to Kask, “Our students were engaged in real world, down and dirty development work. Data collection is messy but it’s a great experience. And there is no substitute for influencing real outcomes.”

Environmental Communications for Behavior Change Students Present at National Conference

In our first year seminar in Environmental Communications for Behavior Change, we developed community-based campaigns targeting issues such as promoting the labeling of local foods in Warren Wilson’s Gladfelter dining hall, decreasing exposure to second-hand smoke, installing front-loading washers, promoting composting in dorms, and decreasing energy usage in dorms. Three of the campaigns received funding from outside sources such as the College’s Work Program Office and the Appalachian Sustainable Agriculture Project.



Poster campaign created by environmental communications students.

Working with environmental education professor Mallory McDuff, we submitted a proposal about our campaign to the 2006 North American Association of Environmental Education Conference. The proposal was accepted and we attended and presented about this course – Environmental Communications for Behavior Change – and our campaigns for promoting labeling of local foods in the Warren Wilson dining hall and decreasing exposure to second-hand smoke.

WWC students Ayla Graden,
Renee Gaudet, and Eleanor Marguiles

“One of the biggest areas of growth in environmental education is community organizing. Our program reflects the current interests of our students from food systems to community systems.”

Mallory McDuff, WWC Professor and Director of Environmental Education Program



Students Ayla Graden '09, Eleanor Marguiles '09, Renee Gaudet '09, and WWC professor Mallory McDuff.

NC Biodiversity Grant for New Photomicroscopy Lab Boosts Student Research at WWC



Ronnie Anderson, WWC '08, examines a water bear in the lab.

In February of 2007, Warren Wilson College and Western Carolina University received a grant of \$62,010 from the North Carolina Biotechnology Center for a new light microscopy system and expanded DNA analysis equipment. The grant enhances undergraduate research at both institutions and helps to fulfill the Center’s mission “to provide long-term economic and societal benefits to North Carolina through support of biotechnology research, business and education statewide.” With a state-of-the-art research microscope with high-resolution digital photography capabilities, a dedicated computer to provide advanced digital image processing and automated measuring and counting tools, and a high definition video camera and large screen monitor that provide excellent tools for educational presentations, the grant has provided a tremendous boost to student research.

Directed by biology professors Paul Bartels of Warren Wilson and Sean O’Connell of Western Carolina, biology and environmental studies students are engaged in identifying microorganisms in the Great Smoky Mountains National Park as part of the All Taxa Biodiversity Inventory. The inventory is an attempt to itemize all life forms in the park boundaries, and to delineate factors responsible for the immense biodiversity in this region.

Bartels and his students continue to make progress in their inventory of tardigrades in the Great Smoky Mountains National Park. Tardigrades are sediment-dwelling micro invertebrates commonly known as *water bears*. To date, they have found 74 species (only three were known prior to their work), including at least 14 species new to science.

In 2005, Warren Wilson alumna Suzie Dobbertin discovered large populations of a potentially new species of the tardigrade *Bryodelphax* on moss around the limestone caves of Cades Cove in the Smokies. This fall, Warren Wilson biology major Ronnie Anderson will work with her Natural Science Seminar advisor Bartels on this new species of tardigrade. Anderson will use the new photomicroscopy system to photograph, draw, and measure specimens of *Bryodelphax* and compare them to a similar European species. She will also use the new facilities at Western Carolina to compare the species genetically. This will be the first description of one of the new species Bartels and his student team have found in the Smokies and the work will yield research protocols that can be copied for subsequent investigations.

WWC Completes 2nd Annual Greenhouse Gas Emissions Inventory

Ryan Morra, WWC '08

In 2006, my friend Andrew Phillips (WWC '06) completed the first annual Greenhouse Gas Emissions Inventory for the College. He worked with Warren Wilson chemistry professor John Brock to collect data that audited the College’s use of electricity, natural gas, diesel and gasoline during the 2005-2006 academic year. The associated greenhouse gas emissions (mainly CO₂, H₂O, N₂O, CH₄, and CFCs) were then calculated. This was a breakthrough project that provided the College with a benchmark for monitoring energy use and emissions. This study was carried out prior to President Sandy Pfeiffer signing the American College & University Presidents Climate Commitment which, among other things, requires the college to carry out just such an inventory within a year of signing the document. With this inventory, Warren Wilson is in a great position to begin fulfilling the commitment immediately.

