# APPALACHIAN
LANDSCAPE CONSERVATION COOPERATIVE

**Tennessee River Gorge Trust**
**Chattanooga, TN**
**April, 24th 2017**

TENNESSEE RIVER GORGE TRUST

# Introductions

**What are you looking to get out of this event and what do you bring / your perspective to today's discussions?**

**What is your exposure to the Appalachian Landscape Conservation Cooperative (LCC) and similar landscape conservation approaches (i.e., beyond the administrative area of any single planning unit or organization)?**

**Answers recorded on next slide**

- Use AppLCC resources to help make science-based decisions
- Information sharing
- Make sure everything we do at the local level is applicable to everyone on the landscape
- Interested in applying large data sets to on the ground conservation
- Get resources from these orgs to their grantees
- Learn more and keep pulse on conservation community and regional efforts
- Find collaborations to work in
- What tools are out there
- How can we take this collaborative approach and apply this
- How can LCC resources help guide Water Quality Program
- Increase exposure and partnerships
- What resources are available to help guide us
- How to leverage funding

# Workshop Objectives

- Gain knowledge of the landscape-level approach to conservation planning and identify how your efforts fit into this bigger picture
- Know how to access and use AppLCC resources
- See the utility of AppLCC resources for your conservation efforts
- Develop an understanding and identify the utility of Regional Conservation Designs
- Provide feedback to enhance AppLCC resources for end-users

## Facilitated Group Discussion

## Landscape Level Conservation

How do we define “a landscape-level planning” and why do you see a need to work at a landscape-level?

Have you considered, or tried to implement a landscape-level planning effort or do you know of examples (what, where, scope, priorities)?

What barriers have you experienced or currently exist that influences your ability to work at a larger-scale? How have you been able to overcome those?

# How do we define “a landscape-level planning” and why do you see a need to work at a landscape-level?

Participant Feedback:

Underlying factor – conservation goal or objective, working in a systematic approach, get siloed up – need to work as a whole, need to bring information together, need to tie everyone and their actions together – you are able to still be mission focused – but you need to keep in mind how these efforts all tie into each other, need to have the ability to have large planning efforts to make sure we are communicating at this level, Natural resources do not recognize jurisdictions, everything has neighbors, Help to ID what is working and what is not working.

E.O. Wilsons – Half Earth – to maintain survival we need to protect 50% of the planet

# Have you considered, or tried to implement a landscape-level planning effort or do you know of examples (what, where, scope, priorities)?

Participant Feedback:

Get landscape level planning done in areas science is guiding us to work in, have folks move in a similar directions with similar base priorities that do not follow political boundaries
SWAP – looking at data state wide, ID COAs to focus conservation areas on the ground
Heritage Trust Fund – land acquisition (ecological and cultural)
Southern Grasslands Initiative – increase conservation efforts for grasslands and associated species
Working with AMJV – TRGT bird work support

Reid Noss – for any conservation plan has to go through a series of level – has to be ecologically sound, has to be economically viable (resources are thin), socially desirable (why should people value natural resources), politically acceptable.

# What barriers have you experienced or currently exist that influences your ability to work at a larger-scale? How have you been able to overcome those?

Participant Feedback:

Collecting data across jurisdiction boundaries – want to incorporate into landscape scale effort

What is in your Charter or purpose – limited to a specific geographic scope

A huge number of landowners – with very different values, livelihoods

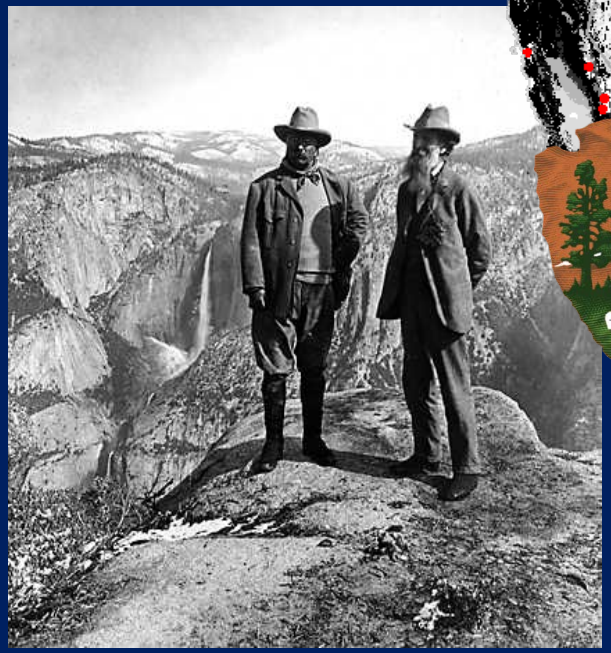
Communication – how do we communicate the need or value, importance of getting input from the public on planning process, get buy in.

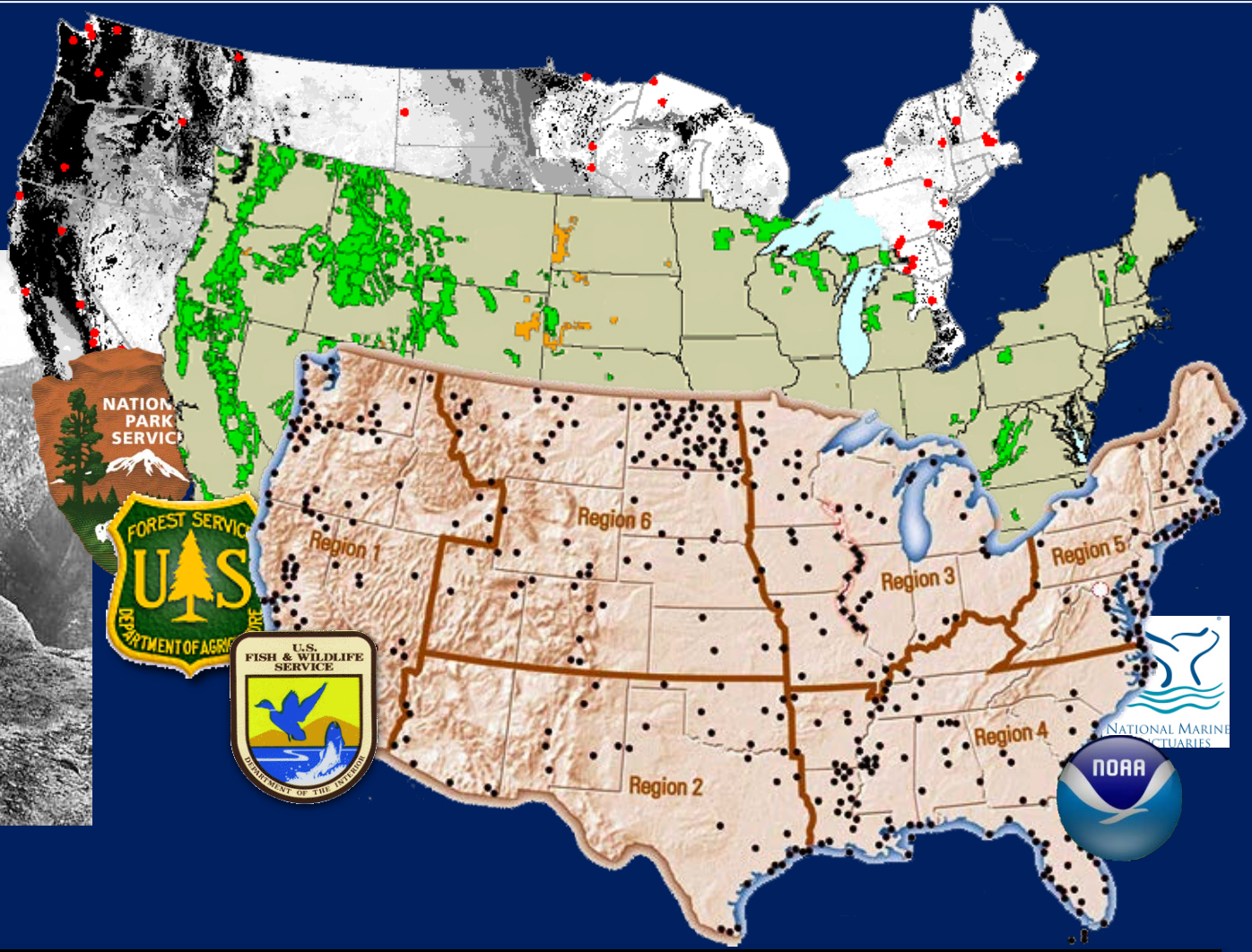
Capacity – limited funding, limited staff

The Big Questions

# *Why landscape-level conservation planning?*

Preservation Era






Reliance on protected areas proven insufficient…

# …given scale and scope of conservation challenges.

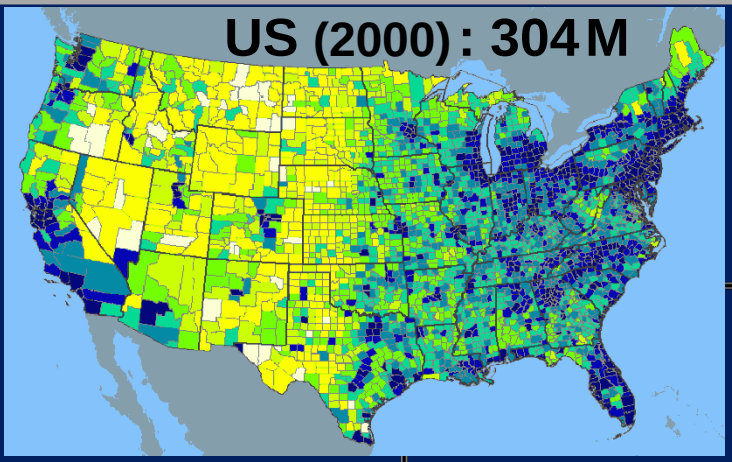






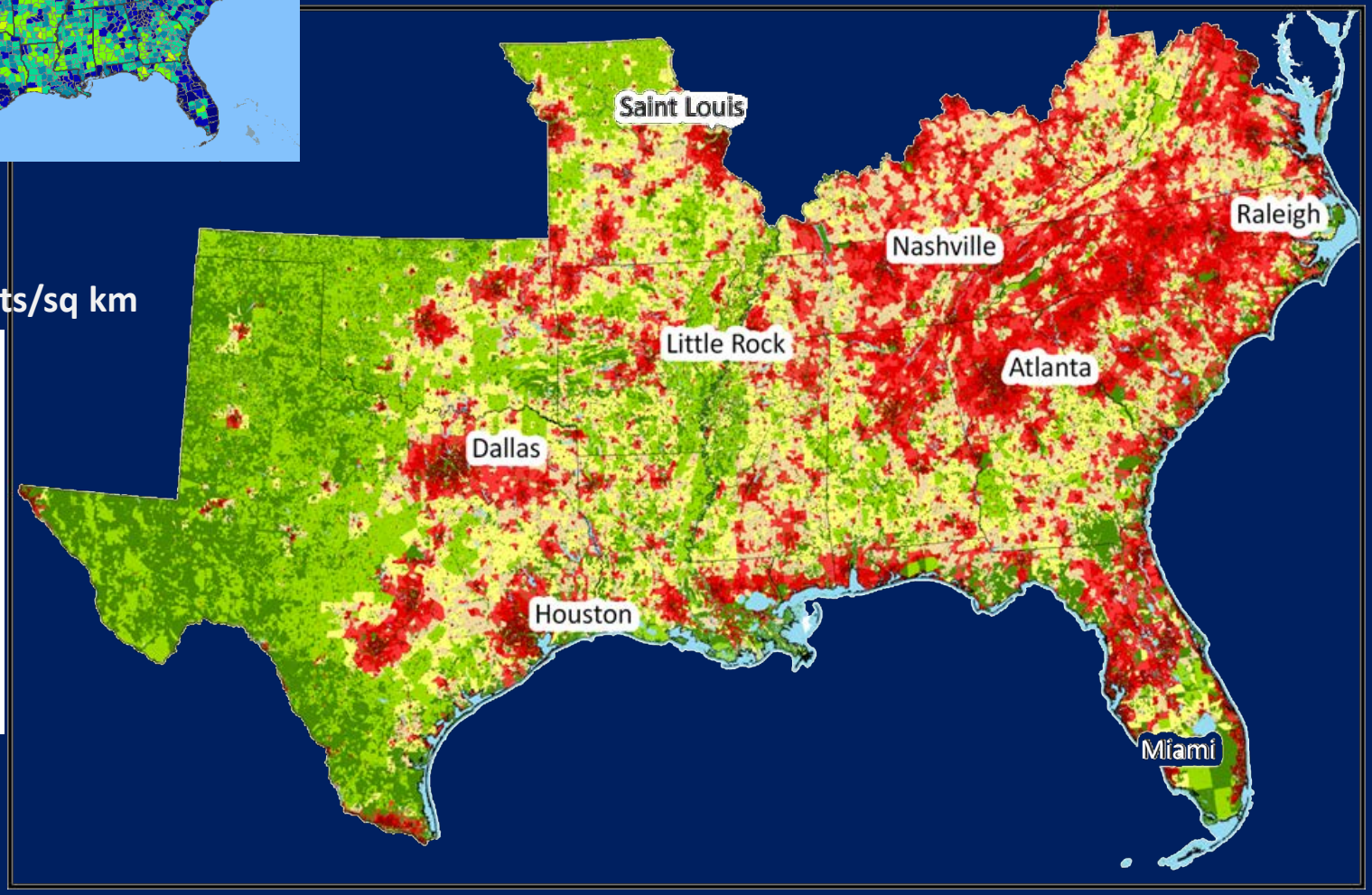

*Global % (known) sp. currently listed as 'threatened' or 'endangered'*

# Many species and their habitat occur outside of Protected Areas




**US Projected population:**
**1 Billion by 2100**

**2030**



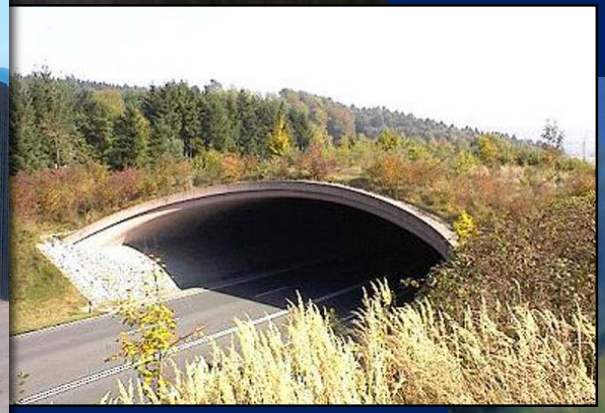

**Housing units/sq km**

- Water
- 0
- 0 - 2
- 2 - 4
- 4 - 8
- 8 - 16
- 16 - 128
- >128

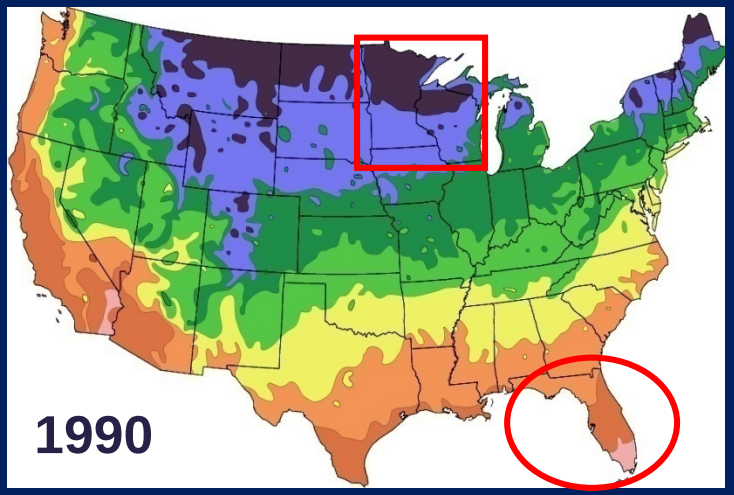
# More human-dominated landscapes leading to physical barriers to movement

