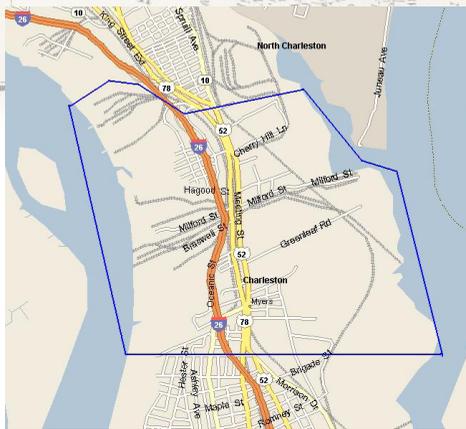


A Case for the Generous Support of Clemson University's Research Center of Economic Excellence in Urban Ecology and Restoration Development





Accommodating growth while preserving and conserving cultural, historical and natural resources is vitally important to local communities and to the continued economic health

“Clemson has the expertise to provide real-world solutions that will strengthen our existing urban infrastructure while ensuring productive and sustainable futures for communities in South Carolina and throughout the world. Clemson is uniquely positioned to conduct interdisciplinary research in sustainable community planning, building design and construction, and agriculture for the protection against natural disasters. Ultimately, we seek to find innovative ways to sustain a balance among constructed and natural environments while using less nonrenewable resources for a longer lasting and more healthful future.”

*Janice Cervelli Schach, FASLA
Dean, College of Architecture, Arts and Humanities
Director, Clemson University Restoration Institute*

and growth of the entire state.

South Carolina – with its mild Sunbelt climate, vibrant cities and friendly small towns, distinctive historic and cultural destinations, and statewide natural beauty – has become a magnet for population growth. The state will gain more than a million new residents during the next decade, many as a result of the area’s booming economic and industrial development. Others will visit as tourists and decide to stay, while some will choose to make their retirement homes here.

From its world-famous coastline and beaches to its scenic mountains, South Carolina offers an outstanding quality of life for citizens of all ages and occupations. Families, retirees and high-wage businesses are attracted to communities with clean air and water, historical and cultural character, accessible parks and green spaces, and sound educational opportunities.

From the outside looking in, South Carolina is the ideal place to live, work and play.



Thirty million people visit South Carolina's recreation and tourism destinations each year. What's more, it ranks among the top seven retirement locations in the nation, with the second fastest growing retirement population in the South.



Can South Carolina sustain its economic and population growth without sacrificing its livability?

While rapid growth fuels an already strong and diverse economy, South Carolina's increasing urbanization – the low-density, large land-area development known as sprawl – threatens to undermine the very qualities that now make it attractive.

Though it is a relatively small state, South Carolina ranks fourth in the nation in the number of acres developed per person. In the Upstate, the Greenville-Spartanburg area is now the country's fifth most sprawling metropolitan region.

The most significant urban growth, however, is occurring along the coast. Horry County, home of Myrtle Beach, is currently the third fastest growing county in the United States, while the Charleston metro area is expected to more than double in size over the next 15 years.

This advancing sprawl threatens inland farms and forests as well as coastal wetlands, tidal creeks, watersheds and other natural life-support systems.

To protect and restore these precious natural resources, to achieve our goal of becoming a top-20 public research university, and to continue to fulfill our historic land-grant mission, the Clemson University Restoration Institute is leading the way to a future where environmentally sensitive development and redevelopment practices support – and even enhance – the state's economic and population growth.

Letting Nature Work Its Course

To promote collaboration among ecologists, engineers, industry professionals, and governmental and regulatory agencies, Clemson University sponsored a hands-on workshop on stream restoration at Simpson Farm on the University campus.

This field project demonstrated the effectiveness of using natural channel design — putting the flood plain back into the stream — to reduce erosion, prevent flooding and improve water quality. From initial assessment through design, permitting, construction, planting and long-term monitoring, participants gained a practical understanding of the protective role played by stream ecosystems, often at a much lower cost than traditional engineering-oriented solutions.

Innovative techniques from research projects such as these will prove valuable in rebuilding flood-ravaged areas along the Gulf Coast and in Asia, as well as preventing future devastation.

