by Chris Ozyck and Shawn Walker

Saturday, October 16, was a landmark day for the community-managed open space movement in New Haven. On this beautiful autumn day, the Community Greenspace and Community Garden Convention was held at New Haven City Hall, attracting local community members of diverse backgrounds and interests. They gathered with one shared, pressing concern: How can we ensure the future of community-managed open spaces? Presentations at the convention impressed upon the community and city officials the value of greenspaces, while workshops gave participants the opportunity to express what they felt were the key benefits of such spaces. Their opinions will serve as the basis for a resolution that will lead to a city ordinance ensuring the protection of open spaces. The result was a successful and productive day of education and dialogue, a critical first step in a movement that could forever change the landscape of New Haven.

Creating the Convention

City agencies have the mandate to manage publicly-owned spaces; only sometimes do the voices and actions of community members inform upon these municipal efforts. Through the Community Greenspace program, the City of New Haven and its citizens, along with the Community Foundation for Greater New Haven and URI, have been partnering to affect change at the neighborhood level through the development of community-managed open spaces.
At URI, we strive to foster environmental stewardship by promoting citizen participation in a range of activities. In all instances, empowering citizens to participate builds both the capacity of individuals and communities to envision and create neighborhoods that thrive. Whether citizens are engaged in the identification of local environmental priorities, management of neighborhood landscapes, or advocacy for legislative protection of community-managed open space, these are opportunities for our citizens to lead. Citizen volunteers participating in the 10th year of our Community Greenspace program again planted and were stewards of parks, restored vacant lots, and renewed streetscapes. In our cover story, Greenspace Manager Chris Ozyck and intern Shawn Walker describe the work of Greenspace participants to protect their hard-won investment of recovering vacant lands by spearheading an Open Space Convention. The Convention gave both public officials and community members involved in the New Haven open spaces movement a deeper understanding of the multifaceted benefits that flow from community-managed open space. The knowledge exchange at this event enhanced civic capacity to gain future legal protection for these landscapes.

Summer intern Elaine Lewinnek writes of the personal factors that motivated some community members to participate in the New Haven Greenspace program. Through her work with various Greenspace groups, Elaine met one man from the Caribbean who joined because he was reminded of similar community activities back home. For another resident, planting trees was a way to make the neighborhood safe, to show others that they cared.

Sometimes, however, it is difficult to engage broader participation in greenspace activities. URI and our colleagues in the six-city Urban Ecology Collaborative (UEC) recognize that learning outreach techniques is an important part of fostering local environmental stewardship. URI student assistant, Anamaria Aristizabal, explains how the UEC held forums to encourage dialogue between participants to share successful outreach methods. These conversations serve as community-building processes that promote the capacity of individuals and communities to identify critical issues and build consensus on possible solutions.

The UEC’s work in this area addresses how more citizens can together combat the social and environmental injustices in their neighborhoods. This is an important facet of the focus at URI, which seeks to build the ability of citizens to transform problems into opportunities. Frequently, in New Haven and other older industrialized cities, the disproportionate burdens of disadvantaged communities are the result of vacant and abandoned land. Urban Issues editor, Linda Shi, describes in her article an environmental justice panel jointly hosted by URI and makes the case for empowering local leaders to address these concerns.

An important source of support and knowledge comes from the scientific arena, which is striving to deepen our understanding about how urban ecosystems function. In an interview with URI staffer Chris Marchand, Dr. Mary Cadenasso, the first Urban Ecologist-in-Residence at the Yale School of Forestry and Environmental Studies, speaks on the definition of urban ecology and how plant ecologists are exploring this formerly largely unstudied ecosystem. Closer interaction between scientists and community residents will engender greater exchange of knowledge and inform our on-the-ground management choices.

As our name implies, the foundation of much of this work lies in providing both technical and material resources to citizens who can then become empowered to be stewards of their environment. As my colleague at the Community Foundation for Greater New Haven, Ana Arroyo, once advised me, “We are not just growing trees, we are growing leaders.”

Colleen Murphy-Dunning
Coolemay: Caribbean Barn Raising in New Haven

John Joseph is an older man longing for the Caribbean island that he left twelve years ago. He immigrated to New Haven and settled near St. Raphael’s Hospital, where he plants his backyard so full of vegetables that he calls it a farm. He farms because it is cheaper than the supermarket and one of the only ways to get the Caribbean vegetables he misses. This summer, working for URI’s Community Greenspace Program, I got to bring John Joseph compost for his farm and some flowers for his front yard; mostly, I helped him and his neighbors care for the weedy, litter-filled areas around abandoned houses in their neighborhood.