Highly fragmented

…Δ land-use



# Observed climate changes are increasing stress…




Source: Arbor Day Foundation

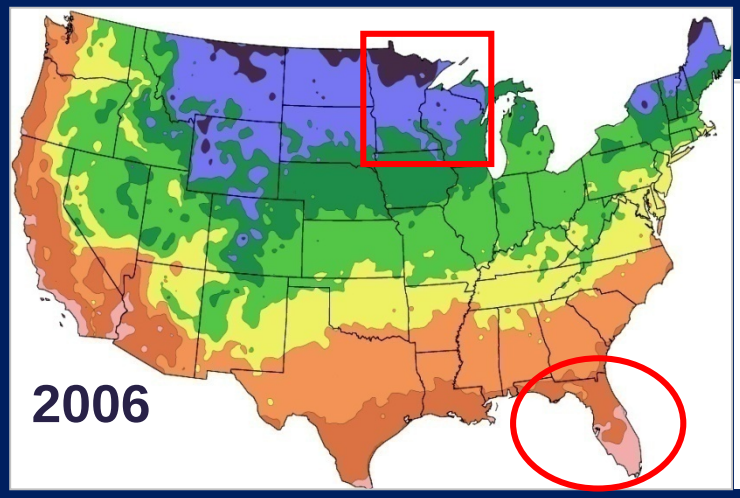
## Plant hardiness map

## Recorded Shift in Climatic Zones

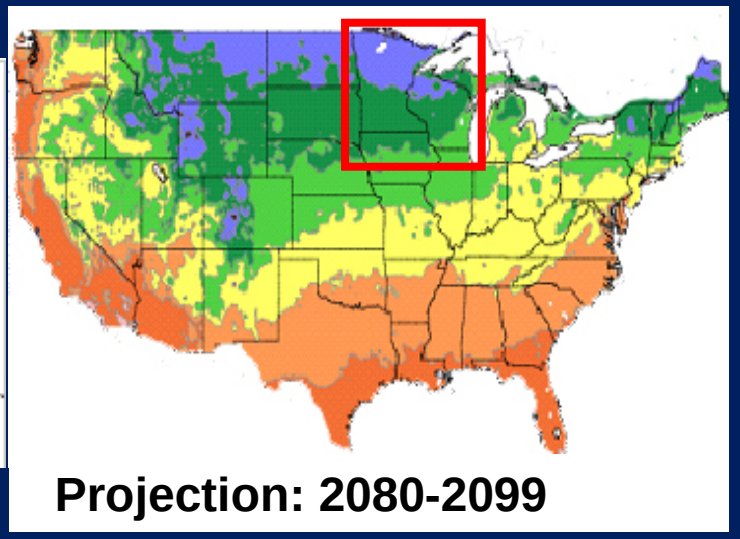
Changes "will affect

- **structure and function of ecosystems,**
- **species' ecological interactions, and**
- **geographic ranges, with consequences for biodiversity and ecosystem services"**

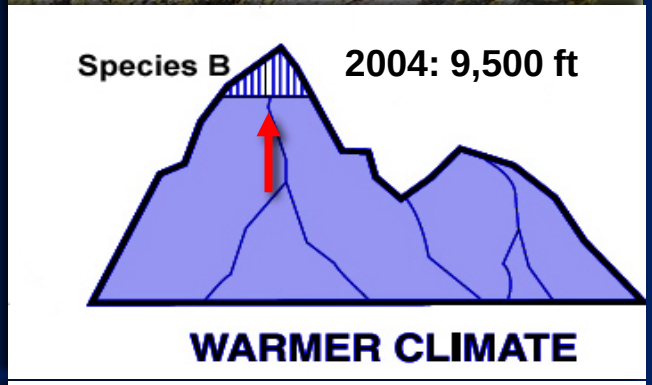
Malcom et al.2006

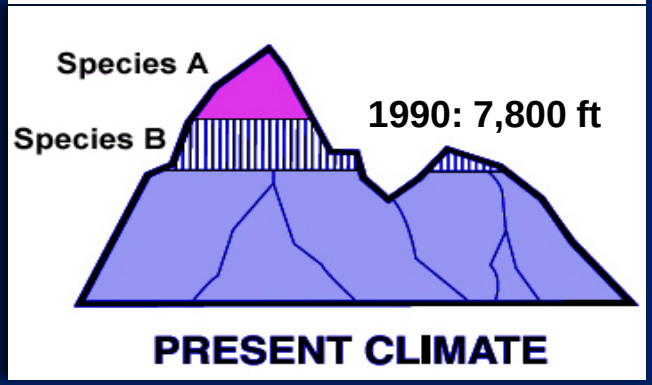



| Zone | Avg. Annual Low |
|---|---|
| 3 | -30°F through -40°F |
| 4 | -20°F through -30°F |
| 5 | -10°F through -20°F |
| 6 | 0°F through -10°F |
| 7 | 10°F through 0°F |
| 8 | 20°F through 10°F |
| 9 | 30°F through 20°F |
| 10 | 40°F through 30°F |



# …with species physiologically unable to track changing conditions




Source: Beever et al. 2003

# Why Landscape Conservation Planning?

# LCCs: What, Why, How

- What - Develop and deliver science to inform conservation actions at scales that make lasting difference for people and wildlife.
- Why - Enhance quality of life, make communities resilient to environmental change and natural disasters and sustain the natural and cultural resources we care about.
- How - Connect partners to connect landscapes - bring together different organizations, expertise, science and sectors to tackle long-term conservation challenges.

# About Us

Secretarial Order #3289 *(Sept 2009)*

"a network of Landscape Conservation Cooperatives

(to) engage DOI and federal agencies, states, tribes, local governments and the public,

to craft practical, landscape-level strategies for managing large-scale environmental impacts."


LANDSCAPE CONSERVATION COOPERATIVES

- **Bird Conservation Regions**
- **Major River Drainage Basins**
- **Ecologically-defined Areas**

**Landscape:** define ecologically-relevant scale to work

**Conservation:** address threats at scale beyond that of any single entity … *connectivity, resilience*


**Cooperative:** self-directed partnership working through collaborative decision-making

# Large-scale Impacts

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- **Expanding Energy**
  **Natural Gas & Hydro-fracking**



- **Traditional Energy**
  **Mountain Top Mining**



- **Water Control & Stress**
  **Extreme Weather Events**



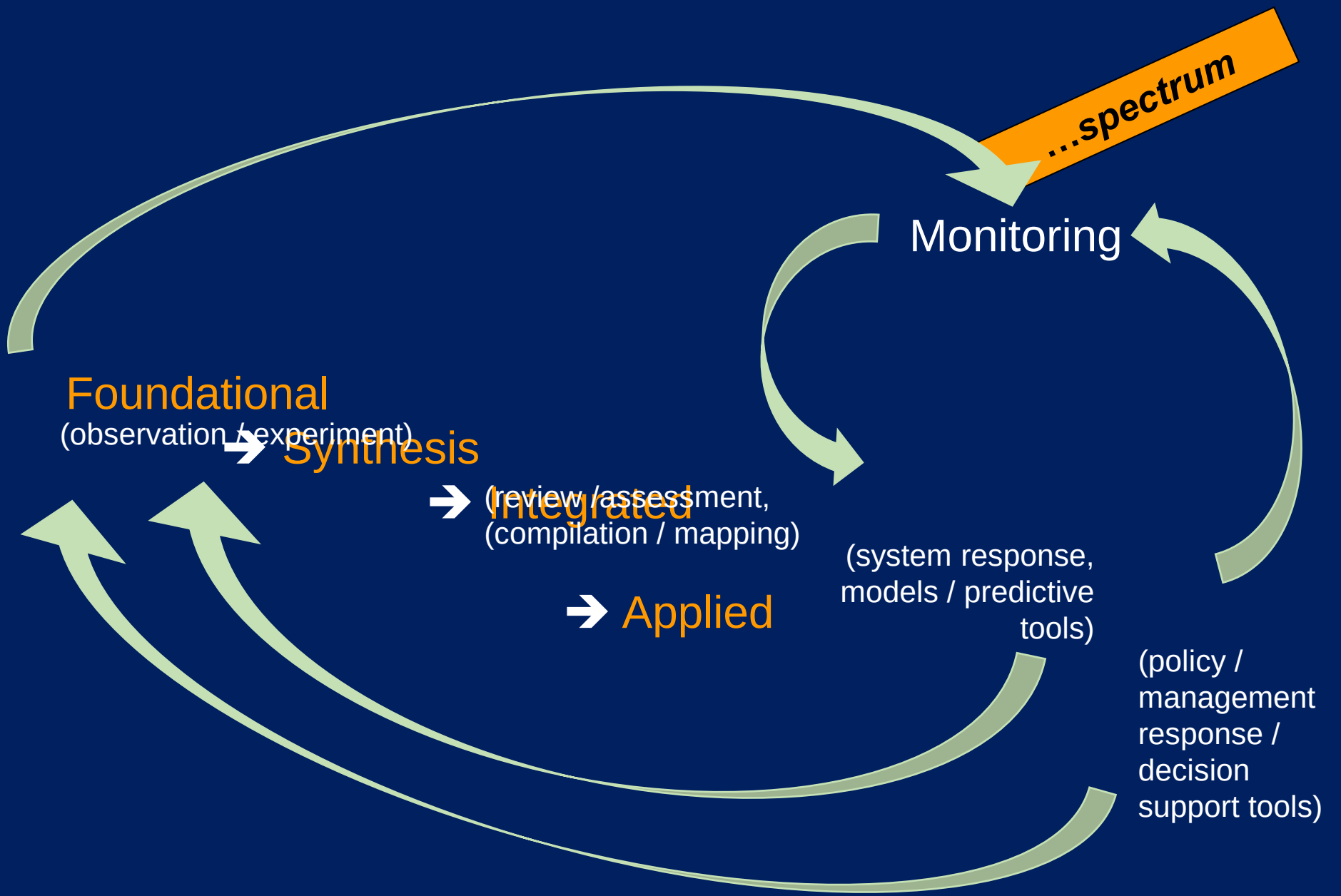
- **Urban & Exurbia Expansion**
  **Agriculture Land Conversion**



- **Changing Climatic Conditions**
  **Hydrologic Impacts & Extreme Weather**

- Habitat loss or fragmentation
- Loss of connectivity and isolation of populations.

| Science Information / Data | Inventory / Trends Analysis | Decision Support Tool / | Planning / Risk Assessment |
|---|---|---|---|



# Networking

actively seek to engage both traditional & non-traditional partners

*(such as local governments, industry, and private land-owners)*

Quick Links

## On-line Training Courses

Navigate

## Tools & Resources

1 – Riparian Restoration Tool

2 – Energy Forecasting Tool

3 – Ecosystem Services

4 – Landscape Conservation Design

# Landscape Conservation Cooperative

- **Facilitate Planning**
- **Develop Management Tools**
- **Engage Diverse Audiences**
- **Build Capacity & Leverage/Share Resources**


Q
A

# A Forum for Landscape Conservation Collaboration & Action – Sharing Expertise, Innovation, Resources

- Session Objective – Highlighting a key mission of the LCC to bring diverse partners & stakeholders together to identify, plan and work on key priorities to move conservation forward.

- Resources to connect diverse partners and people on our Web Portal.

- Enhancing partner synergy in focal areas: Tennessee River Basin.

- Discussion and how to get involved.


People protect what they value

# Resources to Connect: AppLCC Portal

www.applcc.org

# Resources to Connect: Information Sharing

## News

by admin — last modified Jan 23, 2015 08:26 AM — History

### Appalachian Wildlife Center - Partnering for Wildlife and People in an Economically-Depressed Region

by Wildlife Management Institute — Feb 16, 2017 08:42 AM

Appalachian Wildlife Center - Partnering for Wildlife and People in an Economically-Depressed Region

...ip between the Appalachian Wildlife Foundation, the Kentucky ...ife Resources, and others is working to establish wildlife-related tourism in the ...and the surrounding states by building a state-of-the-art wildlife education facility designed to share with visitors the incredible natural resources of the region.

Read More...

### NFWF Monarch Butterfly Conservation Fund 2017 Funding Opportunity

by National Fish and Wildlife Foundation — Feb 09, 2017 01:37 PM

The NFWF Monarch Butterfly Conservation Fund is now accepting applications for competitive funding.