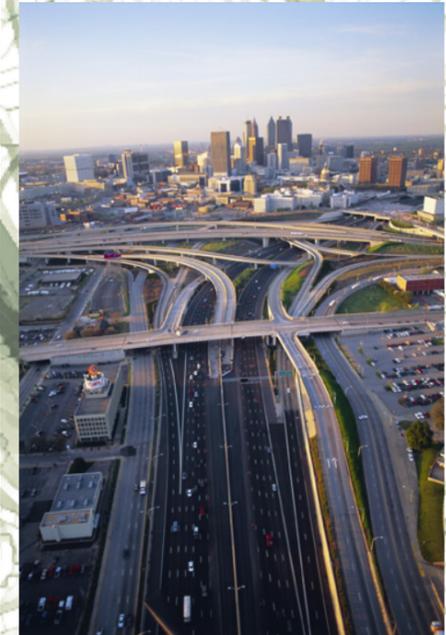


The Research Center of Economic Excellence in Urban Ecology and Restoration Development at the Clemson University Restoration Institute will establish South Carolina as the international leader in sustainable development.

With research and educational facilities throughout the Lowcountry, Midlands and Upstate – and the academic strength and diversity to support such a comprehensive effort – Clemson University is in a unique position to develop and disseminate the knowledge to create, restore and maintain healthy, livable cities.

The Research Center of Economic Excellence in Urban Ecology and Restoration Development will promote collaboration across many disciplines and on many levels: reclaiming and remediating contaminated sites, such as abandoned military bases and deteriorated industrial facilities; revitalizing neglected downtown districts and discarded retail and commercial facilities; redeveloping highway corridors and other built environments to support urban forests and greenways; and restoring and protecting natural habitats to improve urban air and water quality. The common goal of all these areas is the creation of viable, sustainable solutions that can be implemented state-, nation- and worldwide.

To be effective, these solutions must prove workable *now* while also guaranteeing economic, environmental and social benefits for the future. Scientific techniques alone cannot address such broad issues nor achieve such integrated outcomes.



Building a world-class program in urban ecology requires the leadership of a recognized, respected and persuasive international scholar.

The creation of an Endowed Chair in Urban Ecology and Restoration Development will provide the resources to assure that South Carolina attracts the most outstanding leader for this vital, interdisciplinary research center in urban environmental issues.

As a senior faculty member of the Clemson University Restoration Institute, Clemson University's Endowed Chair in Urban Ecology and Restoration Development will be uniquely positioned to address both the human and scientific aspects of this innovative program. The endowed chair will hold joint appointments in the College of Architecture, Arts and Humanities; the College of Agriculture, Forestry and Life Sciences; and the College of Engineering and Science.

The Endowed Chair in Urban Ecology and Restoration Development will lead a new research center of economic excellence that will undertake a variety of exciting ventures, such as:

- pioneering new strategies, materials and techniques for revegetating aquatic buffer and filtration zones, controlling erosion and sedimentation, and reclaiming toxic soils;
- creating breakthrough systems for integrated wastewater management and treatment, ranging from remediation techniques and habitat restoration programs to advanced technologies and bioengineered materials;



- developing sensitive assessment systems, remediation criteria and monitoring strategies so that acceptable ecological and health risks can be defined and managed according to each site's intended use;
- facilitating research into new and recycled materials to improve both the natural and built infrastructure, pervious paving systems to reduce runoff and prevent heat islands, and other environmentally sensitive development practices;
- establishing initiatives for the education and training of skilled professionals across the fields of urban ecology, including environmental science and engineering, urban design and planning, and construction science;
- identifying opportunities to collaborate with business, industry, local governments and other educational institutions to improve South Carolina's quality of life and bolster its environmental industry.

For example, while South Carolina currently is home to a number of environmental consulting firms that focus on remediation and mitigation, their typical approach is to move the contaminant elsewhere. As urban areas expand, fewer "dump sites" are available, and, increasingly, even those that are have a significant detrimental impact on surrounding environmental quality, property values and future growth.

New knowledge in restorative development strategies can reposition these existing companies as highly competitive national leaders as well as attract diverse new businesses and industries to the fields of soil remediation, wastewater treatment, air purification and the restoration of natural systems.