As a part-time member of the Campus Greening Crew last year, I continued Andrew’s work, and expanded upon it to analyze energy use trends and recommendations for how the College can improve documentation in order to more accurately quantify our greenhouse gas emissions. I also created a series of slides that summarize the data collected about the energy use and emissions from various sectors. The College leadership will use the Greenhouse Gas Emissions Inventory data to make sound improvements and to educate the community in order to lessen our impact on global climate change. This year, Warren Wilson junior Chelsea Maier will work with John Brock to produce our 3rd Annual Greenhouse Gas Emissions Inventory.

Electricity Use

Definition
Electricity consumed by the College, purchased from Progress Energy.

History

- In 1997, an audit by Waste Reduction and Technology Transfer (WRATT) led to the College’s attaining EPA Green Lights certification by re-lamping the campus with energy-efficient fluorescent light fixtures.
- As reported in 2001, after WRATT, electricity usage was reduced by 673,000 kilowatt-hours per year and saved the College \$48,000.
- In 2001, photovoltaic cells were installed to produce energy to power electric golf carts used by work crews. The EcoDorm is also outfitted with photovoltaics to supply much of the building’s electricity needs.

Warren Wilson College

Orr Cottage, the first building on a college campus in North Carolina to attain LEED® Gold Certification.

Environmental & Health Impacts

- Electricity generation contributes to ground level ozone and smog through the emission of carbon dioxide, sulfur oxides, and nitrogen oxides.
- Mercury and particulate emissions from coal burning are human health hazards. Coal mining has devastating impacts on both the environment and humans communities.

Quick Facts

- WWC average annual electricity usage is 4.4 million kWh, costing \$400,000.
- Electricity from Progress Energy is generated from a mix of 46% coal, 35% nuclear, 18% gas oil, and 1% hydroelectric.
- Data shows that even with a 5.1% increase in enrollment and a 1.2% increase in building square footage between the 2003 and 2005 academic years, total electricity consumption at WWC dropped by 4.2%.

Recent Initiatives

- All incoming residential students receive a compact fluorescent light bulb for their personal lamps.
- All laundry rooms have been upgraded to use energy- and water-efficient front loading washing machines.
- The Orr Cottage features ambient day-lighting and use of compact fluorescent lighting.
- All lights in Laursen Administrative Building were replaced with high-efficiency light fixtures.
- The Campus Greening Crew publishes the Green Living Guide to educate the student body about responsible decision-making and ways to reduce energy consumption.

Top Ten WWC Electricity Users by Percentage

Building/Department	Percentage of Total Use
Dorms	22%
Guidance	18%
Library	12%
Southern	10%
Kitchen	8%
Yard	7%
Laursen	6%
Dorms	5%
Ballroom	4%
PHS	3%

Thomas Berry 2007 Writing Award Winners

Each year, the Environmental Leadership Center sponsors a competitive essay contest for Warren Wilson students to reflect upon author Thomas Berry's book, *The Great Work* – a holistic view of our responsibility to the universe in this new millennium. In 2007, Warren Wilson senior Ryan Morra and sophomore Elizabeth Kinevey-Gump were the recipients of the Thomas Berry Writing Award.

Ryan Morra

The essay I submitted for the Thomas Berry Writing Award was inspired by my work in the summer of 2006, when I was a caretaker with the Green Mountain Club in northern Vermont. My job included tending to an overnight cabin and the nearby privies, maintaining the network of trails, and educating visitors of Mount Mansfield about the fragile alpine ecosystem on the summit. In essence, I managed the human use of Mount Mansfield to preserve and protect the resources it provided to wildlife and future human generations. The most difficult part of my job was educating many visitors who were reluctant to follow the "rules" they saw as getting in their way of enjoying the landscape. My intervention was critical, however, and I had to find a way to connect to people in a way that would, at the least, change their immediate actions and, at best, inspire them to share the stewardship message with others. I experimented with everything from being firm to overly polite. In the end, an amalgam of the two was the best method – a sort of tough love attitude that let the other person do the talking first. It conveyed my message with passion but also acknowledged my humanity, and the humanity of those with whom I spoke. From this experience came my essay. Here is an excerpt:

Aldo Leopold remarked the following in *A Sand County Almanac*: "One of the penalties of an ecological education is that one lives in a world of wounds. . . . An ecologist must be the doctor who sees the mark of death in a community that believes itself well and does not want to be told otherwise." . . . We should not limit the amount of plunges into the river on a hot day, the evening walks we take in the fresh snow, the gardens to which we tend, or the meals we share with others for the sole purpose of being more productive in "saving the world." . . . If we are trying to "resacralize" the natural world, as Thomas Berry beautifully puts it, we better make sure that we maintain a sacred bond with it ourselves. . . .