Read More...

### A Conservation Action Map for the TRB Network

by Matthew Cimitile — Feb 06, 2017 08:45 AM

During the Tennessee River Basin Network's 2016 annual meeting, members participated in exercises that helped produce a Conservation Action Map, showcasing the who, what, and where of conservation activities and projects in the Basin.

Read More...


### Biennial Spotlight on National Park Resources

by Matthew Cimitile — Feb 06, 2017 08:41 AM

A new area on our Web Portal is dedicated to a collection of talks and posters that celebrate the National Park Service Centennial and highlight the many accomplishments in natural and cultural resource management and stewardship.

Read More...

Research Funding Opportunities

AppLCC Events

- CALENDAR GRID
- ADD EVENTS
- EVENT FULL LIST VIEW
- UPCOMING EVENTS
- PAST EVENTS

Recent Events

- The Southeast Aquatic Conservation Strategy
  ... More
- What is Ecological Drought? Exploring its impacts on natural and cultural resources
  ... More
- Responding to Drought and Water Challenges
  ... More

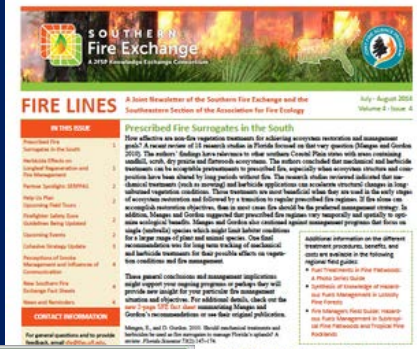
View All

RSS Feeds

- Our Work
- News
- Research
- Projects

Manage portlets

- News/Events/ Facebook
- Partner Projects
- Partner Newsletters




# Resources to Connect: Expertise Database

## Search Our Members Expertise Database

Check the expertise categories below or simply type in a Members Name, Organization, and/or State.
**To see all members in the directory, just click the SEARCH button with no categories or fields selected. Hit RESET to start a new search.**

**Not a Member of the AppLCC and the Expertise Database?**
***JOIN NOW!***

**Already a Member and want to edit your member profile?**
***ADD YOUR EXPERTISE!***

**Need help using the Expertise Search?**
***READ OUR GUIDES***

**Taxa / Group**

**Aquatics: Fish**
- Recreational/Game fisheries
- Non-Game/Native fish conservation
- Commercial fisheries
- Diadromous fish

**Aquatics: Invertebrates**
- Crayfish
- Snail
- Mussel

**Habitat / System Leve… Management**

**Aquatic: Freshwat…**
- River/stream ecology
- Cave/karst ecology
- Wetland ecology
- Hydrology and geomor…
- Reservoirs and Lakes

**Aquatic: Coastal/M…**
- Wetland/Marsh/Estuari…
- Intertidal

| | | | | | |
|---|---|---|---|---|---|
| **Dwight Cooley** | Project Leader | U.S. Fish and Wildlife Service | Birds; River/stream ecology; Wetland ecology; Early successional forest; Lowland/mesic forests; Upland/mixed forest; Grassland/shrub; Disturbance-dependent communities (e.g., fire-dependent forests, etc.); Terrestrial systems/resources (incl. geochemical, nutrients); Rivers/Streams - Instream Habitat; Rivers/Streams - Streambank/Riparian; Forest/natural cover management, restoration; Open grassland and shrub/natural cover management, restoration | Interior Plateau; Southwestern Appalachians | Alabama |
| **Lee Holt** | Fish and Wildlife Biologist | | Recreational/Game fisheries; Non-Game/Native fish conservation; Commercial fisheries; Benthic Macroinvertebrates; River/stream ecology; Cave/karst ecology; Reservoirs and Lakes; Aquatic systems/resources (incl. instream flow); Geospatial (GIS); Aquatic; Aquatic Invasive animal; Watershed and water delivery management (dams, reservoirs) (incl. dam removal/fish passage) | Interior Plateau; Ridge and Valley; Southwestern Appalachians | Alabama |

# Connecting Groups through Collaborative Work Space

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Search Site | Search
only in current section

Companion Sites

Cooperative | Research | Plan & Design | Focal Areas | Issues | Partner Projects | People | News | Resources

REGISTER | LOG IN

You are here: Home › People › Group Work Space

## Group Work Space

Welcome to the Group Work Spaces, an area of the web portal where we are supporting collaborative work for various communities. These communities range from working groups within our Steering Committee, project groups overseeing the development of Appalachian LCC funded projects, Communities of Practice or Species Specific groups with experts and concerned individuals working towards a common conservation goal related to a species or habitat.

These Work Spaces offer a platform to enhance work flow and facilitate efficient sharing of ideas, datasets, products, publications, and more with others who have similar interests or missions.

The Appalachian LCC Work Spaces are bringing together a diverse set of individuals and expertise to promote dialogue and coordination.

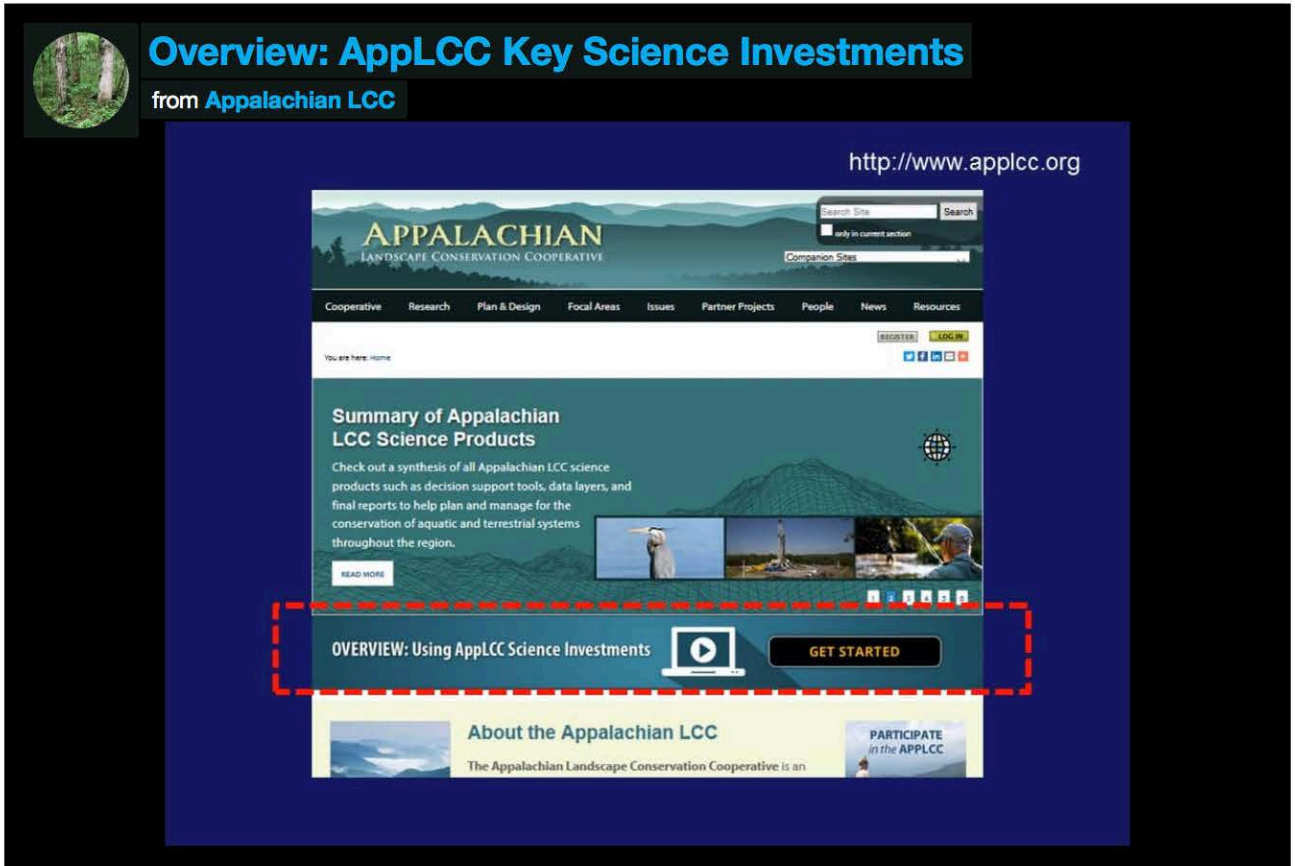
- File sharing
- Discussions
- Calendar
- Google Docs Integration
- Secure & Private

**You can join a community of practice, request to create a new group, and browse through our help section below.**

# Video Overview:
# Key LCC Investments

## Overview: AppLCC Key Science Investments

**How can Appalachian LCC science investments work for you? This section delivers a set of short video presentations to help you learn about our many Science Investments, such as Research Products, Tools, and Data; Delivering Science; Building Capacity; and Networking Communities.**




### Quick Links

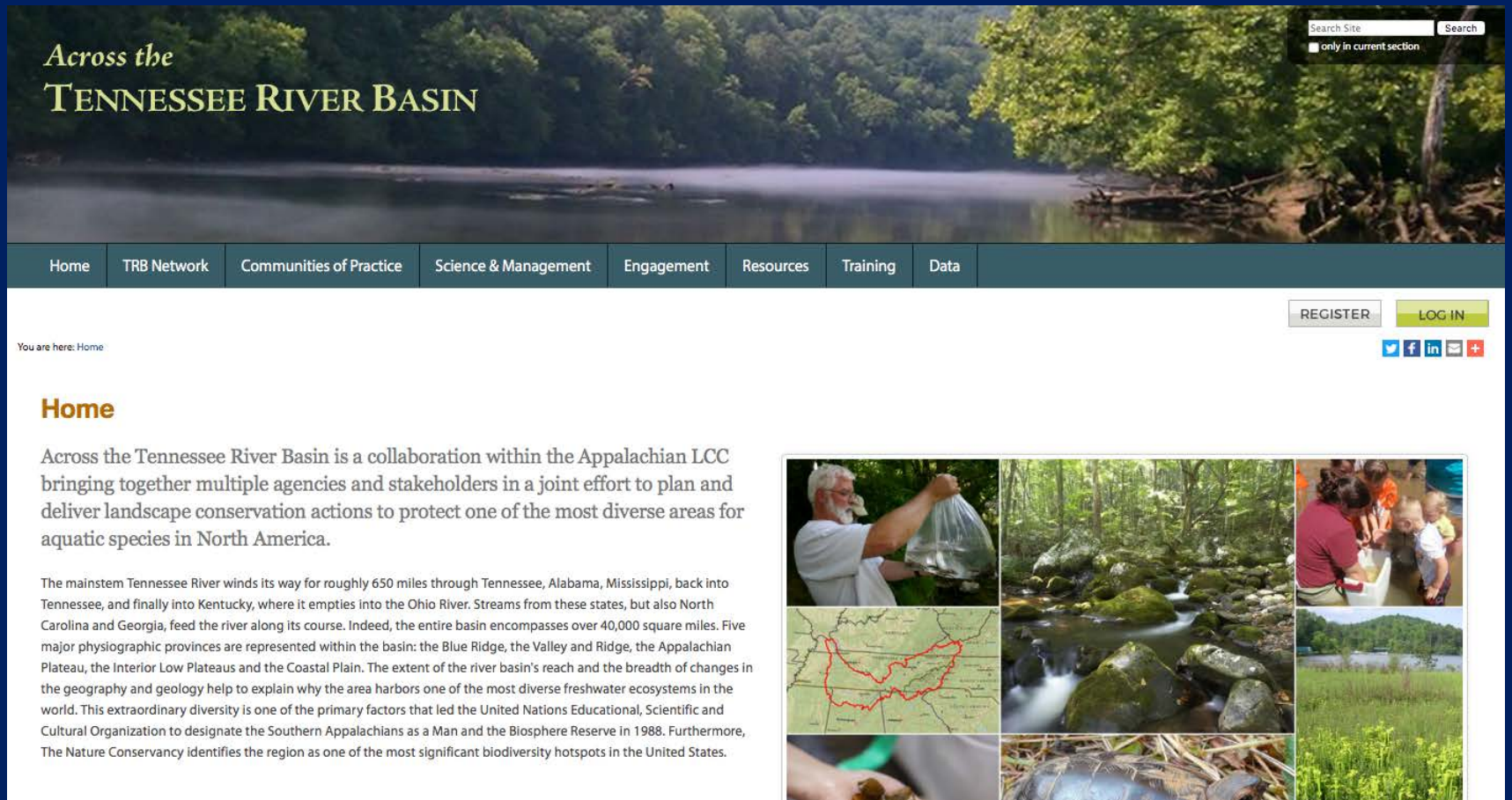
- Research Management Questions
- Data and Conservation Atlas
- On-line Training Courses
- Networking People, Expertise, Projects
- The Big Questions
- Why Landscape Planning & Design Approach?
- What are LCDs (Landscape Conservation Design)?
- How can the LCD inform decision-making?

add to RESOURCES

# Enhancing Partner Synergy: Tennessee River Basin

Networking and information sharing

Incorporating AppLCC science-based resources into collaborative conservation efforts



