

APPALACHIAN

LANDSCAPE CONSERVATION COOPERATIVE

SPRING 2016

The Spring 2016 Newsletter highlights how the Appalachian LCC and its partners are addressing landscape issues and bringing together a community to find sustainable solutions.

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COOPERATIVES

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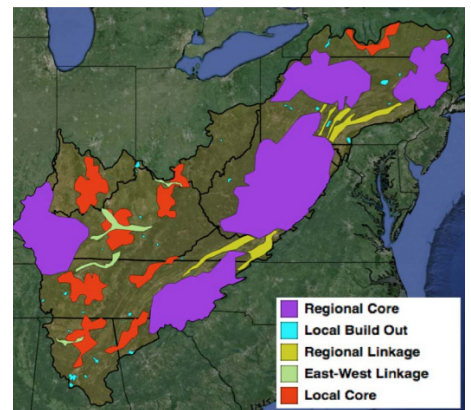
APPALACHIAN LCC INITIATIVES:

Landscape Conservation Design: Initial Products and Expert Consultations for the Appalachian Mountains and Western River Basins

Over the last couple years, the Appalachian LCC has supported the development of a science-based, regional-scale design commonly called a “Landscape Conservation Design (LCD)” or “Conservation Blueprint”. The Appalachian LCD/Blueprint is unique in the power of the modeling efforts that generated the initial Phase I products.

The research team at Clemson University used super-computing technology to identify connected and focal landscapes, critical corridors, and key areas that most likely offer resiliency and represent ecologically significant habitats for species and natural resources. Combined, these identified lands and waters cover many critical ecological processes and patterns across the LCC geography.

This LCD/Blueprint is now being refined through a series of consultations with technical teams, while aquatic integrity and ecosystem services information



are further integrated into the modeling effort. The successful conservation design product from these interactive discussions will provide public land managers, NGOs, and private landowners the ability to incorporate landscape data into their own local land-use decisions.

Check out products from Phase 1:
www.applcc.org/research/interactive-conservation-planning

What Lies Beneath:

Classification and Mapping of Cave and Karst Resources

“What Lies Beneath?” is not just a great name for a horror movie, but can describe the scientific and biodiversity challenges in protecting the distribution and richness of natural resources within karst landscapes. This unique landform to the Appalachian region is the result of hydrologic impacts that “dissolve” porous bedrock such as limestone and create a terrain characterized by springs, caves, and sinkholes. A lack of detailed classification and mapping information creates a significant barrier for understanding these ecosystems contributions, from providing vital water quality to housing unique biodiversity.



Researchers from an array of organizations and institutions used intricate modeling to classify the diversity associated with factors like geology and hydrologic flow regimes from known or survived caves. Based on this assessment, they then predicted what level of biodiversity might be expected throughout cave and karst systems in the region. The products from this unique research include a series of maps, geospatial information layers, and other deliverables that provide a comprehensive overview for examining relationships between environmental factors, biodiversity,

and distribution within karst areas of the Appalachians. This critical information will inform managers decisions above ground, in order to protect ‘what lies beneath’ absent of more detailed surveys. Next steps include working with research and management communities to integrate science information into an interactive map and scenario-based decision support tool.

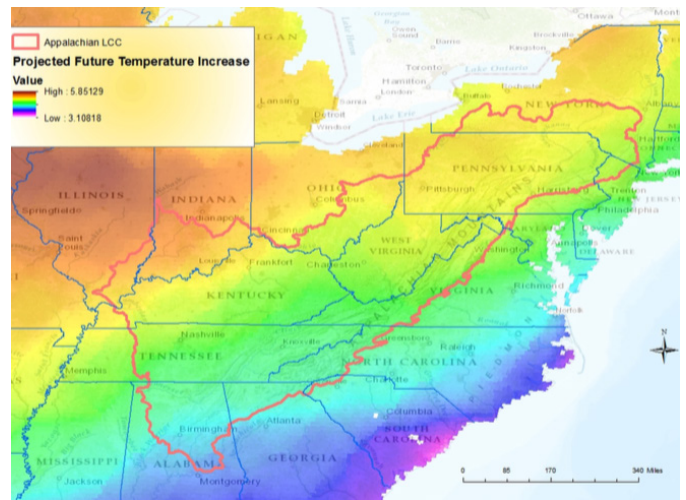
Access maps, geospatial information layers, and other deliverables

<http://applcc.org/classification-mapping-cave-karst-resources>

New Climate Change Vulnerability Assessments Available for Species and Habitats

New climate change vulnerability assessments for 41 species and 3 habitats in the Appalachians are now available on the applcc.org Web Portal.