It is natural for many environmentalists to get defensive and overly critical of others who don't want to conserve, protect, reduce, reuse, or recycle. . . . My hope is that the phrase "saving the world" will be considered a phrase of the twentieth century. We twenty-first century ecologists should know that the world does not need our saving. It is our species that needs saving. We cannot have relationships with one another if we are busy shaking our finger at every polluter, warmonger, and naysayer out there. A "save the world" mentality often *shortens our scope*, rather than open us up to the many ways of dealing with a problem, because we are overly focused on the outcome. In a world where so many people do not "want to be told otherwise" about our environment, we need to focus much more on the *process*. We are not always able to revolutionize somebody's habits in order to make them more benign, sustainable, or green. But we are always capable of taking someone as he or she comes to us, and looking at what makes *their* world go round.

Elizabeth Kinevey-Gump

I was inspired to write this piece after visiting my childhood home in the fall. I was taken aback at the signs of poverty and depression in my hometown, the new layers of litter on the roads, and the clear-cutting and abuse of the forests. Yet, I realized that nothing much had changed, only my perspective. My hometown, Avella, PA, has not changed significantly since I was born. I started wondering why this was. In many Appalachian communities, any sense of activism, any forward-thinking initiatives, seem to be smothered. I felt the need to explore the reason for this. Here is an excerpt from my essay:

Picture this: A rolling countryside of deep forests and lush farmland, rambling farmhouses, and a bustling village with hotels, theaters, banks, wool mills, and stores – a hamlet of craftsmen and cultivators. How does it happen that such a land, rich in history, legend, black earth, and independence, comes to sink into degradation and poverty? It begins with a choice. In exchange for the simple, unremarkable harmony with nature and home, the town brought in the coal mining industry, filled with bright hopes and empty promises. For a short time, the economy boomed, and the people didn't mind the coal dust that dulled everything, the heaps of ripped up trees, or the deep gashes sliced into the belly of the foothills. Money poured into the area, pooling eventually in the hands of a few wealthy coal barons in another city in another state. The people began to see that they were being given a pittance for shortening their lives and digging up their mountains, but once started there was no way out. The money circled – into their hands and then out so swiftly; the riches of the land were torn from the earth with greedy appetite; and the people cried for more and more, pulled themselves up, and were happy, for a time. But then the coal ran out, and the hunger for black gold drove the money to feed elsewhere, leaving the town with nothing, since it had already sold its soul with the first blow of a mining pick.

Beneath Avella Road there runs a creek that has been forgotten; above the passing cars there is a cave of stone that sheltered the first keepers of this land. On the roadside, in the streams, and on the hillsides lie layers of discarded refuse. People go into the forest to look for mushrooms. They also go to hunt the buck, hack off the antlers, and leave the bodies to rot. The teens in their stained T-shirts ride their dirt bikes and ATVs into the struggling woodlands to drink cheap beer, smoke a joint, sit by campfires, and try without really knowing to get closer to this land in some way. A middle-aged man is arrested for spray-painting abuses on the concrete bridge, and someone – someone who gives a damn – comes and washes it clean.

Guidance. We need the town council to stand up, to come forward, to speak out, and tell the people what they are doing. We need a call to action, a catalyst, a simple word out of the downtrodden silence that had lasted for over fifty years. It could be something as simple as picking up a soda bottle, something as simple as asking for just a little respect. The people need to be educated, need to be told that this isn't how it has to be, that there could be something better and that it isn't out of reach. All we need is someone to come forward and speak for those who can't – the trees, the birds, the running waters – and say it loud enough for everyone to hear. The mindset of the depressed, the exploited, of those who are used to having less than they want and accepting it – this mindset must be broken. It's as hard and as simple as that.



Elizabeth Kinevey-Gump, WWC '10 with
Ryan Morra, WWC '08

Living Green at Home

"By some conservative estimates, the building sector worldwide could deliver emission reductions of 1.8 billion tonnes of carbon dioxide," said Achim Steiner, the head of the United Nations Environment Programme. "Carbon dioxide is the main greenhouse gas. A more aggressive energy efficiency policy might deliver over two billion tonnes or close to three times the amount scheduled to be reduced under the Kyoto Protocol."