John Joseph told us we were doing a coolemay. It’s a Creole word, he said, for a group of neighbors working together on some gardening project. I think a coolemay is something like a barn raising. Charles Nixon, Ella McMillian, Bill Bixby, and their neighbors embraced this word that John Joseph taught us while we worked together every Tuesday evening this summer. John Joseph declared that working with URI is the first coolemay he has experienced since he left Dominique.

The idea of coolemay makes me wonder why Americans stopped holding barn raisings or why we don’t even have a word for coolemay. We have heavy machinery. We can hire someone or some machine to do most of our work for us. That’s how the City of New Haven does when they hire contractors to plant trees, and their survival rate is just 60%. When URI plants trees, doing the work by hand with amateur volunteers, we have a 90% survival rate.

The difference, I believe, is that we have a coolemay. Once neighborhood people have done the work of planting, they are far more likely to provide the stewardship. Neighbors will water, prune and weed. Neighbors will warn the playing kids, the drunk drivers, the cowboy lawnowers and everybody else to be careful around a young tree. Neighbors will be there long after the city-hired contractors have gone. URI’s trees survive because they are planted by neighbors in a coolemay.

Working with URI was the first coolemay John Joseph has experienced since leaving Dominique.

But that is not the only reason that I think a coolemay is a great idea. URI’s community greenspace work is not only about planting trees and caring for them; it is also about building communities. When people gather to plant a tree, they get some exercise, they think about their environment and they talk together. This is all part of the purpose of URI and it is all part of a coolemay.

Neighbors talking together can be very powerful. At almost every community greenspace site, I heard some people meeting each other for the first time. I heard conversations about who just got robbed, who’s running wild and what the neighborhood hopes to do about it. While people plant a tree, they also talk together about where to buy groceries, what to do with a crying child, how to get their street better lit at night and how to improve police presence. Through community greening, URI helps neighbors make connections to city agencies and helps them see that they can make a difference.

Planting a tree requires faith and vision, it requires thinking years into the future and believing that you can improve your own neighborhood. The Greenspace program gives community members some control over their own environment.

Trees can make a difference. Rebecca Turcio told me that, after we planted the first tree in her neighborhood, not a single prostitute parked there all night. We had planted in a what was once a no-man’s-land, a space for drug-users and crime. Rebecca Turcio, Betty Thompson, Clara Lawhorn, Camille Ansley and their families worked together to clean this space, then plant a simple shadow tree and a few hosta plants. I had brought too much compost and not enough mulch that day, so we spread a

(continued on page 5)
issues surrounding environmental justice (EJ) most frequently concern instances of disproportionate harm being shouldered by disadvantaged communities. They can also be the denial of access to positive resources, such as greenspaces, trees and nature. Justice can be achieved as much be a removal of harms, as by the creation of greenspaces, especially through the participation and empowerment of communities themselves.

On October 19, the panel discussion “Environmental Justice and Urban Neighborhood Revitalization” featured four women who highlighted the experiences of the South Bronx, Hamden and New Haven in transforming their environmental injustices into positive actions that healed the natural landscape and integrated communities. The event was hosted by the Yale School of Forestry and Environmental Studies’ Environmental Justice Student Interest Group, the Yale Environmental Justice Coalition and URI. It was the third panel in the Fall 2004 EJ speaker series.

Community Empowerment

Colleen Murphy-Dunning, the Director of URI, began by presenting an overview of EJ and URI’s efforts to empower citizens. She emphasized the triple burdens of vacant lots and buildings. Contamination adversely affects health and lowers property value, while the visual message of abandonment can deeply affect a neighborhood’s psychology. Such problems, are “not unique to New Haven, which has 700 vacant lots. Other older industrialized cities also face this challenge: Chicago has over 50,000, and Baltimore over 30,000.”

For ten years, through the Community Greenspace Program, URI has engaged in partnerships to help citizens identify their priorities and craft their own solutions. Often, the scale of such parcels of land are considered too small by scientists and the government to address, but can be very important to residents. They will oftentimes take the initiative, for example, to plant in front of a foreclosed building site. Pointing to an empty lot with tall weeds and graffiti on a stone fence, she noted, “It doesn’t have to be like this.”

