ECOLOGICAL DESIGN IN THE SOUTHEAST

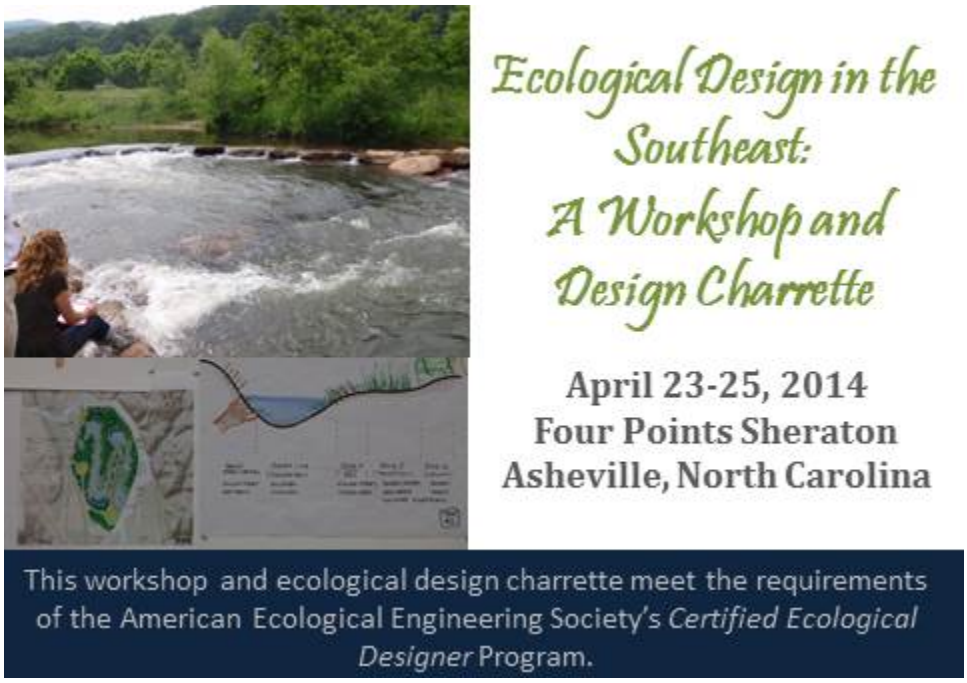
A Workshop and Design Charrette

April 23-25, 2014

Four Points Sheraton

Asheville, North Carolina

Come and work with landscape architects, planners, and other designers, engineers, ecologists and other scientists, and local stakeholders in a fun, interactive, productive opportunity to practice collaborative, multidisciplinary ecological design.



Background

The best ecological designs are usually the product of collaborative, multidisciplinary teams. Engineers, landscape architects, other designers and planners, ecologists, and other scientists each make important contributions, but draw on different perspectives, speak different languages, and evaluate success by different criteria.

Participants in this workshop and charrette will explore these differing perspectives through presentations, discussion, and practice. How can we all work better together to build more successful projects?

Following presentations and discussion on Day 1, participants will put their talents and perspectives into action on Days 2 and 3 in an ecological design charrette. Day 2 begins with a field trip to project locations. Following the field trip participants will break into small design teams and begin work on their plans. On Day 3 the project teams will reconvene to complete and present their work to each other and local stakeholders.

Eco-Sustainable Development in a Sensitive Appalachian Watershed: The French Broad Riverfront Redevelopment Project

The charrette project site is approximately 10 acres of former industrial land in the heart of Asheville. The French Broad Riverfront Redevelopment project site is owned by the City of Asheville with a vision of mixed recreation, residential, commercial, and transportation use for the area. The site is a crucial node in local redevelopment plans--a link in greenway and alternative transportation routes, adjacent to the City's River Arts District, and to future brewery development. Multifaceted designs for the site may include streambank restoration, riparian habitat creation, stormwater treatment, innovative transportation linkages, public recreation opportunities, and the integration of arts and education.

Design concepts for sites like this--mixed-use redevelopment with an emphasis on connecting people to places and the natural environment--is a concept that can be applied to many growing cities in the southeast and across the country. As population patterns shift due to changes in climate and economic stability, the Appalachian region continues to attract new residents. Increasing population requires new residential development in topographically-challenging terrain. In particular, how can the region's superb water quality be preserved as population and development increase? This year’s design charrette addresses a particular Asheville site, but the solutions will be broadly applicable across the region.