The global climate change crisis demands that each one of us understands how we can contribute to the solution. Did you know that by simple conservation measures, you can reduce your household greenhouse gas emissions by 30%? The EPA now offers a way for individuals to calculate their own greenhouse gas emissions. Their calculator provides an estimate of household greenhouse gas emissions resulting from household energy use and waste disposal, and it identifies ways to reduce personal greenhouse gases. For example, if you choose to purchase an ENERGY STAR rated refrigerator then you will release 521 pounds less carbon dioxide per year. If you choose to recycle paper, plastic, glass, and aluminum you will release 423 pounds less per year. For every incandescent light bulb you replace with a compact fluorescent, you will release 100 pounds less per year. You can also compare your emissions with national averages, and see how a variety of environmentally responsible choices effect overall personal greenhouse gas emissions.

Visit (www.epa.gov/climatechange/emissions/ind_calculator.html) to calculate your household emissions.

Come Get Your Compact Fluorescent

Come to the Festival on the Green at Warren Wilson's Homecoming celebration, October 6th, and get a free compact fluorescent lightbulb (CFL). Thanks to a generous donation from Progress Energy, the Environmental Leadership Center will be distributing free CFLs at their booth. Visit <http://alumni.warren-wilson.edu/homecoming.shtml> for Homecoming information.



Progress Energy distributed free CFLs at
Mountain Green Conference.

Check out the Green Calendar

for a listing of upcoming events at
http://www.warren-wilson.edu/~elc/green_calendar.shtml.

EcoTeam Expands to Haywood County with Pigeon River Fund Grant

Warren Wilson has received a \$9,150 grant from the Pigeon River Fund to support the Environmental Leadership Center's (ELC) expansion of EcoTeam in Haywood County schools. The Pigeon River Fund of The Community Foundation of Western North Carolina is focused upon improving the streams and rivers of Haywood, Buncombe and Madison counties and increasing awareness about protecting these resources. EcoTeam, a science-based, hands-on, third grade environmental curriculum, teaches students about their ecological address and their relationship to the watershed.

EcoTeam was developed in partnership with the Jane Goodall Institute's *Roots & Shoots* Program. The EcoTeam model provides the opportunity for college students, supervised by educators and staff of sponsoring higher education institutions, to teach an 8-unit series of EcoTeam lessons to third graders. The ELC will work with students from Western Carolina University and Haywood Community College to teach EcoTeam to Haywood County third graders. According to ELC Education Director Stan Cross, "EcoTeam forges partnerships that are a win-win for college students and third graders and builds important bridges between higher education and the surrounding community."

Contact Stan Cross at scross@warren-wilson.edu for information about EcoTeam.



(top l to r) EcoTeam student teachers Erin Hagarty, '10, Leslie Selgested, '08, Heather Aziz, '08; (bottom r to l) Aubrey DeLone, '09, Kevin Lane, '08, and ELC EcoTeam staff supervisor Stan Cross

*Dear Amelia,
I liked it when you told us about the French Broad River basin. And the water cycle. I didn't know I was part of a river basin.
Sincerely,
Orlando (third grader)*

When I go into a 3rd Grade classroom to teach, one that has already had EcoTeam lessons, it's amazing. Students have a common knowledge base for me to work from. They are able to connect what we are doing with what they did with EcoTeam. And many can relate it to what's really happening in the environment. It is a pleasure to tag-team with EcoTeam.

Laurie Brokaw
Buncombe County Soil
Conservationist/Education
Coordinator

Students Designate Dorm Theme Energy Conservation and Service

Sarah Murphy, WWC '10

Inspired by a desire to take action in our local community and work with a pilot program from Progress Energy, the girls of the Warren Wilson dormitory, Shepard House, are walking the talk about energy and environmental conservation. In choosing a theme for our House this year, we wanted to combine Warren Wilson's triad of academics, work and service with our deepening commitment to environmental conservation. We designed a service project that involves learning about energy efficiency and subsequently performing energy audits for low-income homes in our local community. Not everyone can afford to buy a more efficient heating system or to eat all organic foods, but with our project we hope to teach our neighbors the little things that they can do to curb energy consumption and live more eco-friendly lifestyles.

continued on pg 8

WWC Becomes Solar Power Provider

Elizabeth Crenshaw,
WWC '07

Shelley Eatherly, representative of the Charles and Betti Foundation, took a Green Walkabout© at Warren Wilson to learn about our environmental commitment. As a result she provided a very generous grant, on behalf of her Foundation, to be used for environmental outreach. Eatherly's vision is to expand environmental awareness and implement sustainable practices throughout the region. She worked with College staff and faculty to make an innovative decision: the funds would be used to invest in additional solar panels that generate revenue for new projects.