Greening for Breathing in the South Bronx

Highlighting the tie between the right to human health and a natural environment, Elena Conte spoke of Greening for Breathing, a community association dedicated to improving air quality through tree planting in Hunts Point, South Bronx. The neighborhood is 7% Latino and 30% African-American, and is one of the country’s poorest congressional districts. About 11,000 trucks roll through daily, as does 25% of New York City’s garbage. According to a Parks Department survey, there was less than one tree/acre in the area – as many as in the ghetto of Warsaw after WWII.

In 2000, a group of mothers formed Greening for Breathing (GfB). Working with the Parks Department; GfB recruited and trained members of the community in basic forest surveying skills. In 2002, they inventoried the area’s trees and found that over 66% were under six inches in diameter. In 2003, these volunteers found that the neighborhood had planting spaces for 1,000 more trees. Together, they developed a forestry plan to create a buffer around the community. Trees will be selected for their ability to absorb pollution and for diversity. The community’s high attendance in local nature and cultural festivals and their participation in GfB signal how much it values greenspaces.

From Toxic Waste Dump to Community Greenspace?

Elizabeth Hayes, head of Newhall Coalition, spoke inspiringly of Hamden citizens’ efforts to hold polluters responsible for the environmental and health damages from a landfill. While expanding a middle school, developers discovered severe lead and arsenic soil contamination. A alarmed that this might have spread into the rest of the predominantly African-American neighborhood, the community formed Newhall Coalition. Said Elizabeth, “We wanted to know – will we get justice? If this were in Greenwich, would we get the same justice?”

Soil studies revealed the presence of PCBs, VOCs, arsenic and lead. The DEP determined Olin Corporation, State Board of Education, Regional Water Authority and Town of Hamden to be the potentially responsible parties (PRPs). After a lawsuit, these groups agreed to clean up four areas of the neighborhood. However, this was limited more by geography than chemistry and the planned dumpsite was set behind the middle school.

At every step, the Coalition has had to push for a voice in the decision-
Pointing to a slide of a wintry, littered vacant lot, she said, “This is very hard to look at. Those houses [around it] are crack houses and people don’t dare go in there. Yet, we had to go in there and clean it. There were needles, mice, rats, and bugs.” Speaking metaphorically and literally, she noted that it was an issue of “infection and disease” that can be prevented, because “greenspace is not just about the space itself, but [also] about the community and the street.”

**The Parks Department told us, ‘People from your community don’t take care of their trees. We won’t plant there.’ Rather than look for better technology, they blamed us.”**

**Neighborhood Greenspace**

Evelyn Rodriguez is a resident of New Haven’s Hill neighborhood and an officer of the Arch Street Block-watch. Participants of the Community Greenspace Program since 1995, Evelyn and her neighbors have reclaimed three vacant lots and transformed them into gathering places and sources of pride. Stressing community dynamics, Evelyn spoke of the need to strategically have both “lots of people and utilize their energy” and to “appreciate anyone who does anything to contribute to this initiative. We believe in Thank You’s.”

**Moving Mountains by Planting Trees**

When asked about their relations with the municipal government, Elena remembered the Parks Department’s attitude. “‘People from your community don’t take care of their trees. We won’t plant there.’ Rather than look for better technology, they blamed us.” Elizabeth added that Hamden’s mayor first refused to recognize the contamination fearing falling property prices, though he declined to have his children play in their neighborhood.

Whether through market forces, active imposition or irresponsibility by businesses and governments, poor communities frequently lack safe and clean living conditions. They are disadvantaged through less access to information, prejudice and the dislike that all people share for problem situations like contaminated sites.

The efforts championed by these women demonstrate the immense hurdles that such communities must overcome to achieve the standard of living that is the commonplace in wealthier neighborhoods. It is the particular characteristic of greenspaces that the act of planting trees has an incredible ability to revitalize declining areas and integrate communities.

Linda Shi is a candidate for the Master’s of Environmental Management at the Yale School of Forestry and Environmental Studies. She edits the URI Newsletter.

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**Coolemey: Caribbean Barn Raising ...**

(continued from page 3)

... a lot of compost around. Maybe it was the compost that kept the prostitutes away, but I think it was really the visual evidence that someone was caring for this land. That was Rebecca’s goal for the summer, she declared. She wanted something that would say, “We live here and we care.” Trees do that. More than any metal sign announcing “Drive slow” and “Block watch active”, trees, hostas and the visual evidence of a coolemey all signal that this space belongs to a community of people who care.