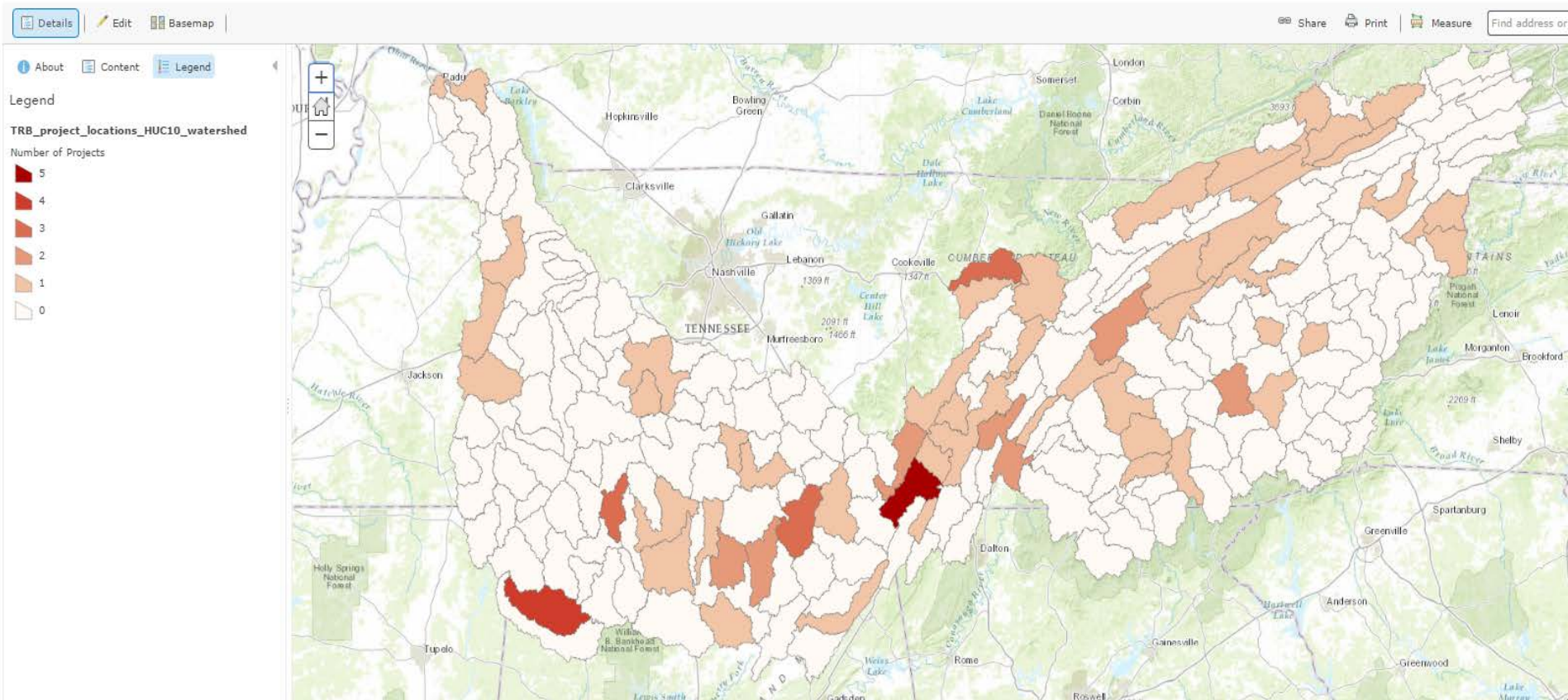
# Identifying Who is doing What, Where

Across the
TENNESSEE RIVER BASIN

Home | TRB Network | Communities of Practice | Science & Management | Engagement | Resources | Partners | Training | Data

You are here: Home › TRB Network › Conservation Action Map

Home ▾ TRB Project Locations by Watershed



# Enhancing Partner Synergy: Sharing Key Resources

Videos

Management Activity Guidance

Funding

Data

Strategic Plans

Education Materials

## Videos Around the Basin

Through this collection of over 35 videos about the ecology, threats, conservation efforts, and pride within the Tennessee River Basin, we hope to increase awareness of the conservation and natural resource management taking place in the region. This inventory can give partners a better understanding of who is doing what, where in the Basin and be utilized to engage with the broader public to communicate on the many values of nature the River Basin provides human communities and wildlife.

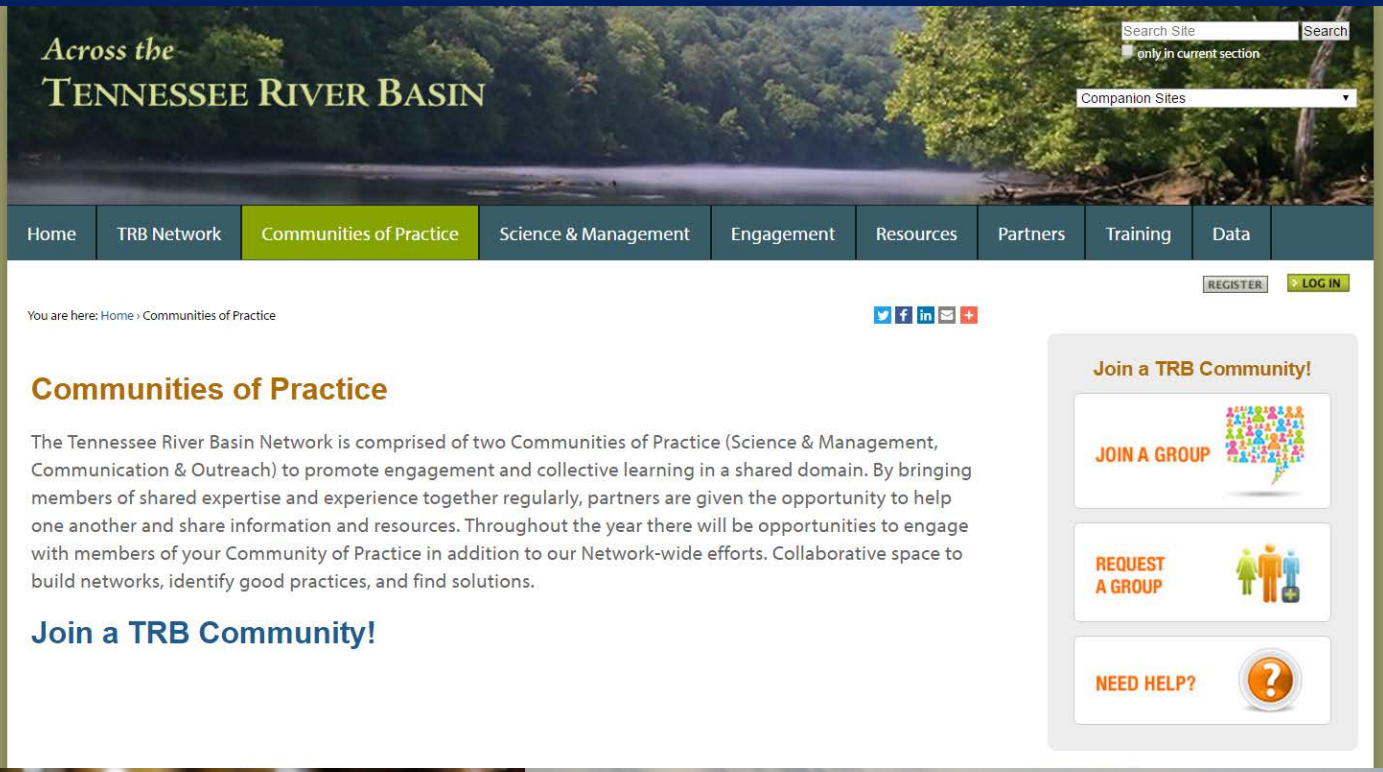
Threats

Conservation Efforts

Pride of Place

TRB Ecology 101

# How to Get Involved





Q
A

# AppLCC science-based resources to support the planning and action of the conservation community

## Session Outline

- AppLCC funded research synthesis
- AppLCC product categories
- AppLCC portal
- Climate Change Vulnerability Assessment
- Conservation Planning Atlas

# Appalachian LCC Funded Research

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**Information and Tools to Guide**
**Landscape Conservation in the Appalachians**

The Appalachian Landscape Conservation Cooperative (LCC) funds research that addresses the conservation community's top science needs and develops tools to enhance landscape conservation within the region. By identifying, prioritizing, and supporting fundamental scientific research, the LCC is fostering the development and effective application of vital information and products to help plan and manage for the conservation of aquatic and terrestrial systems throughout the region.

**Appalachian LCC Funded Research and Science Products**

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# Resources - Product Categories

| AppLCC Funded Research | Science Information/Data | Decision Support Info/Tool | Inventory/Trends Analysis | Predictive/Risk Assessment |
|---|---|---|---|---|
| A Stream Classification System for the AppLCC | ✖ | | | |
| Assessing Future Energy Development | | | ✖ | ✖ |
| Classification & Mapping of Cave and Karst Resources | ✖ | | | |
| ★ Climate Change Vulnerability | | | | ✖ |
| Riparian Prioritization for Climate Change Resiliency | | ✖ | | |
| ★ Landscape Conservation Design | | | | ✖ |
| Ecosystem Benefits & Risks | ✖ | | ✖ | |

Know WHICH resources can be used for WHAT

# Appalachian LCC Web Portal

www.applcc.org

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Companion Sites

Cooperative | Research | Plan & Design | Focal Areas | Issues | Partner Projects | People | News | Resources

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You are here: Home › Research › AppLCC Funded Projects

Navigate Resources

# AppLCC Funded Research

## A Stream Classification System for the Appalachian Landscape Conservation Cooperative

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. The goal of this project was to develop a state-based, consistent stream classification system for aquatic ecosystems in the region. Unifying state-based stream classifications into a single consistent system, principal investigators at The Nature Conservancy developed a hierarchical classification system and map for stream and river systems for the Appalachian LCC that represents the region's natural flowing aquatic habitats.

Read More…

## Assessing Future Energy Development

Assessing Future Energy Development across the Appalachian LCC uses models that combine data on energy development trends and identifies where these may intersect with important natural resource and ecosystem services to give a more comprehensive picture of what potential energy development could look like in the Appalachians. A web-based mapping tool allows policy makers, land management agencies, industries, and others to see where development may likely occur and intersect with important natural values to inform regional landscape planning decisions. Ultimately this information is intended to support dialogue and conservation on how to effectively avoid, minimize, and offset impacts from energy development to important natural areas and the valuable services they provide.

Read More…

## Classification and Mapping of Cave and Karst Resources

Cave and karst systems are unique environments that occur throughout the Appalachians. They provide habitat for a diverse array of species and are an important source of domestic water supply for Appalachian communities. However, a lack of classification and mapping information on these ecosystems creates a significant barrier to conservation. In order

# Assessing Future Energy Development across the Appalachians

**The Nature Conservancy - with support from the Appalachian LCC - has completed a study to assist policy makers, land management agencies, and industry in assessing potential future energy development and how that may overlap with biological and ecological values.**

The Appalachians are a landscape filled with globally-significant biological diversity and cultural resources that provides essential benefits to large cities and surrounding human communities. The region is also rich in energy resources that meet national and regional demands for energy. As wind, natural gas, and oil energy development expand along with traditional coal, there is an increasing need for research to inform discussions on how to meet immediate and future energy needs while sustaining the health of natural systems. To help address this need, the Appalachian LCC awarded a grant to The Nature Conservancy to assess current and future energy development across the entire region.

Quicklinks

- Assessing Future Energy Development
- Products and Tools
- Foundational Research
- Awareness and Outreach
- Data Access
- Background Materials: Assessing Future Energy Development Across the Appalachians

# Climate Change Vulnerability Assessment for the Appalachian LCC

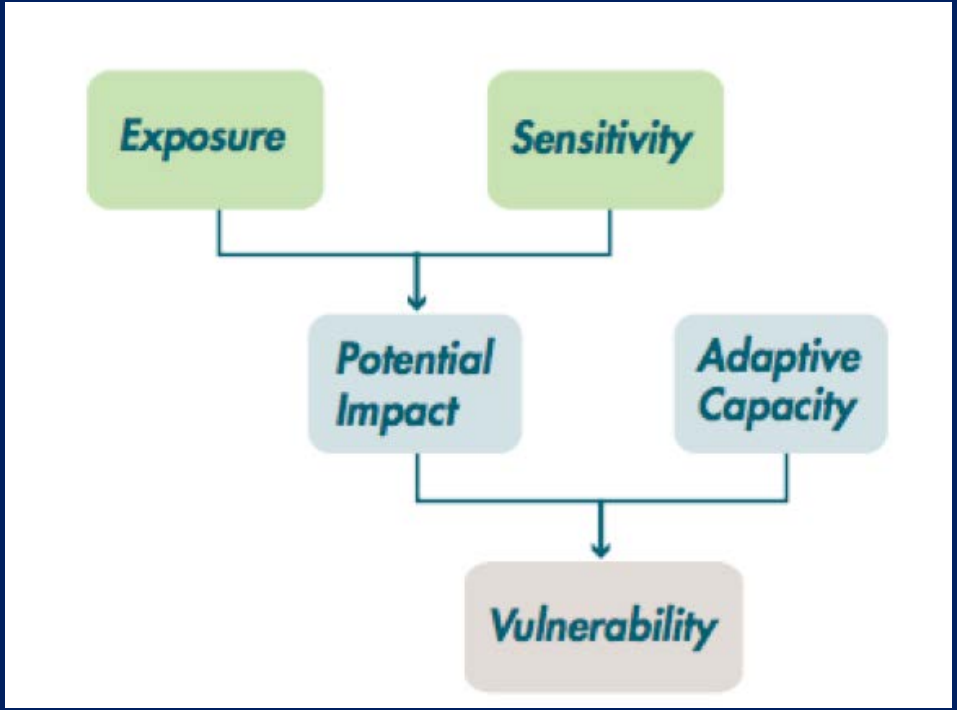
NatureServe
A Network Connecting Science With Conservation

**Predictive / Risk Assessment**

**Expert Panel – provide guidance to AppLCC and its constituency**

**Compile & review existing vulnerability assessments (700 sps., 30 habitats)**

**Selection of additional species and habitats & conduct new assessments where needed (41 sps., 3 habitats)**




**ID indicator species - monitoring**

# Resources available to users

## Frequently Asked Questions

**What is a climate change vulnerability assessment?**

Broadly speaking, a climate change vulnerability assessment is a process of using science to make predictions about the likeliho…

**What are the two phases of the "Climate Change in the Appalachians" report?**

In Phase I, we invited a panel of experts in climate change to provide guidance to the Appalachian LCC and its constituency on …

**How can I find out what species and habitats have been assessed?**

A searchable set of Excel spreadsheets are available here, with instructions on how to filter them to focus on your area, species, …

**Where can I read these and other related reports?**

Phase I and Phase II reports are available here, as are the reports from which the existing assessments were compiled.