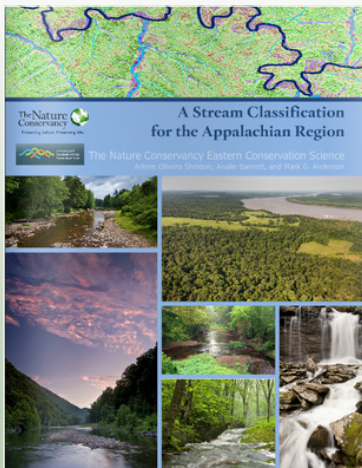
The conservation community can view and search each of these assessments by relative ranking or vulnerability scores, conservation status ranks, state and subregion of assessment, and higher taxonomy. In addition, principle investigators NatureServe compiled the results of 700 species assessments previously completed by other researchers as well as assessments on several habitats. In conducting these assessments, NatureServe’s research team first convened a panel of climate experts to compile and review existing vulnerability assessments, compared strengths and weaknesses of methodologies used, and recommended a vulnerability assessment method for adoption.



The recommended method was deployed to generate vulnerability assessments for a suite of key species and habitats selected in consultation with partners of the Cooperative. The detailed dataset assembled as part of this analysis is also available on-line and can be filtered by state, region, taxa, and ecological system.

VIEW THE ASSESSMENTS:

<http://applcc.org/research/climate-change-vulnerability>



A Refined Stream Classification System Generated for the Appalachians

Stream classification information is essential to develop and implement flow standards and water management recommendations that will sustain aquatic biodiversity. Unfortunately, standardized information was lacking for the Appalachian landscape, in part because the ‘northern’ and ‘southern’ systems of the Appalachian LCC don’t match up well. The Cooperative funded researchers from The Nature Conservancy’s Northeast Region to unify state-based stream classifications into a single consistent system. This research developed a classification and map for stream and river systems that represents the region’s natural flowing-water aquatic habitats. The study includes a “Story Map” illustrating the mapped classification system for streams and rivers, a report describing the methods used to evaluate and develop the classification system, a literature review of existing stream classifications, and a GIS stream data set.

LEARN MORE: applcc.org/research/stream-classification

Enhancing Our Reach:

Assistant Coordinators to Develop Focal-landscape Communities

Building on identified focal landscape cores from the Clemson team's landscape conservation design research, the Cooperative is focusing initial implementation efforts by targeting two core areas for engagement and collaboration. The LCC will engage local partners and highlight opportunities for collaborative conservation actions across the Tennessee River Basin and in the Western Allegheny forest area and the Susquehanna River watershed. These initiatives will identify shared opportunities to work together for greater effectiveness while initiating long-term planning for the protection of some of the most biologically rich areas in the Appalachians. To assist in these planning efforts, the Cooperative has added two new members to the team; Ginny Kreitler and Mary Davis.

MARY DAVIS:

Dr. Davis is an ecosystem ecologist with technical expertise in aquatic habitats of the southeastern U.S. Her professional services include scientific and outreach resources for project management, coalition development, and strategic planning. Mary's areas of scientific interest focus on natural hydrologic regimes of freshwater aquatic habitats and include instream flow requirements and riverine ecosystem functions. She serves as the Coordinator of the Southern Instream Flow Network for the Southeastern Aquatic Resources Partnership (SARP). As an aquatic ecologist with SARP, Mary has worked extensively with the South Atlantic, Gulf Coast Prairie, and Gulf Coastal Plains and Ozarks LCCs on development of regional geospatial resources and models to support instream flow standards and development of aquatic conservation plans. Mary directed the Southern Freshwater Program for eight years for the Southern US Conservation Region of The Nature Conservancy. Mary earned her Masters of Science in fire ecology from Florida State University and doctorate in wetland ecology from the University of Florida.