Jessica Wooten, Warren Wilson's Director of Recycling and Waste Management, explains, "We worked with Sundance Power Systems to upgrade old panels and add an additional 32 panels to fill out the array. This gives us a total of 104 130-watt panels with a projected maximum capacity of 9.464 kW and makes it the largest single solar array in WNC. The improved system is grid-tied, feeding our electricity directly onto the grid instead of into a battery system. This is much more efficient and allows us to sell the power we produce and do not use through NC GreenPower to generate revenue for new projects. The array has a Sunny WebBox Data Logger which will feed data from the solar panels directly to a website so that we can monitor its productivity. The Campus Greening Crew will work with Facilities Management and the Electric Crew to monitor the performance of the solar array."

Warren Wilson's 104 PV solar panels make it the largest single array in western North Carolina. To the best of our knowledge, Warren Wilson is the only college in the nation to produce grid-tied solar electricity. This initiative cuts our carbon emissions and serves as a model entrepreneurial alternative energy project in our mountain region.

Global Climate Change Expert to Speak at WWC

David Easterling, Ph.D., Chief of the Scientific Services Division at NOAA's National Climatic Data Center in Asheville, NC is a world-class expert on climate change. He will discuss the latest trends at Warren Wilson College, Tuesday, October 30th, at 4 pm, in Jensen Lecture Hall. This presentation is free and open to the public.

Easterling was a Contributing Author to the Intergovernmental Panel on Climate Change (IPCC) Second and Third Assessment Reports, a Lead Author for the IPCC Fourth Assessment Report and a Convening Lead Author for the US Climate Change Science Plan (CCSP) Synthesis and Assessment Product (SAP) 3.3 on Climate Extremes. Easterling also serves as science advisor to the Warren Wilson/City of Asheville climate change partnership. For more information about this presentation, contact Margo Flood at mflood@warren-wilson.edu or 828.771.2002.

WWC Faculty Monitoring Biodiversity in Panama

...notes from the field

David Abernathy, WWC Global Studies Chair



WWC professor David Abernathy and program assistant in Panama.

Towards the end of a nine-hour hike through the Panamanian rainforest, we were bombed by Capuchin monkeys. It seemed that the simians were not exactly elated to see three humans encroaching upon their habitat, so they began to snap off large tree branches and fling them towards the ground where we were standing. After watching this activity for a few moments, we navigated our way past the monkeys and returned to the main hut at Cocobolo Nature Reserve. This was only the most obvious display, among many others I witnessed, of defense against intruders in the rainforest. From the camouflage of butterfly larvae to the vicious bite of the bullet ant, the rainforest has many ways to thwart would-be attackers and protect its biodiversity. Yet one intrusion – deforestation – is slowly changing all of this, while also adding greenhouse gases to the atmosphere and restricting the livelihoods of nearby communities.

I was in Panama to begin a three-year grant project with Michael Roy of Conservation through Research, Education and Action (CREA) to map the land use and monitor the biodiversity of a 1000-acre nature reserve that will serve as a laboratory for sustainable farming alternatives to slash-and-burn agriculture. Using GIS data and wireless sensor networks, we hope to be able to track changes in the rainforest and aggregate data in both space and time in order to have a better understanding of the "biorhythms" of the various forest types in the reserve and to monitor the environmental impacts of various farming techniques. These data, in turn, will be made available to local communities, as well as students and researchers in both Panama and beyond, to aid us in our understanding of tropical rainforest biodiversity and its connection to sustainable development. We plan to involve WWC students in research projects connected to the grant, which is being funded by the Panamanian Secretaria Nacional de Ciencia, Tecnologia e Innovacion (SENACYT).

Contact David Abernathy at dabernathy@warren-wilson.edu for more information about this project and the global studies program at Warren Wilson.

Green Walkabout® Expands Influence

Stan Cross. ELC Education Director

ORR COTTAGE

Poetic, Practical, and Gold-Standard Green

The Orr Cottage, named for Doug Orr, President Emeritus of Warren Wilson College, and his wife, Darcy Orr, is one of the first buildings on a college or university campus to achieve LEED Gold Certification for new construction. Over 15 student crews did the work, making this the first completely "in house" building project at the College. The Orr Cottage, which uses 50% less energy than a conventional building of the same size, is a blend of the practical with the poetic. Constructed with stone from nearby mountains and wood siding and trim from the College forests, it exemplifies the natural-materials philosophy of the Arts and Crafts movement.