I felt incredibly lucky to have been able to support coolemays all around New Haven this summer. I worked with 115 different people at seven different Greenspace sites, meeting with each almost every week. Together, we planted 19 trees, 62 shrubs and 359 perennials. We spread 39 cubic yards of mulch, ten cubic yards of compost, and five cubic yards of gravel. We lost count of how many bags of garbage and weeds we carried out. We built two stone benches and used two gallons of paint. We worked in vacant lots, parks and curbsides. Most importantly, we worked together to make seven neighborhoods safer. My groups represent only seven of the sixty active greenspace groups. URI’s greenspace program supports hundreds of people all over New Haven who gather together throughout the summer, greening public spaces and strengthening communities in a variety of different coolemays.

Neighborhood kids help splash mulch onto a newly planted tree on Cedar Hill, smiling and laughing in spite of the rain.

Elaine Lewinnek is a doctoral candidate in American Studies at Yale University. She worked as a community forester for URI in the summer of 2004.

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Josh Schacter / URI
The committee set the convention’s primary goal as the drafting of a resolution that would lead to an ordinance that would allow the city to permanently protect some of the community-managed land. The advisory committee met with the mayor prior to the convention and reached out to various alderpeople, elected officials, community groups and other potential participants. Their efforts led to over 125 people attending the convention in the end.

Convening the Community

After opening remarks by William Ginsberg (President and CEO of CFGNH), Steven Frillman of Green Guerrillas in New York City set the tone by sharing the story of his organization’s struggle. In 1999, they worked to prevent 115 community gardens from being auctioned off by the City of New York for development and an increased taxroll. He complimented the New Haven community on “gathering to move the community garden movement forward in New Haven” and for choosing a process that demonstrates a long-term vision for the future of the city. Regarding the movement, he commented, “It’s going to last because of you, because of the gardeners, because of the kind of people you are and the energy you put into it.”

Participants then proceeded to attend two of four workshops that served as information sessions on the benefits of community-managed spaces. Topics included health benefits (conducted by Erika Svendsen of the U.S. Forest Service), social benefits (led by H. Patricia Hynes, director of the Urban Environmental Health Initiative and a professor at Boston University School of Public Health), economic benefits (led by Tim Northrop of the Trust for Public Land) and green infrastructure (given by Matt Arnn of the U.S. Forest Service). These sessions helped clarify the tremendous value and necessity of community involvement in open spaces.

To further inform the participants, the City Plan Department developed several maps that helped illuminate the need for more open spaces in certain communities. The most informative of these was the Green Map, which documents the location of New Haven's greenspace groups lobbied the board of URI to help permanently protect their spaces. Eventually, a partnership consisting of staff from the Community Foundation for a Greater New Haven (CFGNH), the City, the New Haven Land Trust and URI discussed these mounting concerns. They decided to broaden the conversation and tackle the issues head on through a convention that would enlist broad political support for community-managed open spaces. The CFGNH, a partner and primary funder in the Community Greenspace and Gardening Program, provided funding for the preparation and execution of the Community Greenspace and Community Garden Convention.

The convention advisory committee comprised fifteen current and former Community Gardening and Greenspace member groups. Over the course of a year, the committee met monthly, sometimes weekly, to develop a vision for the convention, a list of speakers and a strategy to execute the vision. Various interns aided the effort by researching and developing materials like maps and position papers.

Realizing the dangers this instability posed, members of New Haven’s greenspace groups lobbied the board of URI to help permanently protect their spaces. Eventually, a partnership consisting of staff from the Community Foundation for a Greater New Haven (CFGNH), the City, the New Haven Land Trust and URI discussed these mounting concerns. They decided to broaden the conversation and tackle the issues head on through a convention that would enlist broad political support for community-managed open spaces. The CFGNH, a partner and primary funder in the Community Greenspace and Gardening Program, provided funding for the preparation and execution of the Community Greenspace and Community Garden Convention.

Erika Svendsen of the U.S. Forest Service spoke on the health benefits of greenspaces at one of the workshop sessions.