Agenda

Day 1--Wednesday April 23, 2014

7:30-8:00	Coffee, Juice, Pastries
Session 1:	***Ecological Design Perspectives and Practices***
8:00-8:15	Welcome & Introduction Workshop, **Patterson**
8:15-9:00	Engineering Design: Process, Predilections, & Priorities, **Jennings**
9:00-9:45	Landscape Architectural Design: Process, Predilections, and Priorities, **Calabria**
9:45-10:00	Break
10:00-10:45	Ecological Patterns, Processes, & Priorities, **Patterson**
Session 2:	***Ecological Design Tools & Tools of Thought***
10:45-11:30	Riparian Botanical Considerations in Design, **Hall**
11:30-12:30	*Lunch (Provided)*
12:30-1:15	Applications of Systems Ecology Concepts to Site Design, **Blersch**
1:15-2:00	Designing with People in Mind, **Calabria**
Session 3:	***Ecological Design Case Studies & Best Practices***
2:00-2:45	Managing Runoff in Developing Watersheds, **Ludwig**
2:45-3:00	Break
3:00-3:45	Floodplains & Stormwater Wetlands, **Hitchcock**
3:45-4:30	Stream Ecosystem Restoration: Targeting Resource Needs and Constraints, **Jennings**
4:30-5:00	Introduction to the Charrette Design Project, **Zink**
6:00	Group Dinner at a local restaurant for those who are interested

Day 2--Thursday April 24, 2014

French Broad Riverfront Redevelopment

Ecological Design Charrette

7:30-8:00	Coffee, Juice, Pastries
	Opportunities and Constraints
8:00-8:25	French Broad River Watershed Overview, **Carson**
8:25-8:45	Landscape Performance Metrics, **Calabria**
9:00	Vans Leave for Field Tour
	Stop 1: Arboretum, Stormwater Control Measures, **Calabria**
	Stop 2: Carrier Park, **Calabria**
	Stop 3: Project Site, River Arts District, **Zink**
12:00-12:45	*Lunch, at the Project Site (box lunch provided)*
1:30	Vans Return to Workshop Hotel
2:00--5:00	Break into design teams and begin work
6:00	Group Dinner at a local restaurant for those who are interested

Day 3--Friday April 25, 2014

French Broad Riverfront Redevelopment
Ecological Design Charrette

7:30-8:00	Coffee, Juice, Pastries
8:00-12:00	Resume design work; complete designs
12:00-1:00	*Lunch (Provided)*
1:00-4:00 pm	Design Team Presentations & Discussion
4:00	Workshop Adjourns

WORKSHOP SPEAKER BIOGRAPHIES

David M. Blersch, PhD

Dr. David Blersch is Assistant Professor of Ecological Engineering in the Biosystems Engineering Department at Auburn University. Dr. Blersch has research interests in ecological engineering for aquatic ecosystem restoration; algae cultivation for pollutant recovery and biomass production; self-organizational processes in engineered ecosystems; and ecological systems modeling. David comes to Auburn from a faculty position in the Civil, Structural, and Environmental Engineering Department at the State University of New York in Buffalo, where he did research and teaching on sustainable phytoremediation technologies for water quality restoration in the lower Great Lakes watersheds. Dr. Blersch holds a B.Sc. in Civil Engineering from the University of Notre Dame, and a M.Sc. and a Ph.D. in Biological Resources Engineering from the University of Maryland, College Park. In addition, Dr. Blersch has worked as an engineering consultant in marine oil pollution response engineering and compliance in Washington, D.C., and as an ecological design consultant for sustainability projects in the U.S. and Europe. Dr. Blersch has been an active contributing member of the American Ecological Engineering Society (AEES) since its inception in 2000, and is active through memberships in the American Society of Agricultural and Biological Engineers (ASABE) and the America Society of Civil Engineering (ASCE).

Jon Calabria, Ph.D., ASLA

Dr. Jon Calabria, holds degrees from Clemson and University of Georgia where he has returned to teach landscape architecture at the College of Environment and Design. He relies on service-learning approaches to educate students and stakeholders about

sustainability and restoration opportunities that improve environmental quality. Prior to teaching at UGA, he was the French Broad River Watershed Training Center Coordinator in Western North Carolina. He managed full delivery, water quality based education and demonstration projects for the Biological and Agricultural Engineering Department at North Carolina State University. He educates others about improving water quality and habitat potential within the human context. Low Impact Development techniques and practices underpin Jon's work in surface water systems, conservation master planning and greenway design -- all which allow him to play in the mud with big yellow construction toys!