Together, we can find room to grow.

In a world where more than half the population already lives in urban regions, developing and adopting sustainable practices is the only viable path toward survival. Yet the disciplines, industries and institutions that most impact environmental outcomes seldom interact and virtually never overlap. Removing barriers, bridging the gaps between and among these diverse areas, and building effective teams will be a key function of the Endowed Chair in Urban Ecology and Restoration Development.

Painting the Big Picture Through Vision and a Plan

With a goal of improving environmental health, increasing public access, stimulating economic growth and rebuilding community pride, Clemson planners and scientists helped create a master plan for a 16-mile stretch of the Reedy River, a historic but often neglected river that runs through the heart of Greenville. Innovative projects included native plant restoration and best management practices to ensure better water quality.

Since the plan was implemented, the riverfront has become downtown's showplace. New recreation and development projects are under way, with \$70 million invested to date and more planned, public use has increased dramatically, and downtown vitality is at its highest point in decades. Clemson planners and scientists are working to recreate this highly visible success on other rivers, lakes and streambeds in the region.

By creating and working in this collaborative environment, the endowed chair will be able to identify and facilitate the development of new strategies, techniques, materials and methods for solving urban ecology problems, as well as accelerating the growth of a statewide environmental industry.

Obviously, practicing sustainable development in urban areas can be extraordinarily complex, in part because each decision has social, environmental and economic consequences.

By bringing community and industry leaders together with distinguished faculty, innovative researchers and graduate programs in diverse areas such as community and regional planning, recreation and tourism management, environmental design, urban forestry, real estate development, construction science and management, advanced materials, and environmental engineering and science, Clemson University can help establish meaningful partnerships among all stakeholders.

Through Clemson's leadership, effective solutions will emerge from the mix.



As advocates for environmental stewardship, we will **build** economic strength.

The Endowed Chair in Urban Ecology and Restoration Development will enable Clemson University to undertake vital environmental protection and restoration work today, as well as assuring a thriving economy and healthy environment for generations to come.

The traditional path for development has been to build on undisturbed sites, or in existing urban areas, to demolish and build anew. As land and resources become scarcer and more expensive, development trends are shifting toward a combination of preservation, restoration and sustainability. What's more, as recent natural disasters have demonstrated clearly, when natural protective ecosystems are allowed to deteriorate, urban infrastructure becomes much more vulnerable to devastation.

Conversely, how clean is clean? Measuring and defining acceptable risk is a sensitive task that must be undertaken with both scientific and sociological understanding, through precision methods and with community input and consensus.

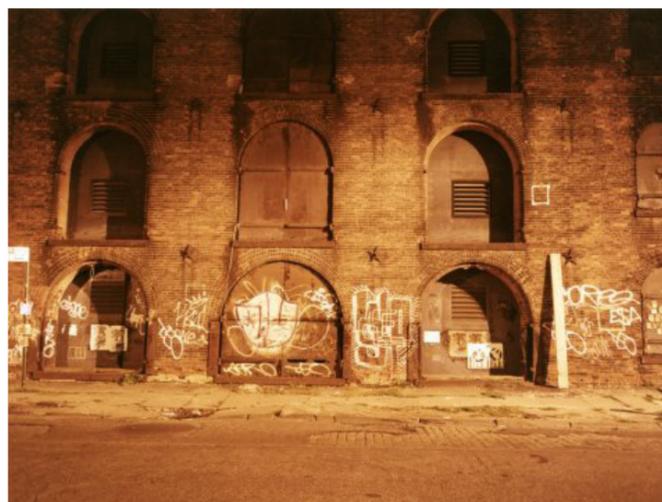
The worst trap that environmentalists can fall into is the conviction that the only wilderness worth preserving is in the Rocky Mountains or Alaska. To the contrary, our most important wildernesses are those that are closest to our densest population centers.

*Robert F. Kennedy Jr.,
environmental lawyer and professor at
Pace University Law School*

Studies of communities across the country demonstrate a direct link between economic viability and the quality of the physical environment: Sustainable environments attract jobs, tourists and economic growth; as a result, restoring environmentally compromised land often spurs local economic development and increases real estate values. As people increasingly come to prefer nearby wildlife and nature experiences over manicured golf-course-style developments, land developed in an environmentally sensitive manner is typically more valuable.