GINNY KREITLER:

Ginny Kreitler comes to the LCC as its new Assistant Coordinator for the northern LCC region after serving on the LCC's Steering Committee for two years. Her prior involvement with the Steering Committee and LCC working groups (one advising on the energy impacts project and one considering the use of indicator species) has enabled her to quickly move in to her new role, in which she is helping foster collaboration with conservation practitioners in the northern extent of the LCC, specifically in the states of New York, New Jersey, Pennsylvania, Ohio, West Virginia, Maryland, and Virginia. Previously, Ginny worked for National Audubon, serving on an internal climate change working group, contributing to strategy development on forest priorities, and working with Argonne National Lab to bring habitat data in to new planning tools for the electric and gas sectors. In Pennsylvania, she is a long-time partner in the state land trust community, and partner with watershed protection groups for the last seven years. She now operates a consulting practice from which she continues to provide services to this community.



Appalachian LCC Coordinator is Panelist at National Conference and Forum on Science, Policy and the Environment

Appalachian LCC Coordinator and Chief Scientist, Dr. Jean Brennan, participated as an invited speaker at the 16th National Conference and Global Forum on Science, Policy and the Environment in Washington DC. This year's conference focused on "The Food-Energy-Water Nexus." Jean was one of seven panel members for the session on "Integrating Food-Energy-Water Systems across Space and Time." Her talk presented the Cooperative's approach as a stellar example of addressing large-scale environmental challenges, while meeting the needs of society. Jean referenced the Appalachian LCC funding and support of modeling future energy development for coal, natural gas, and wind energy in the region. She also discussed research that documented the biological impacts of water withdrawal across the Marcellus Shale formation and provided key findings on how modeling potential risk across a broader geography helps inform managers and guide policymakers in evaluating ways to balance the needs to sustain aquatic health and diversity while addressing human demands for water.



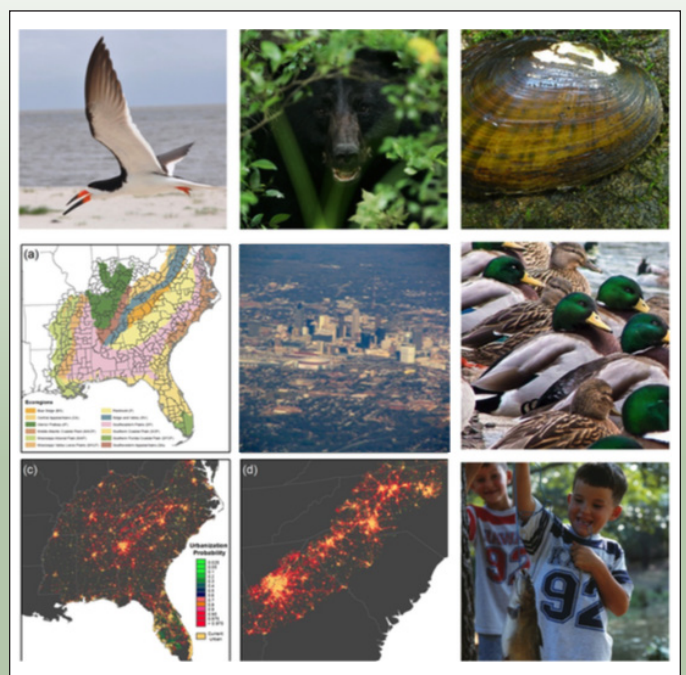
The Food-Energy-Water Nexus

16th National Conference and Global Forum on Science, Policy and the Environment
January 19-21, 2016
Washington D.C.