**What were the primary recommendations of Phase I?**

The primary findings from Phase I include these recommended approaches: a) The first step in all cases is to determine the appr…

**How can I conduct a climate change vulnerability assessment?**

It depends on your goals, the amount and quality of data you have at hand to conduct the assessment, and the amount of time…

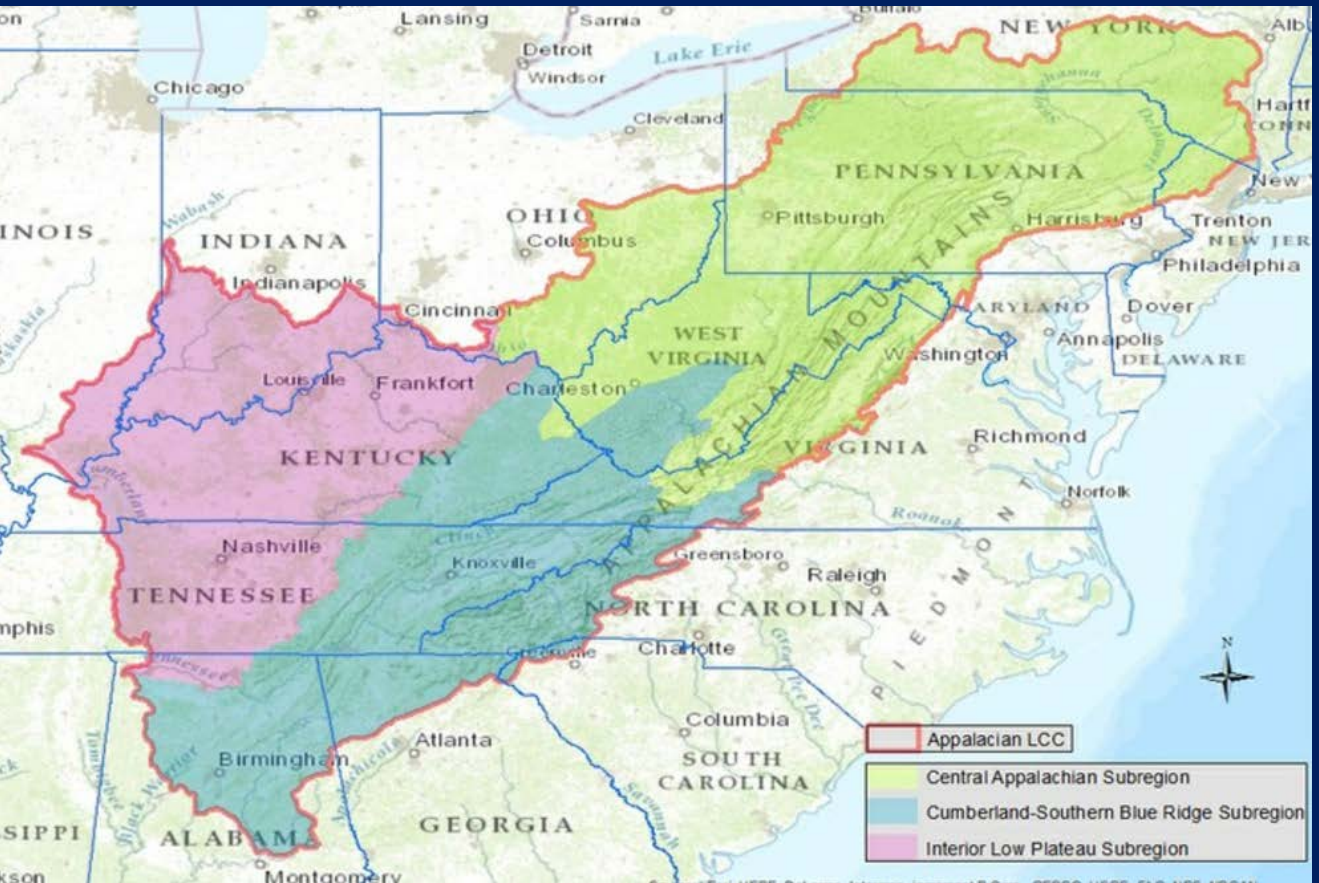
## Quicklinks

- Climate Change Vulnerability in the Appalachians
- Phase I: Alternatives for Climate Change Vulnerability Assessment: Expert Panel Findings
- Phase II: Vulnerability Assessments
- Climate Change Vulnerability Assessment Photo Gallery
- Climate Change Vulnerability Assessments Source Materials
- Background Materials: Climate Change Vulnerability in the Appalachians

# Resources available to users

## Vulnerability Indexes

- Previous Species Assessments
- New Species Assessments
- Habitat Assessments

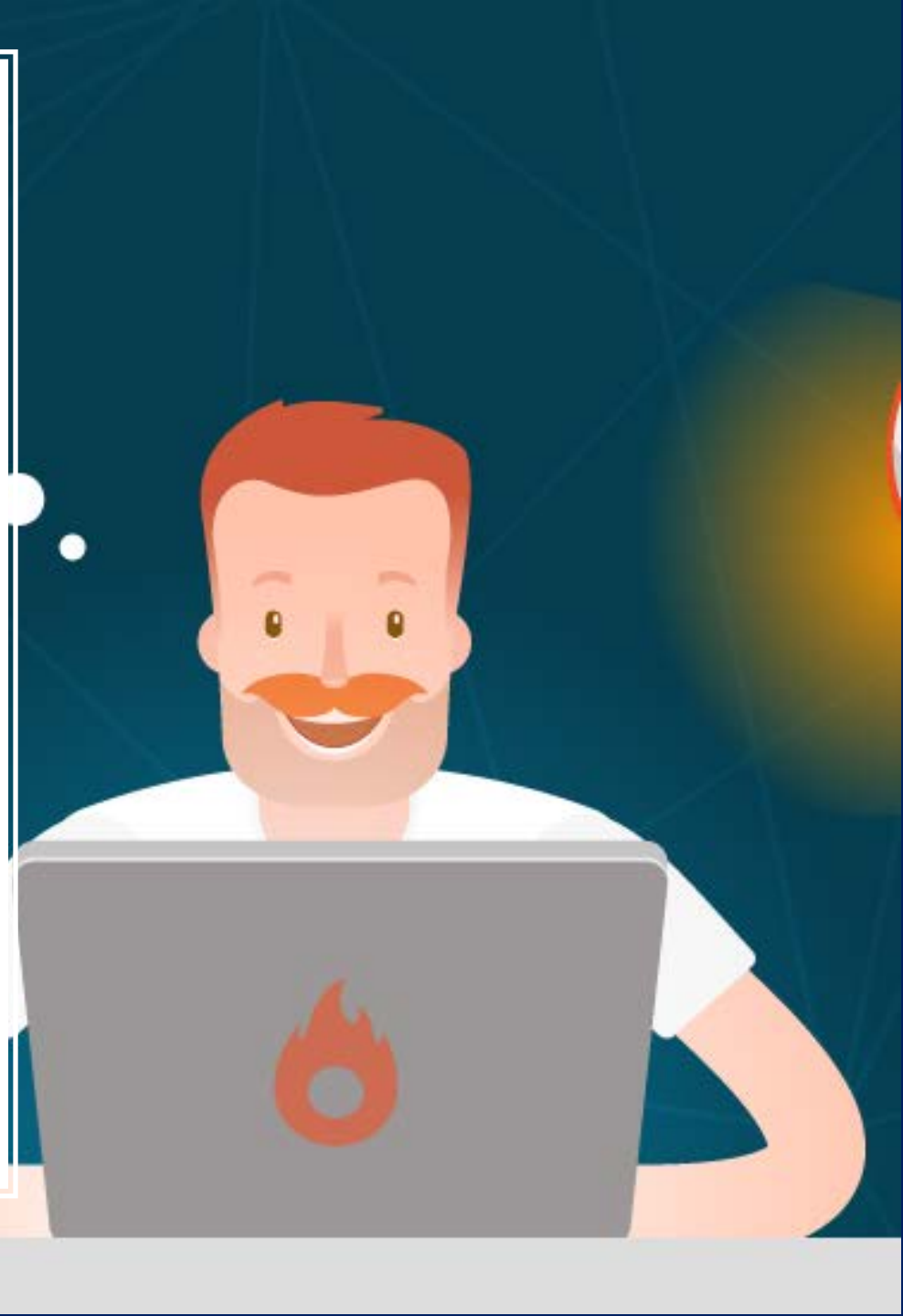



ecologically consistent sub-regions used for previous climate change vulnerability assessments

# Excel Spreadsheets

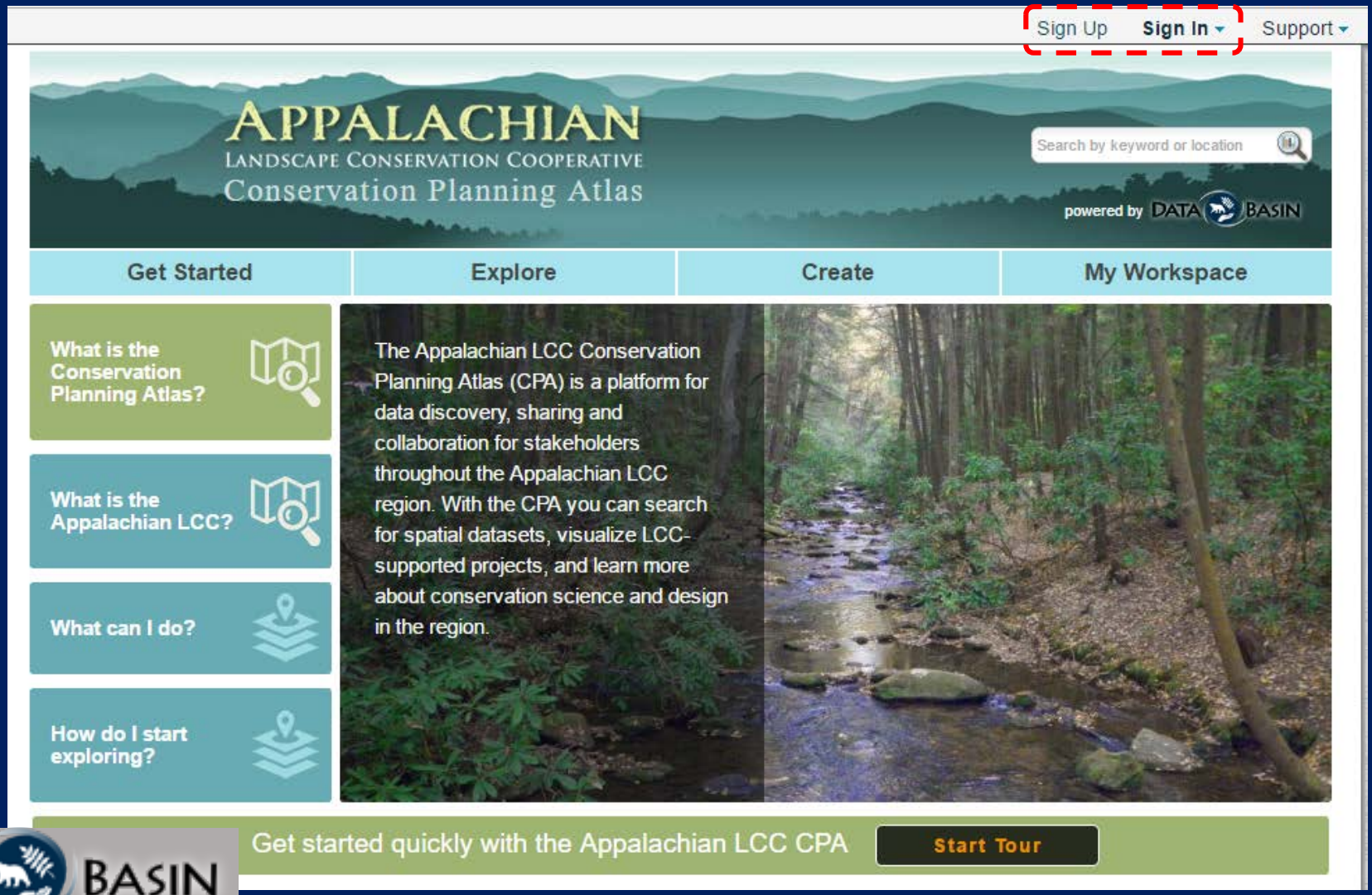
# How would you apply this resource?