Facilities Management Crews at work include Building Services, Purchasing, Forestry, Campus Support, Carpentry, Plumbing, Electric, HVAC, Stone, Stoning, Landscaping, and Horticulture—the solution is built on learning.



All of the wood siding comes from Warren Wilson forests, sustainably harvested and milled by the Forestry Crew.



Large windows and savings glass panels allow natural light and create 90% of program space.

The Green Walkabout®

WARREN WILSON COLLEGE

Green Features

Outside

- Site is reused, with nothing built on adjacent green space equal to building's footprint
- Reclamation trench collects and filters stormwater
- Native and drought-resistant plants compose the landscaping
- Building envelope includes kyrene spray-foam insulation
- Large windows are low-e, argon-filled for low air-infiltration
- Exterior light fixtures reflect sunlight to interior walls
- Wood siding and timber columns are from the College forest; native stone is from regional sources
- About 90% of all construction waste (25+ tons) was diverted from the landfill

Inside

- Antique, recycled doors with glass panes bring daylight to interior spaces
- Lighting is energy-efficient compact fluorescent, with motion detectors in common-use areas
- Interior paints, clear-coats, glues, and carpeting are low-VOC
- Water use reduction exceeds the 1992 Energy Policy Act by 30%
- Geothermal closed-loop system heats/cools and is 70-80% more efficient than minimum code
- Wind power renewable energy credits offset 100% of energy usage
- Monitoring equipment controls are fully digital
- Recycled materials include 80 doors, desks, and other furniture
- Fire-resistant and rapidly renewable wheeled metal lockers, desks, and shelving
- Wastewater and trim are from the College forest; carpet tiles and hardware floor are from local sources
- Green Seal-approved cleaning supplies are used for housekeeping

Sample of Walkabout signage

This year marked a major evolution in the Environmental Leadership Center's Green Walkabout® program. In response to the great number of visitors to our campus who want to learn about our sustainable practices, permanent signage was installed at seven primary Walkabout sites. More than 600 visitors from across North Carolina, and from as far away as China and the Ukraine, joined us for guided tours. Some came for inspiration, others for specific instruction on green building practices, energy conservation, or organic methods of farming and gardening. Groups represented many sectors including higher education, medical, correctional, and conference centers, K-12 schools, and retirement communities.

Highland Farms took a tour with us. They are a retirement community in our own Swannanoa Valley and their Environment Committee seeks to make them "the most sustainable retirement community in western North Carolina." Several members of the Committee and Highland Farms Executive Director Ed Neeves joined us for a four-hour Walkabout. They looked at a variety of sustainable practices at Warren Wilson that could be replicated at Highland Farms. The following week, Neeves brought Highland Farms two landscaping supervisors to meet with the College's Landscape Supervisor Tom Lamaraglia and discuss how to implement a native grass and wildflower program at Highland Farms. According to Neeves, "Anyone interested not just in learning but in actually seeing what can be done in this field should visit Warren Wilson."

To schedule a Green Walkabout® or learn more about a self-guided tour contact Stan Cross at scross@warren-wilson.edu or 828.771.3006.

Experience a Green Walkabout® at WWC

Our mission to foster environmental responsibility is deeply rooted in our landscape. We have developed our Green Walkabout® in keeping with the Aboriginal walkabout tradition. To go on "walkabout" means to renew one's spiritual connectedness to the landscape and connect with the community, customs and language which sustain it.



Green Walkabout® group tours a WWC boophouse

We invite you to take a Green Walkabout® at Warren Wilson. Through this experience you will understand what it means to us to be in relationship with our landscape.

Whether you come to learn about energy conservation practices, sustainable agriculture, green building design, or how to work as a community of stewards, we hope you leave inspired.

Contact Stan Cross at scross@warren-wilson.edu or 828.771.3006 to schedule a Green Walkabout®.

Dorm Theme Energy Conservation and Service

continued from pg 7

We are excited about showing folks that Warren Wilson students care about both the environment and the well-being of our friends and neighbors. Along with recommending that people install energy saving devices such as low-flow shower heads and weather stripping for their doors and windows, we have information available about alternative cleaning products and which foods to buy organically.

Thanks to help from Progress Energy, Sustainable Asheville, Warren Wilson volunteer Win Southworth, our Director of Facilities Management and Technical Services Paul Braese and his staff, the College's Environmental Leadership Center and several others, we have already performed several successful energy audits in Swannanoa homes. If you or a friend would like to have us audit your home, or if you have any questions or comments, please contact Sarah Murphy at smurphy@warren-wilson.edu.

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