The conference focus was on systems-based approaches for environmental science in developing and connecting new scientific insights and engineering solutions with decision-making and public policy. This year's conference was the largest to date with more than 60 sessions and over 400 speakers. Keynote speakers included Dr. Frances Cordova, Director of the National Science Foundation (NSF), Dr. Carlos Rodriguez-Franco, Acting Deputy Chief of Research and Development, US Forest Service, and Kathleen Merrigan, Executive Director of Sustainability at George Washington University.

Stitching Together Work of LCCs across the Southeast

The Southeast Conservation Adaptation Strategy (SECAS) is a shared, long-term vision for the conservation future of the Southeast and Caribbean region of the United States. Through SECAS, diverse partners are working together to design and achieve a connected network of landscapes and seascapes that supports thriving fish and wildlife populations and improved quality of life for people. The Appalachian LCC is one of six LCCs in the southeast that are stitching together their conservation designs at a larger scale, to help coordinate the efforts of federal, state, non-profit, and private organizations to prioritize conservation action and investment. Staff from the Appalachian LCC have engaged in this Strategy by presenting conservation design efforts during the SECAS Symposium at the Southeastern Association of Fish and Wildlife Agencies Conference, developing a Story Map that highlights many of the projects developing critical data and tools that build a strong foundation for the SECAS vision, and helping to coordinate activities throughout 2016.



Upcoming Events & In the News

Northeast Association of Fish and Wildlife Agencies Meeting

The 72nd Annual Northeast Fish and Wildlife Conference, *“Thinking Outside: Taking Risks for Better Conservation,”* will be held April 3-5, 2016 in Annapolis, Maryland at the Westin. The event is co-hosted by the Maryland Department of Natural Resources and the Delaware Division of Fish & Wildlife. The annual Northeast Fish & Wildlife Conference attracts over 500 natural resources professionals in the fields of wildlife biology, fisheries and fisheries management, information and education and law enforcement. The event provides opportunities for education, discussion, and exchanging of ideas. Highlights include: over 50 workshop sessions, keynote speakers, poster displays, and social networking events.

LEARN MORE: <http://www.neafwa.org/annual-conference.html>



Landscape Ecology Meeting

The US International Association of Landscape Ecology 2016 Annual Meeting will be held April 3 - 7, 2016 at the Asheville Renaissance Hotel in Asheville, North Carolina. The theme of the meeting will simply be “Landscape Change.” The meeting strives to capture the defining characteristic and the inherent nature of the modern world in the Anthropocene epoch. Program highlights will include plenary sessions with featured speakers, symposia and contributed papers, in-depth workshops on key topics, field trips, and networking events! The meeting is organized by Appalachian LCC Steering Committee member Dr. Danny Lee and Post-Doctoral Research Fellow Dr. Lars Pomara from the Eastern Forest Environmental Threat Assessment Center and the Southern Research Station of the Forest Service. Drs. Rob Baldwin and Paul Leonard from Clemson University will also speak and present on the collaborative conservation planning research funded by the Appalachian LCC.

LEARN MORE: <http://www.usiale.org/asheville2016/>



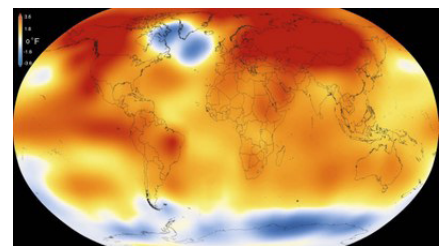
Where the Not-So-Mighty Chestnut Still Grows



A recent study by U.S. Forest Service, university, and state agency researchers provides baseline information on contemporary populations of American chestnut needed to support restoration of the tree to the forests it once dominated.

LEARN MORE: <http://applcc.org/news/where-the-not-so-mighty-chestnut-still-grows>

NASA, NOAA Analyses Reveal Record-Shattering Global Warm Temperatures in 2015



Earth’s 2015 surface temperatures were the warmest since modern record keeping began in 1880, according to independent analyses by NASA and the National Oceanic and Atmospheric Administration (NOAA).

LEARN MORE: <http://applcc.org/news/nasa-noaa-analyses-reveal-record-shattering-global-warm-temperatures-in-2015>