- Guide where
  - Stewardship
  - Protection
  - Access
- Assist with funding securement
- ID indicator sps., what and where are threats to these indicator sps – target where projects need to be
- Holistic approach – what other species should we include, shift our attention to



# AppLCC Conservation Planning Atlas

https://applcc.databasin.org/




DATA BASIN

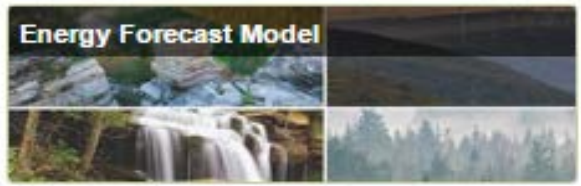
# Conservation Planning Atlas

## Navigate Resources

### Galleries








### Maps

**Appalachian LCC Boundary Overview**

Overview map of the Appalachian LCC

**Galleries - 12**

**Maps - 17**

**Datasets - 356**

Search by keyword or location

### Datasets

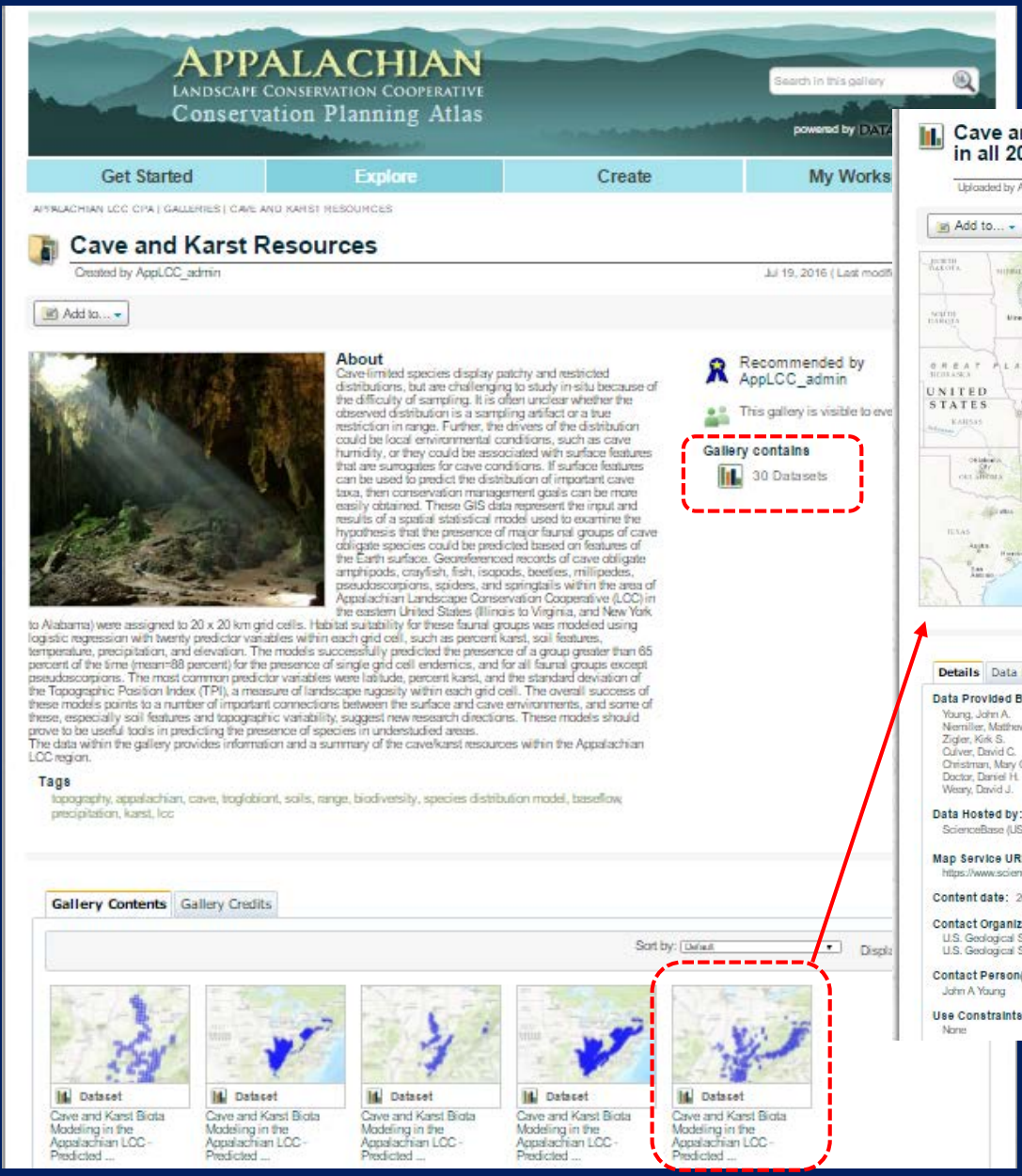
Potential of Wind Energy Development across the Appalachian LCC - 90 ...

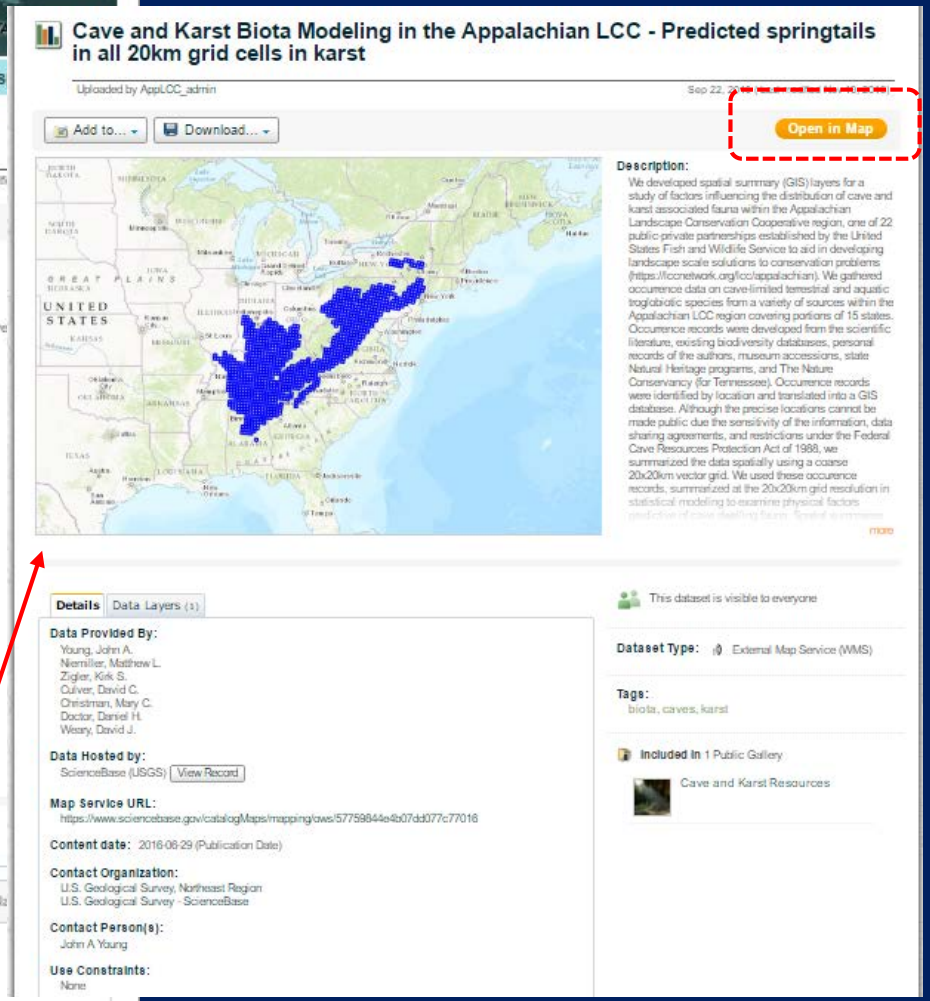
USDA Forest to Faucets: Percent of HUC Threatened by Insects and Disease

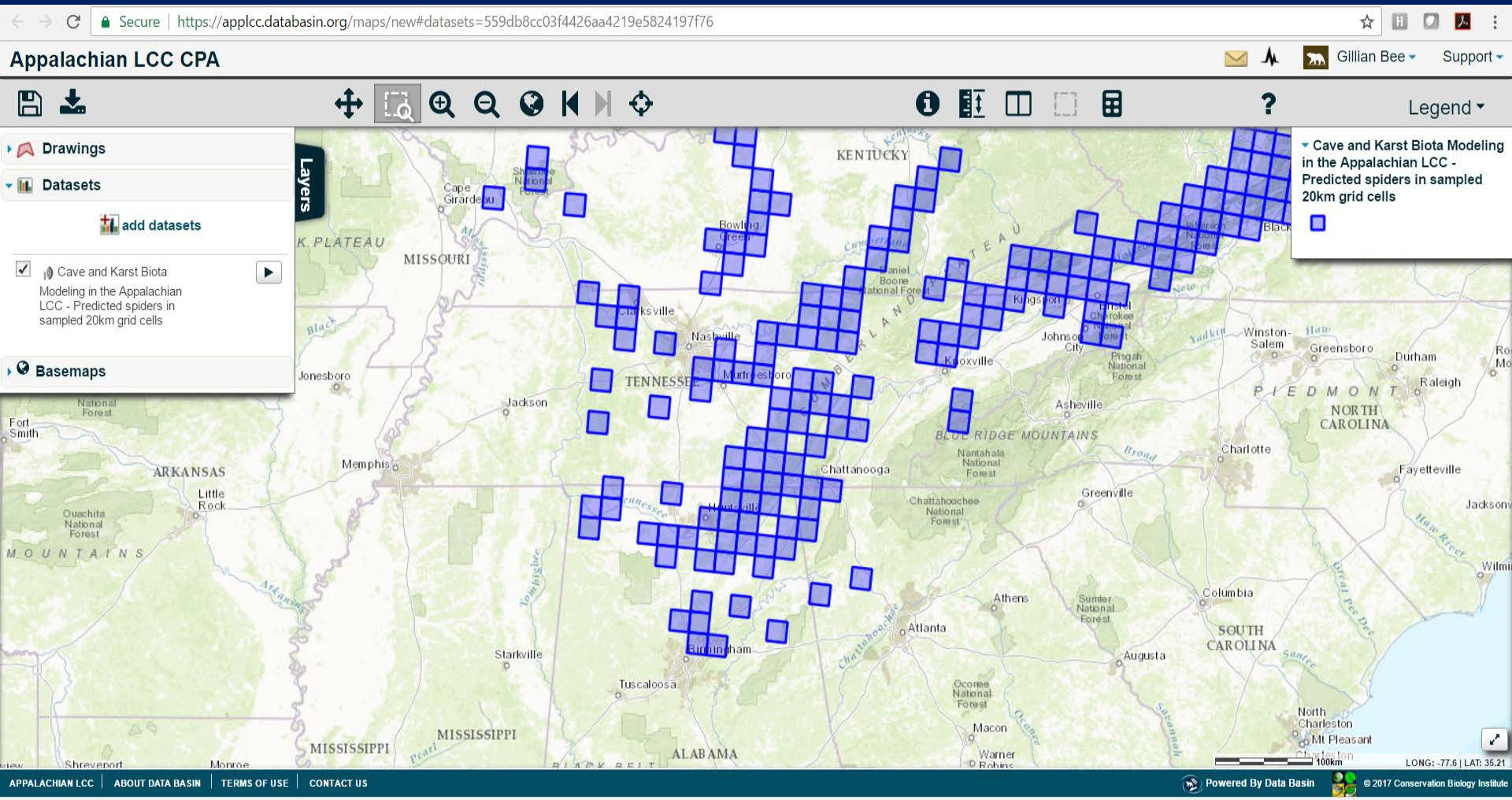
CMIP5: Projected Change in Annual Temperature Normal (2031-2060)

# Conservation Planning Atlas

## Navigate Resources






Create your own map specific to your needs

- Add polygon, points, lines
- Add additional datasets
- Save map to your Data Basin Workspac
- Export map (PDF, PPT)

# Download Data

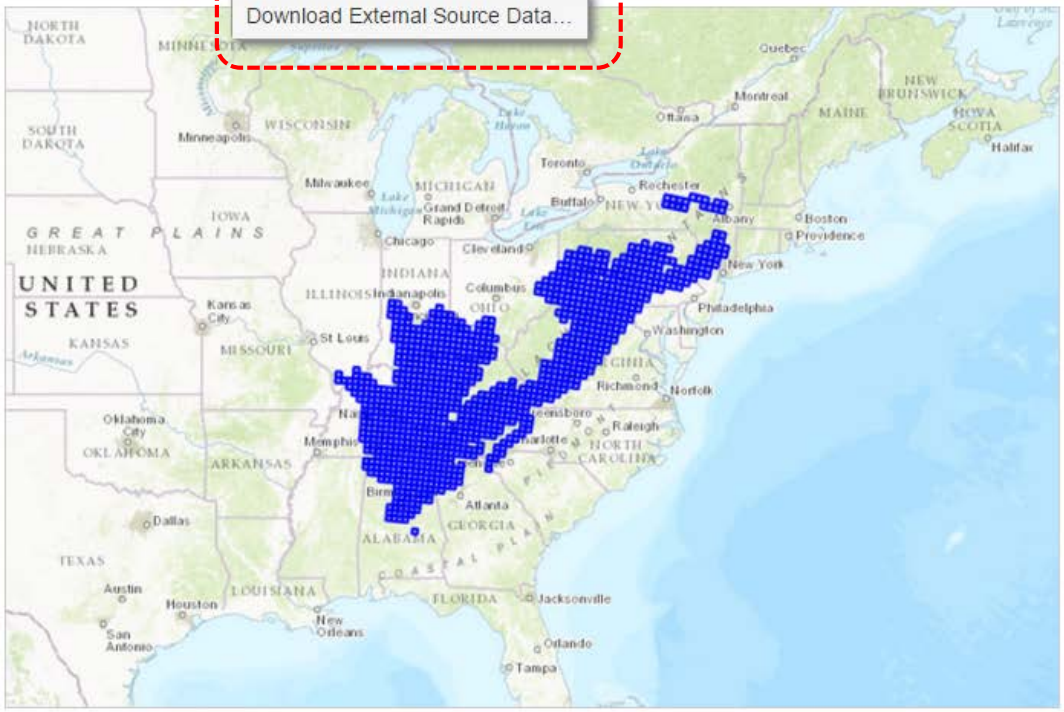
## Cave and Karst Biota Modeling in the Appalachian LCC - Predicted springtails in all 20km grid cells in karst

Uploaded by AppLCC_admin

Sep 22, 2016 ( Last modified Nov 19, 2016)

Add to... | Download... | Open in Map

Download External Source Data...