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Haven’s environmental resources. Others illustrate a sub-theme of the convention – the need for the equitable distribution of open spaces. These maps indicate that most parks and long-existing open spaces are on the periphery of the city and are adjacent to wealthier residents. Newly developing community gardens and greenspaces are located on city property in lower-income neighborhoods and provide many direly needed services and benefits.

By crystallizing both the tangible and intangible concepts regarding the benefits of community-managed spaces, these sessions formed the foundation for the next step of the convention – developing ideas for the resolution.

**Designing the Resolution**

Following the workshops, participants gathered in four breakout rooms to list what they valued most about community-managed spaces. Each group expressed about 25 to 40 opinions, which were then posted in the convention dining area during lunch for all participants to review and select. The voting process allowed each participant to cast five ballots for the top benefits they thought should be included in the language of the resolution. Opinions ranged from improved social interaction and civic engagement to direct health and safety benefits. Among the most popular choices were: open spaces encourage interaction between different age or ethnic groups; open spaces play a valuable role in the education of children; and permanent protection of open spaces is of the utmost importance.

Mayor John DeStefano spoke at lunch and complimented the participants on their efforts to protect community-managed spaces. He concluded his remarks with, “Taking the extra step is a great idea and I have no doubt that something effective will be created here that will be effective many years down the road.” After the ballots were cast, Al Lucas from Legislative Services outlined the process for creating a draft resolution before the Board of Alderman, which will likely give the stamp of approval in early 2005. The resolution will include criteria for site selection, boosting community participation in environmental improvements and long-term stewardship.

Steven Frillmann wrapped up the convention and expressed his admiration for the concerted effort of the convention to revive and reclaim existing, forgotten spaces. While the movement itself will only demonstrate true success when community spaces gain the promised protection, the convention focused community energy and engaged public interest, paving the way to a resolution that will ensure the permanence of greenspaces around the city.

For more information on the resolution, a copy of the position paper on the benefits of greenspaces, or a copy of the Green Map, please call Chris Ozyck at (203) 432-6189.

Chris Ozyck is the Community Greenspace Program Manager at URI. Shawn Walker is a Master of Forestry candidate at the Yale School of Forestry and Environmental Studies.
Rethinking Outreach: the Grassroots Forum on the Urban Environment

by Anamaria Aristizabal

Meaningful inclusion of diverse communities is one of the greatest challenges facing urban community forestry today. To this end, the Urban Ecology Collaborative (UEC), a six-city initiative that aims to create healthy urban ecosystems in urban communities, formed MERGE, which stands for “Methods for Engaging Residents and Grassroots in the Environment”. The project taps into the power of citizens themselves to engage more people in environmental projects such as enhancing vacant lots, planting trees and creating greenways. In particular, it addresses how to raise the involvement of citizens by connecting urban forestry activities with the critical issues inner city residents identify as priorities.

Engaging more people in urban ecology initiatives better assures the sustainability of projects. There are cycles of involvement in community-based management of open space. Over time, residents move, have children, fall ill or shift their priorities for a number of reasons. Without ongoing recruitment and a wide base of people invested in long-term stewardship, green space projects would likely decline with time. Furthermore, involving more people increases a group’s diversity of ideas and interests, and thus results in projects that are more responsive to a community’s needs. Through MERGE, the UEC partners aim to increase the capacity of grassroots leaders to engage their neighbors more effectively in community initiatives.

Last May, URI hosted the New Haven “Grassroots Forum on the Urban Environment”. In preparing for the event, URI interns surveyed residents in local laundromats for their opinions on a range of local environmental conditions and social issues. With this background and the experiences of participants, the forum became a powerful introspection, brainstorming and networking session, leading to important outreach lessons on how to engage a wider constituency for neighborhood initiatives.

Keynote speaker Charles Jodan urged Forum participants to reflect on why each of them had chosen to become active in greenspace initiatives.

Phase 1: The Interviews

One strategy to increase participation is to tie urban ecology and restoration activities to the other pressing concerns for urban citizens such as crime, unemployment and asthma. As Marijke Hecht, UEC member from Pittsburgh noted, “It is important to learn what communities are interested in, so that we can work together.” She added, “We might be interested in the same things, but the language is different: while someone says ‘my street is dirty’ for us this could mean this street has environmental problems.”

URI interns conducted sixty interviews in two New Haven laundromats to determine the critical issues inner city residents identify as priorities regarding the Elm City.