Hartwell Carson

Hartwell Carson has worked to protect and defend the French Broad River as the Riverkeeper for the last six years. He has played a key role in reducing sediment pollution, starting and expanding bacteria, sediment, and coal ash monitoring programs, implementing over two miles of stream restoration, and ensuring regulations are adequate and enforced to meet the goals of the Clean Water Act to have all waters be fishable and swimmable. He completed his undergraduate work at the University of Georgia studying Recreation and Resource Management. While a student there, he worked with the Outdoor Recreation Center as an environmental educator and guide. After working for the Forest Service in Colorado, Hartwell earned his Master's of Science from the University of Montana, where he conducted extensive work examining social and ecological impacts on the Upper Missouri River Breaks National Monument. Hartwell has also served as a community advocate on the City of Asheville's Flood Damage Reduction Task Force and Watershed Policy Committee, and currently serves as the president of Tennessee Riverkeeper, board member of the Asheville Affiliates and North Carolina Paddle Trails Association.

Karen Hall, PhD

Karen Hall is an Extension Assistant Professor in the Department of Biological and Agricultural Engineering at North Carolina State University. Dr. Hall has been with NCSU since 2000 and specializes in riparian plant ecology in stream and wetland restoration projects as well as riparian vegetation restoration and management. Her current research interests are in invasive plant management in riparian areas and vegetation's role in water quality and watershed management.

Daniel Hitchcock, PhD, PE

Dr. Dan Hitchcock is an Associate Professor in the School of Agriculture, Forest, and Environmental Sciences at Clemson University, stationed at the Baruch Institute of Coastal Ecology and Forest Science located in Georgetown, SC. His areas of expertise include forest and urban hydrology, natural treatment systems, low impact development, and ecological engineering. He is a registered professional civil engineer in South Carolina. He received both his Ph.D. in Biological and Agricultural Engineering and M.S. in Environmental Health from the University of Georgia and his B.S. in Zoology

from the University of Tennessee. Dan very much enjoys paddling and exploring the waters of coastal South Carolina and beyond!

Greg Jennings, PhD, PE

Dr. Jennings is a Senior Water Resources Engineer with Stantec Consulting. He has over 25 years of experience in water resources engineering, ecosystem restoration, and watershed management. He holds B.S. and M.S. degrees in engineering from The Pennsylvania State University and a Ph.D. in engineering from the University of Nebraska. Dr. Jennings was a Professor of Biological and Agricultural Engineering at North Carolina State University from 1990 to 2013, where he taught courses and workshops on watershed hydrology, stream assessment and restoration, ecological engineering, erosion and sedimentation control, and stormwater management. Since 2013, he has worked as a Senior Water Resource Engineer at Stantec Consulting, providing expertise on planning, design, and implementation of ecosystem restoration projects throughout the USA and Canada. Dr. Jennings has taught over 200 professional development workshops in 25 states and abroad on stream assessment, ecosystem restoration planning, natural channel design, watershed management, construction practices for stream restoration, restoration monitoring, and watershed management.

Andrea Ludwig, PhD

Dr. Andrea Ludwig is an Assistant Professor of Biosystems Engineering at The University of Tennessee. She is the state Stormwater Specialist for UT Extension and specializes in constructed wetlands and urban stormwater management. Her program focuses on progressing the use of ecological engineered applications to minimize nonpoint source pollution in watershed management and restoration projects. She received a Bachelors of Science from the University of Arkansas in Biological Engineering (emphasis on Ecological Engineering) as well as a Masters of Science in Environmental Engineering. She holds a PhD in Biological Systems Engineering from Virginia Tech, where her research investigated the hydrology and nutrient attenuation capacity of constructed floodplain wetlands for stormwater treatment. She has been at UT since 2010, providing resources through UT Extension to water quality professionals around the state.

Steven Patterson, PhD

Steve Patterson is a restoration ecologist. His company, Bio x Design, specializes in ecological restoration and ecosystem design. Dr. Patterson received his Ph.D. in Geography (Biogeography) from UCLA. He has over 30 years of experience developing restoration plans, conducting biological assessments, and monitoring a wide range of ecosystem types at locations across the United States and in the People's Republic of China. He has developed restoration plans for, served as project manager of, conducted technical review of, or provided technical input to over 200 environmental consulting projects. Dr. Patterson has a special interest in the integration of ecology and design, and has organized ecological restoration and design workshops and charrettes in a

variety of venues. Steve is a Certified Ecological Designer by the American Ecological Engineering Society.

Jason Zink, PhD, PE

A professional engineer with 10+ years of experience, Jason Zink specializes in assessment, engineering design, and monitoring of ecological restoration projects, including stream restoration and innovative stormwater management. He has previously worked as an educator and researcher at North Carolina State University, and is now the Principal at Zink Environmental, PLLC. Dr. Zink has earned Ph.D., MBAE, and M.S. degrees in engineering at North Carolina State University, and a B.A. in Mathematics at the University of North Carolina at Asheville.

Workshop Sponsors:

UNIVERSITY OF TENNESSEE AND THE TENNESSEE WATER RESOURCES RESEARCH CENTER

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