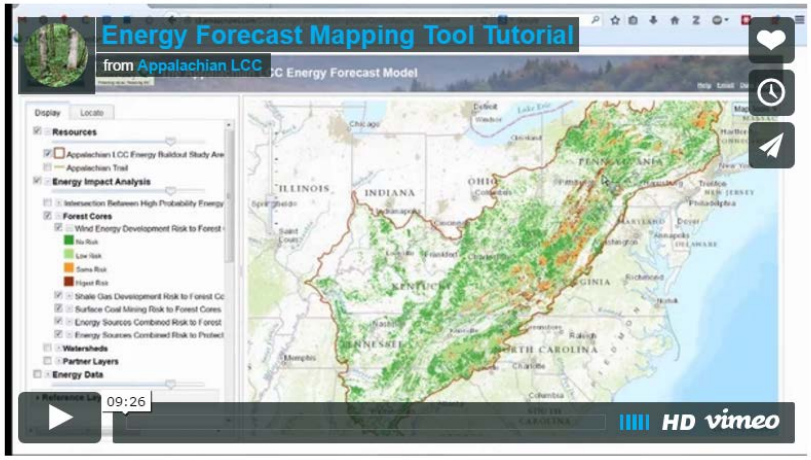

**Description:**

We developed spatial summary (GIS) layers for a study of factors influencing the distribution of cave and karst associated fauna within the Appalachian Landscape Conservation Cooperative region, one of 22 public-private partnerships established by the United States Fish and Wildlife Service to aid in developing landscape scale solutions to conservation problems (https://lccnetwork.org/lcc/appalachian). We gathered occurrence data on cave-limited terrestrial and aquatic troglobiotic species from a variety of sources within the Appalachian LCC region covering portions of 15 states. Occurrence records were developed from the scientific literature, existing biodiversity databases, personal records of the authors, museum accessions, state Natural Heritage programs, and The Nature Conservancy (for Tennessee). Occurrence records were identified by location and translated into a GIS database. Although the precise locations cannot be made public due the sensitivity of the information, data sharing agreements, and restrictions under the Federal Cave Resources Protection Act of 1988, we summarized the data spatially using a coarse 20x20km vector grid. We used these occurence records, summarized at the 20x20km grid resolution in statistical modeling to examine physical factors predictive of cave dwelling fauna. Spatial summaries were developed for all cave dwelling species in our database where we had location coordinates for nine faunal groups (five terrestrial and four aquatic) that are common components of terrestrial and aquatic cave communities: ground beetles (Carabidae), millipedes, pseudoscorpions, spiders, and springtails for terrestrial species groups, and amphipods (Crangonyctidae and Gammaridae), isopods (Asellidae), crayfishes (Cambaridae), and fishes (Amblyopsidae) for aquatic species groups.

# Training Opportunities

## Pre-recorded Webinars

View a video presentation that provides a detailed overview of how to use the Energy Forecast Mapping Tool




## Self-paced On-line Courses

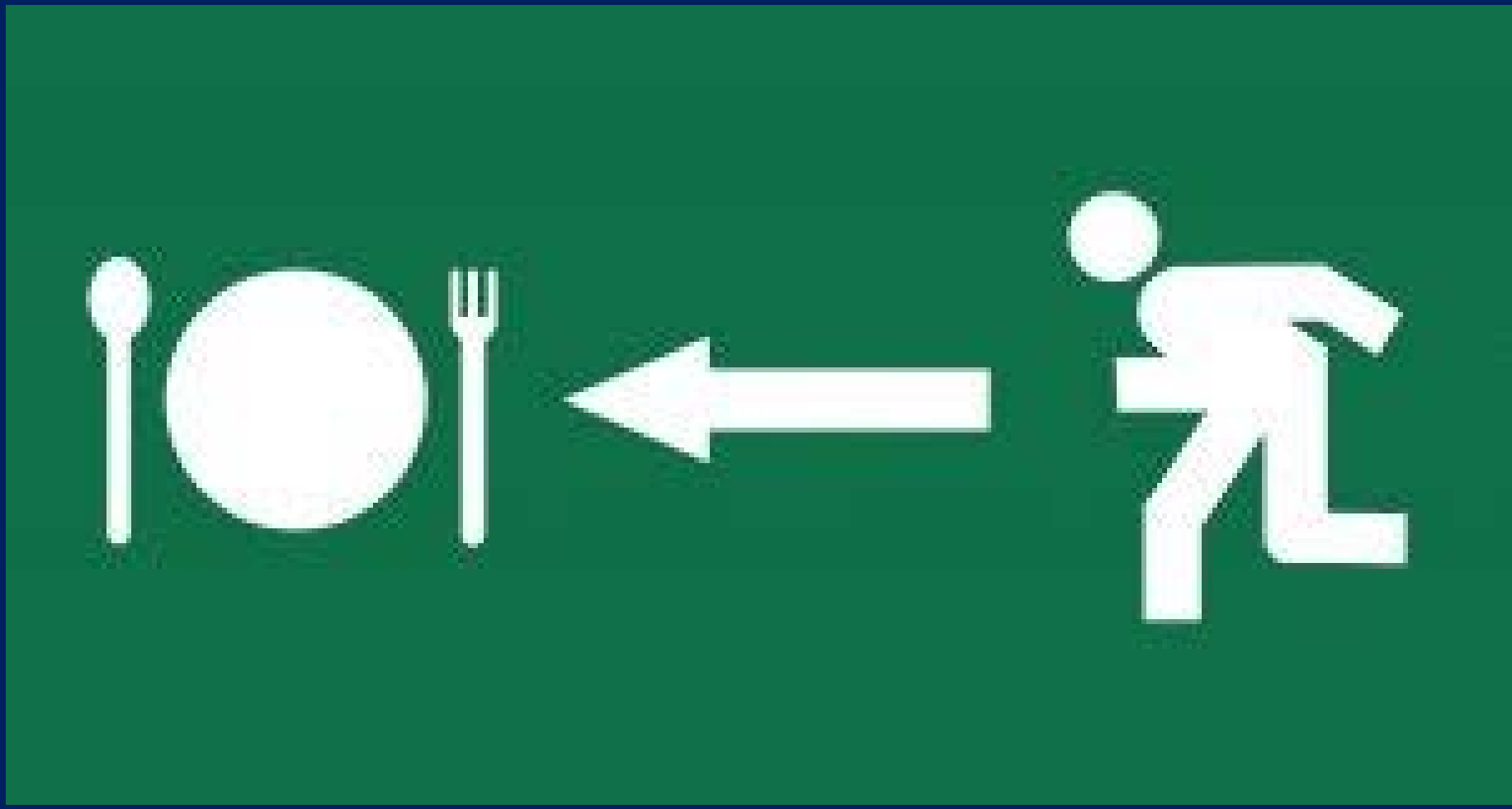
Visit the
Science Applications
ONLINE LEARNING
MANAGEMENT SYSTEM

The Science Applications Online Learning Management System's self-paced tutorials and classes highlight the intended uses of decision-support tools and other products by giving a step-by-step demonstration of how to apply tools to specific natural resource issues. Once completing the course, users can work with LCC staff directly to discuss how to incorporate these LCC products in their own work.

ENTER THE ONLINE LEARNING MANAGEMENT SYSTEM ▸

**We are here to help


Q
A



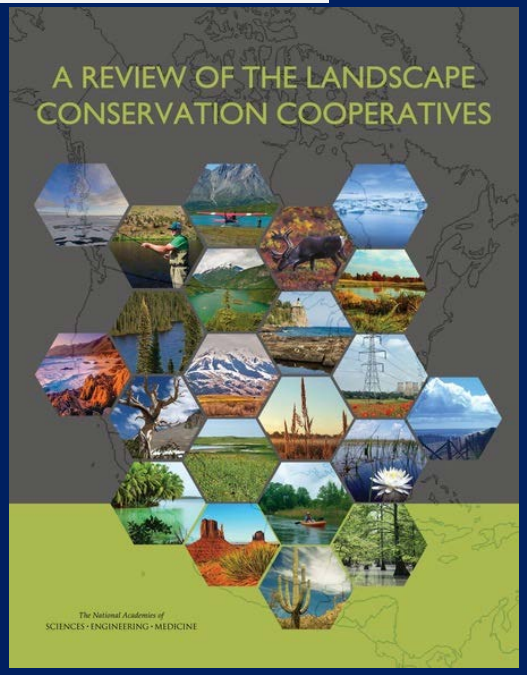

Q
A

# What are Landscape Conservation Designs (LCDs)?

## Role of the LCCs

(to) engage DOI
and federal agencies, states,
tribes, local governments
and the public.

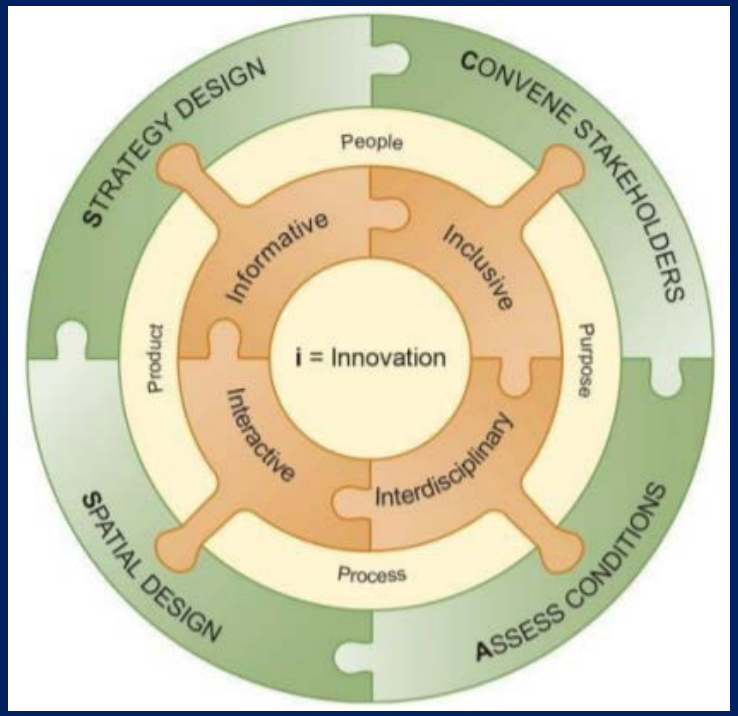
to craft practical, landscape-level strategies
for managing climate
change and other
large-scale impacts."




*2016 NAS: "landscape conservation designs…signature product"*

# *What are Landscape Conservation Designs (LCDs)?*

LCDs – Identify landscape configurations and strategies to promote current and possible future conditions that support high-priority resources despite change and uncertainty




## Five Principles (iCASS)

- innovation
- Convening
- Assessment
- Spatial
- Strategy

# AppLCC Landscape Conservation Planning

*What will success look like?*

…identify (partnership) priorities (i.e., systems to be represented in the final modeling solution *(design)*

## Priority Resources/Ecosystems

1. Unfragmented forest
2. High-elevation forest
3. Mature lowland forest
4. Early successional habitats
5. High-elevation streams [mid- high]
6. Low-elevation streams [mid-low]
7. Cave/Karst Systems
8. Forested Wetlands

**Engage Technical Teams**

# *What are the key representatives of these identified priority resources/ecosystems?*

- Species (9 sps.)
  For example:
  - *Hellbender*
  - *Brook Trout*
  - *Cave Obligates*

- Aquatic Integrity
  - *Aquatic Condition*

- Ecosystem Services
  - *Carbon Store*
  - *Total Basal Area*
  - *Impt to Drinking Water*

- Special Places
  - *Shale Barrens*
  - *Rocky Outcrops*

- Key Features
  - *TNC Resiliency*
  - *Least departure*

***What are our conservation targets?***

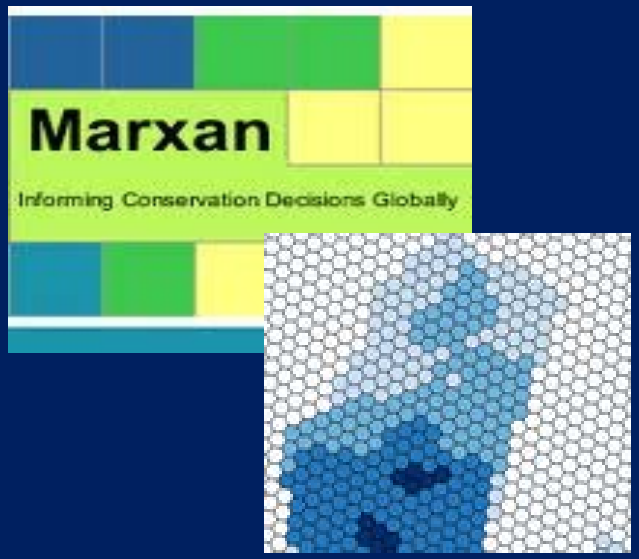
***What data sets are available?***

***What are our goals for these targets?***

***How much?***

# Modeling Approach

Spatial optimization: achieve multi-objective decision making while balancing all conservation targets and goals simultaneously