Respondents thought New Haven’s major problems were unemployment, safety and the availability as well as quality of parks and open spaces. With regards to safety, people felt that there was a “lack of policing”, vigilance and citizen response. They were worried about violence, shootings and “people who ‘act up’ in nice weather”, yet feared that the police could not be trusted and would exercise brutality and harassment. People

The Urban Ecology Collaborative (UEC) brings together six organizations and their respective cities to work on improving their urban environment: Urban Resources Initiative (New Haven), Parks and People Foundation (Baltimore), Urban Ecology Institute (Boston), the New York Tree Trust (New York City), Casey Trees Endowment Fund (Washington, DC) and the Nine Mile Run Watershed Association (Pittsburgh). As the practice of urban ecology is so new, members of the UEC aim to exchange information and share practices through working groups on leadership development, restoration tools, and multi-city research.
chose education and drug and crime prevention as priorities, and wanted activities to be created for children and youth to engage their interest in healthy ways. Of the environmental concerns, residents cited noise pollution, garbage collection, litter in parks and neighborhoods and a need with his wit and poignant remarks and set the stage for a sincere and personal dialogue. He spoke of the “I Illusion of Inclusion” and reminded attendees of how far we are from creating truly integrated communities. Charles then encouraged participants to think about what first moved them to work

“It is important to learn what communities are interested in, so that we can work together. We might be interested in the same things, but the language is different.”

- Marijke Hecht, Pittsburgh UEC member

for pruning. Respondents also thought that it was critical to work on building trust and a sense of community between neighbors, especially by creating more opportunities to meet each other and work together.

In the group sharing that followed, people described that they were motivated by events at which they have a good time, and include food, games and other creative activities. Some participants were prompt- ly, one-on-one. They stressed the importance of involving a wide spectrum of actors in projects, including the police, churches, associations, local businesses, city government and landlords. Participants also concurred on the importance of linking urban restoration activities to people’s general concerns about the city. They found the results of the interviews useful, especially in guiding the language to be used in outreach materials. Lastly, attendees agreed that recognition and reinforcement of participants can boost their morale and increase the chances of future participation.

**PERSPECTIVES**

Almost all evaluations found the event to be well designed and effective in identifying outreach mechanisms. Easter Howard, a participant of URI’s Community Greenspace Program, said the event was a “good learning opportunity.” What stood out most for Easter was the realization that you “really have to know your neighbors to get them involved.” In addition, every time she walks to the store now, she takes time to talk to people, “because by talking up your neighbors, you start preparing for the project.”

Kris Sansbury, another Greenspace participant, said that at the New Haven Forum, people shared a desire to learn and “there was a good feeling.” This forum reinforced something she has learned through her work - the idea that planting and eating together dissolves differences between people. “There are basic things everybody likes and feels good about.”

These reactions point to the event’s success. The dialogue between the active community members who attended the event resulted in a group of citizens who are inspired to be more inclusive, and to involve others to achieve not only their personal goals, but the broader goals of the community.

Anamaria Aristizabal is a first-year Master of Environmental Management candidate at the Yale School of Forestry and Environmental Studies. She is a student assistant at URI.
Interview with Dr. Mary Cadenasso
Urban Ecologist-in-Residence

by Chris Marchand

This year, the Hixon Center that houses URI hired its first Urban Ecologist-in-Residence, Dr. Mary Cadenasso. Dr. Cadenasso came to Yale from the Institute of Ecosystem Studies, in Millbrook, New York. A plant and landscape ecologist, she researches the functional role of spatial heterogeneity and links between ecosystem structure and function. She pursues these interests in a variety of habitats, including northeastern forests, arid savannas and cities. Dr. Cadenasso is one of the Principal Investigators on the Baltimore Ecosystem Study, which is funded by the National Science Foundation and is one of only two ‘Long-Term Ecological Research’ sites that are urban.

The field of urban ecology is still emerging. As it is still a new type of ecosystem for scientists to study - how do you define urban ecology?

I emphasize the word “ecology” and think of urban ecology as developing and testing ecological theories and concepts in an urban context. The science of ecology focuses on processes that influence the distribution and abundance of organisms, the interactions among organisms and the interactions between organisms and the transformation and flux of matter and energy. Urban ecology realizes this within an urban context, where people are living. People are not external to the system. They are not disturbing it or influencing from the outside, but rather, are an integral part of the system as an organism. Putting ecological theories and concepts into urban arenas requires synthesizing understanding of the ecological system with the human social system and its resources to eventually develop a shared understanding of the metropolis as an ecosystem.

