

The Long Term Ecological Research (LTER) Network

The U.S. LTER Research Network consists of 28 sites with a rich history of ecological inquiry, collaboration across a wide range of research topics, and engagement with students, educators, and community members.

Bringing together diverse groups of researchers with sustained data collection, ecosystem manipulation experiments, and modeling, these sites allow scientists to apply new tools and explore new questions in systems where the context is well understood, shared, and thoroughly documented.
(Text from LTER Network; lternet.edu)



Abandoned land is increasing in urban areas. Studies are underway to understand the ecological dynamics of these habitats. Image: Dr. Christopher Swan.



2013 Artist-in-Residence, Patterson Clark, Index 1309a

Baltimore Ecosystem Study Long Term Ecological Research



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Cover Image: Dr. J. Morgan Grove

Urban Ecology Matters

More than 80% of the U.S. population lives in an urban area, and this number continues to grow. It's essential for decision-makers to understand the interactions between humans and nature in urban ecosystems to develop effective solutions to increasingly complex issues confronting city residents and systems. In urban ecology, natural and social scientists produce rich data sets to understand ecosystems and their response to a changing world. This collaborative approach produces findings that are applicable in resilience planning, sustainable urban design, and management.

As part of the National Science Foundation Long Term Ecological Research (LTER) network, data from the Baltimore Ecosystem Study has informed policy decisions and community engagement activities since 1998.

BES Research Explores:

- Water and air quality
- Disease vectors
- Urban biodiversity
- Stormwater dynamics
- Urban forest dynamics
- How ecology impacts real estate value

For long-term BES data and results visit us on the web at: beslter.org



Long-term stream discharge and water chemistry site. Discharge is monitored in collaboration with the USGS and water samples are collected weekly by BES researchers. Image: Dan Dillon

Research Contributions

BES, as one of two urban LTER sites in the United States, is uniquely positioned to examine issues confronting city residents. By collecting data on the biological and social dynamics at play in Baltimore and engaging community members and local government agencies in this process, BES researchers document and understand long-term changes in Baltimore. This work expands a growing body of knowledge about the ecology of urban ecosystems.



The area covered by lights delineates urban landcover in the US. Image: NASA

Sharing Science

- Presentations at neighborhood and municipal meetings.
- Developing K-12 education modules
- Hosting Artists-in-Residence positions
- Engaging local high school students in BES research
- BES Data Jam and teacher trainings



Emeritus Director Dr. Steward Pickett working with Baltimore students. Image: BESLTER and Parks & People Foundation



In cities, abandoned properties and unmanaged lots are prime breeding grounds for mosquitoes, including disease vectors. This may put lower-income residents at greater risk of exposure to diseases like West Nile and Zika viruses. Image: Dr. Shannon LaDeau

Long-Term Goals

Contribute to the fundamental understanding of urban ecosystems.

Explore how social and ecological mechanisms interact with the structure and function of urban ecosystems.

Generate knowledge that is increasingly relevant to residents and decision-makers as urban areas change.



Dr. Sylvia Lee, former BES Post-Doc., studying the effects of drugs in a stream ecosystem. Image: Joanna Blaszczak