Already more than \$1 trillion per year is invested nationally in revitalizing our communities and natural resources, and that amount is increasing 30-40 percent each year. The U.S. environmental industry alone generates approximately \$220 billion in annual revenues and supports 1.6 million jobs. Worldwide, this "restoration economy" now generates more than \$2 trillion annually.

Revitalization of urban environments and ecosystems promises to be one of the 21st century's most lucrative economic sectors.



We will **champion** economic development, today and tomorrow.

The urban ecology and restoration development industries offer enormous economic potential for South Carolina and the nation: increased private and public investment; expansion of existing industries; the creation of new technologies, patents and procedures; and the export of related knowledge capital throughout the world.

The Research Center of Economic Excellence in Urban Ecology and Restoration Development will drive state, regional and national economic growth through the creation of new industries and technologies, strengthened professional disciplines and services, and new environmentally sensitive restoration and development practices, resulting in the creation of a highly skilled, high-wage work force.

As the leader in this critical new field, the endowed chair will establish protocols that lead to worldwide quality standards for eco-responsible development practices.



Clemson University's Research Center of Economic Excellence in Urban Ecology at the Clemson University Restoration Institute includes collaborations among:

- Clemson University College of Architecture, Arts and Humanities
- Clemson University College of Agriculture, Forestry and Life Sciences
- Clemson University College of Engineering and Science
- Clemson University College of Business and Behavioral Science
- Clemson Coastal Area Research and Education Center
- Belle W. Baruch Institute of Coastal Ecology and Forest Science
- College of Charleston
- American College of Building Arts
- National Science Foundation
- S.C. Sustainable Universities Initiative
- Environmental Protection Agency
- Urban Land Institute
- Robert Wood Johnson Foundation
- City of Charleston's Civic Design Center
- Joseph P. Riley Institute for Urban Affairs and Policy Studies
- Grice Marine Laboratory
- S.C. Department of Natural Resources
- S.C. Department of Health and Environmental Control
- U.S. Army Corps of Engineers
- International Society of Arboriculture
- Noble Tree Foundation
- Society of Environmental Toxicology and Chemistry (SETAC)
- The Nature Conservancy
- South Carolina Coastal Conservation League
- J.W. Jones Ecological Institute
- South Carolina Low Country Forest Conservation Partnership

The future is here.
The time to **act** is now.

The state of South Carolina is establishing Research Centers of Economic Excellence by providing up to \$5 million to match private-sector commitments to economic growth. This partnership is designed to enable universities to hire top professors whose work will:

- promote the growth and expansion of knowledge-based industries,
- create improved employment opportunities for the people of South Carolina,
- and enhance state and national economic competitiveness.

As a public-service university and the state's premier university focused on science, engineering and technology, Clemson has a unique leadership obligation to maximize the success and benefits of this initiative. To date, Clemson has met matching-funds deadlines for six chairs, including automotive, biomedical and advanced materials technologies.

Now, Clemson University is building on this record of accomplishment by creating the Research Center of Economic Excellence in Urban Ecology and Restoration Development. A world-class scholar will fill the Endowed Chair in Urban Ecology and Restoration Development to establish internationally renowned programs in this critical area.

To become reality, this ambitious program requires the support of leaders who understand the value of sustainable development for the people of South Carolina, today and tomorrow.

It is an investment that will **produce** significant returns.

The state's \$2 million commitment – when matched by the generous contributions of visionary leaders – will enable the Research Center of Economic Excellence in Urban Ecology and Restoration Development to improve South Carolina's economy while protecting her people, culture and resources.

Together, we can carve out a healthy, vibrant future for South Carolina's towns and cities. Won't you join us in this remarkable undertaking?



Through the Endowed Chairs Program, the impact of your support is doubled by the state's dollar-for-dollar match. You may **choose** to have your pledge honored over a five-year period.

Environmental sustainability is one of the biggest challenges facing us as a nation and, more broadly, as inhabitants of the planet.

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