With their dense human populations, cities are perhaps the most complex type of ecosystem, which is why so many different scientific disciplines work together on the Baltimore Ecosystem Study (BES). As a plant ecologist, what is the focus of your research in an urban ecosystem?

I have several research interests within the BES. First, I have established and am maintaining a series of permanent plots in forests to monitor, over the long term, change in the vegetation. This addresses questions such as: 1) how does the composition and structure of the forest vary along a gradient of urbanization from the city center out into surrounding suburban and remnant agricultural lands? And 2) how will the composition of the forest change when the canopy trees, which were established before the park was set aside, die?

Exotic species are a prevalent component in urban plant communities. I am working towards understanding their role in the ecosystem. Urban areas are unique physical, biological and chemical habitats. What service do the exotic species provide? If they are removed, what legacy do they leave behind and how long does that legacy persist?

These two examples focus on ecology in the city. My primary focus, however, has been on ecology of the city. As an ecologist, all of my research, whether or not it is conducted in a city, focuses on the role of spatial heterogeneity and its influence on ecosystem function. What is heterogeneity in a city? How can we define and characterize it?

Typically, ecologists use land cover or land use as a measure of heterogeneity. I have argued that these available classifications are based on industry standards and are inappropriate for urban ecosystems. They were built with a concern for resources and are structured to keep built and non-built components separate. They were also not constructed at the appropriate spatial or categorical resolution to capture the heterogeneity observed in urban ecosystems.

I have been developing a new classification that characterizes land cover using elements in the system hypothesized to influence ecosystem function. These elements include buildings, their densities, the associated vegetation and whether it is grass or trees and shrubs, and the presence of impervious surfaces. The proportion and arrangements of these elements should influence things like water quality, runoff amounts and locations, biodiversity, energy use, air quality, ability to sequester carbon. This new scheme merges the built and the biophysical components of the system into single classes.

How might your land cover classification system be applied in urban planning decisions?
I think the classification emphasizes the associations between built and non-built portions of the environment. It also recognizes the connectivity of the landscape and how land cover on one patch of ground may influence adjacent patches of ground. I contribute to an urban design studio course at Columbia University where we encourage the students to think about connections between their designs and the surrounding landscape. We also encourage them to think about the dialog between non-built elements and processes and the built environment. This approach expands the toolbox of the materials available to the designer.

Most ecosystem research focuses on systems, like your work in riparian corridor function in Kruger National Park (KNP), South Africa. What are the similarities and differences to research work in urban ecosystems?

There are lots of similarities because I’m an ecologist no matter what context I am working in. Ecology is the consistent lens through which I am engaging with the system. In both of my research projects, BES and KNP, I focus on landscape pattern and ecosystem process. The elements that make up the patterns in each landscape may very tremendously. For example, in KNP, I am investigating the role of riparian areas and am focusing on the pattern of vegetation structure and composition. In Baltimore, the pattern of built elements and vegetation is the concern. In both systems, I am focusing on the movement of nutrients in the landscape how the pattern influences that movement. In South Africa the nutrients are carried by animals traveling through the riparian areas, by water moving down the rivers, and air moving across the landscape. In Baltimore those nutrients may also be carried by air, water, and organisms but the specific mechanisms will be different. It may be pollution from car exhaust in the air, water traveling through pipes, and humans adding fertilizer, for example.

On of the big differences is the collaborations. I work with other ecologists and KNP managers in South Africa. At BES, I collaborate extensively with social scientists, hydrologists, and urban designers, as well as other ecologists. The collaboration is more than simply working on the same patch of ground. Rather, we work together to formulate shared hypotheses and frameworks that span the disciplinary realms.

Chris Marchand is the Grant Administrator for the Living Memorials Project at URI.

Learning in Open Spaces

As part of URI’s 10-week environmental education program, Open Spaces as Learning Places, East Rock Magnet School students went canoeing (with the help of New Haven Park Rangers) on the Mill River. Students spent the day learning about the Mill River Watershed and the importance of open spaces. URI Environmental Educator Mary Alice Lamb and Teaching Intern Laura Wooley worked with four East Rock fifth grade classes this fall, reaching 100 students. Students also took trips to URI Greenspaces sites, East Rock Park, Lake Wintergreen and the Grove Street Cemetery.