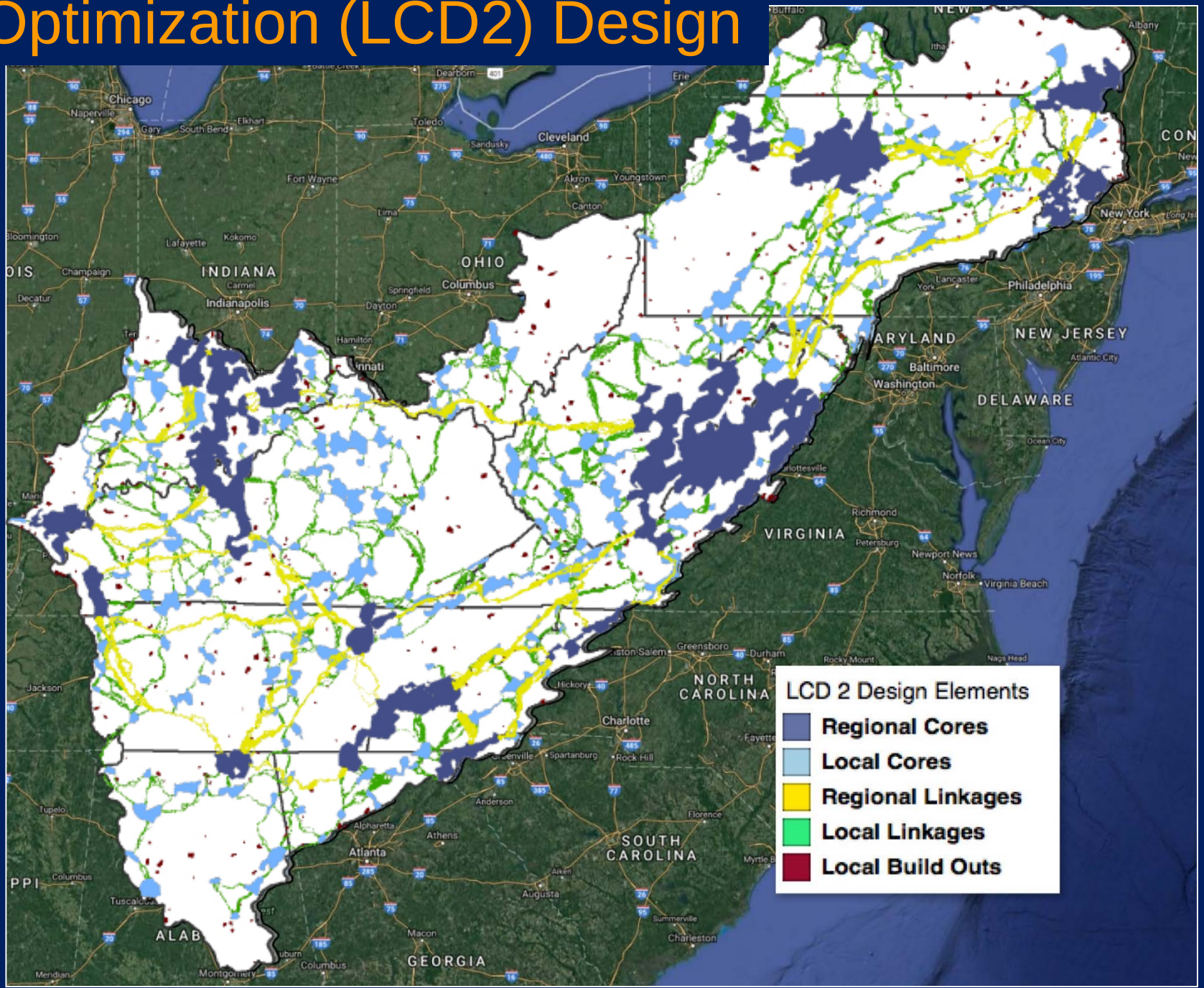


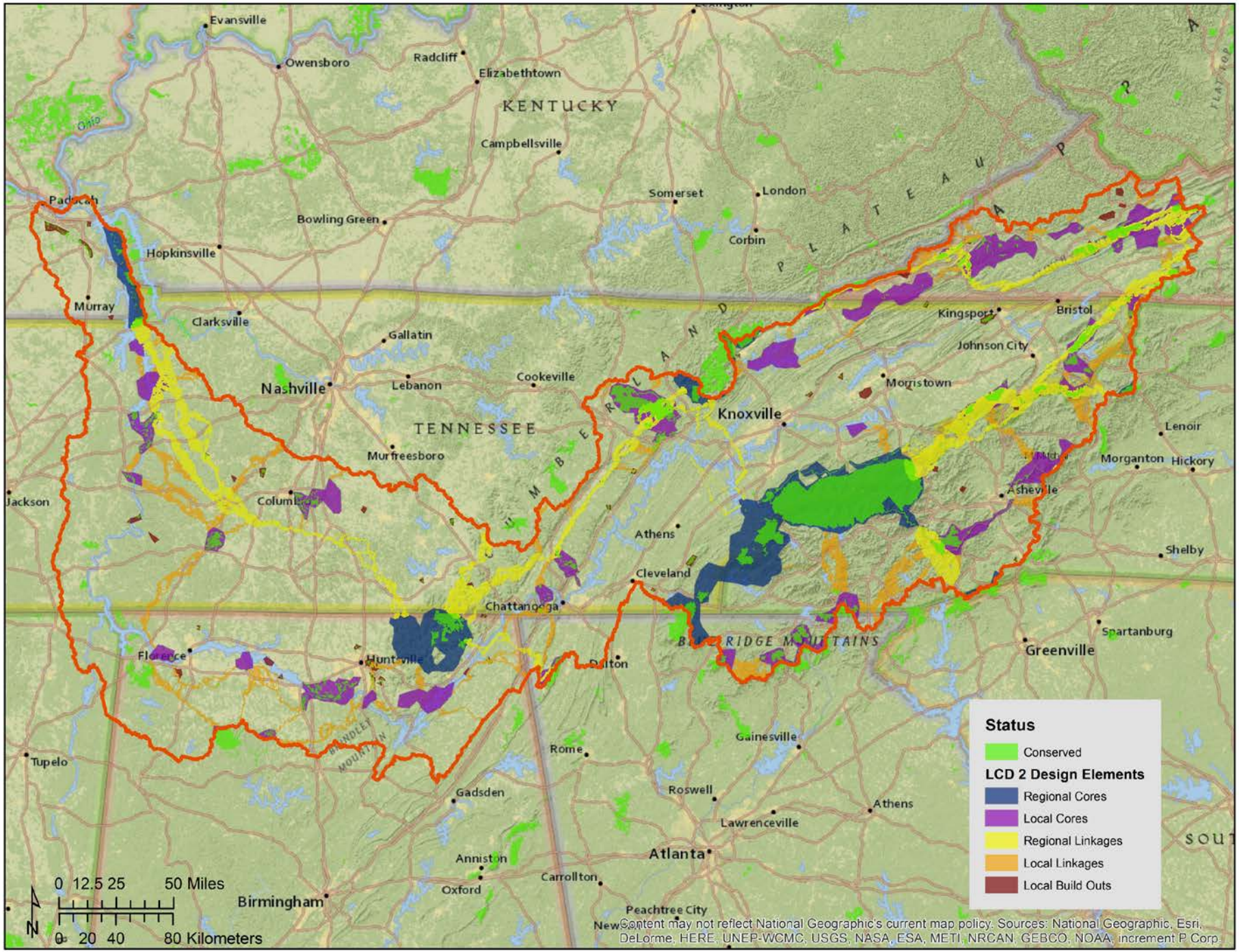

*Conservation Targets*

*Connectivity*

*Cost (HMI)*

# Optimization (LCD2) Design

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Hopkinsville
Murray
Clarksville
Gallatin
Kingsport
Bristol
Johnson City
Nashville
Lebanon
Cookeville
Morristown
Knoxville
TENNESSEE
Murfreesboro
Lenoir
Morganton
Hickory
Jackson
Columbia
Athens
Shelby
Cleveland
Chattanooga
Spartanburg
Florence
Huntsville
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Tupelo
Rome
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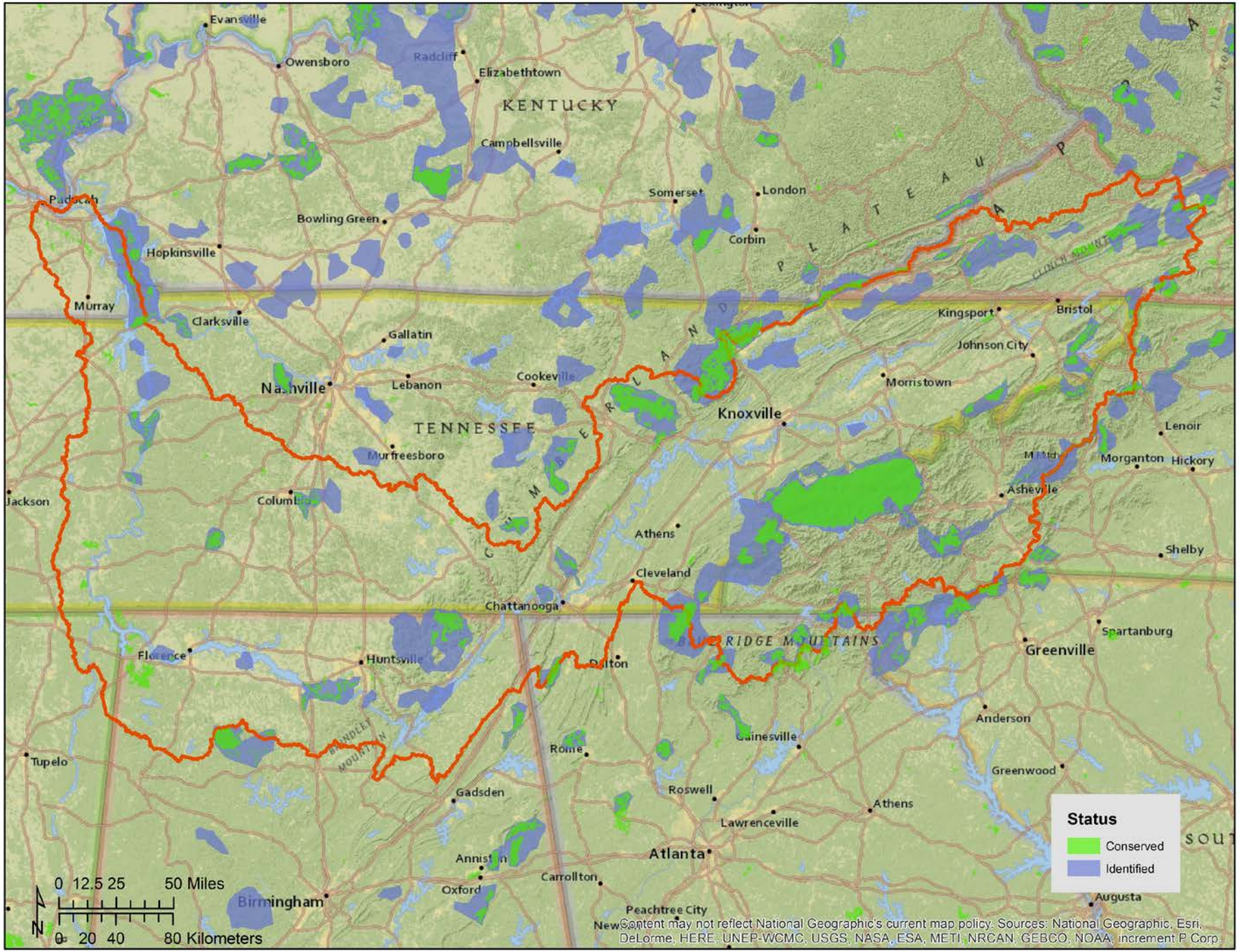
Local Cores
Regional Linkages
Local Linkages
Local Build Outs
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp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Greenville
Florence
Huntsville
Dalton
Anderson
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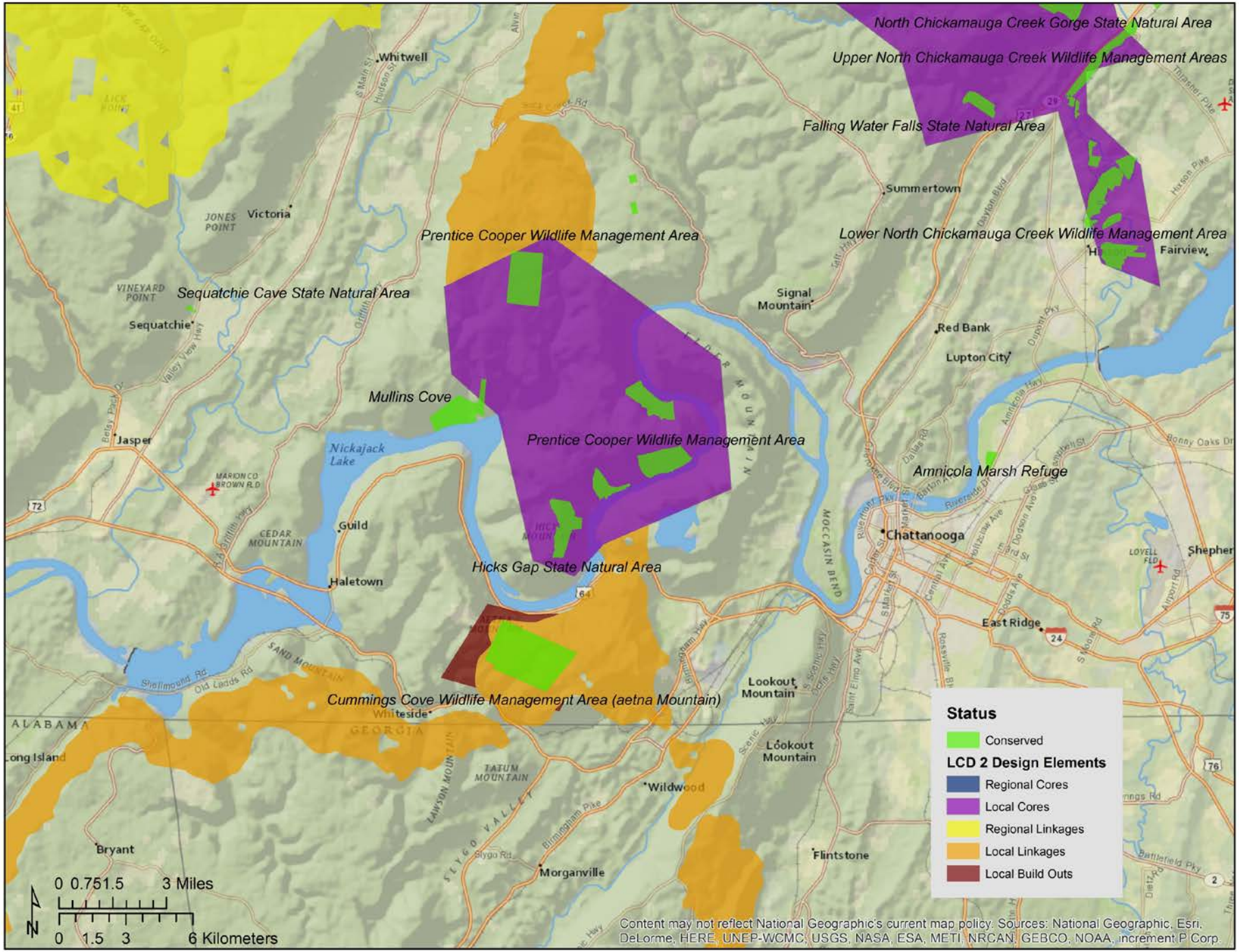
North Chickamauga Creek Gorge State Natural Area
Upper North Chickamauga Creek Wildlife Management Areas
Falling Water Falls State Natural Area
Prentice Cooper Wildlife Management Area
Lower North Chickamauga Creek Wildlife Management Area
Sequatchie Cave State Natural Area
Mullins Cove
Prentice Cooper Wildlife Management Area
Amnicola Marsh Refuge
Hicks Gap State Natural Area
Cummings Cove Wildlife Management Area (aetna Mountain)
Whitwell
Victoria
Summertown
Fairview
Signal Mountain
Red Bank
Lupton City
Sequatchie
Jasper
Nickajack Lake
Guild
Haletown
Chattanooga
East Ridge
Lookout Mountain
Wildwood
Flintstone
Morganville
Bryant
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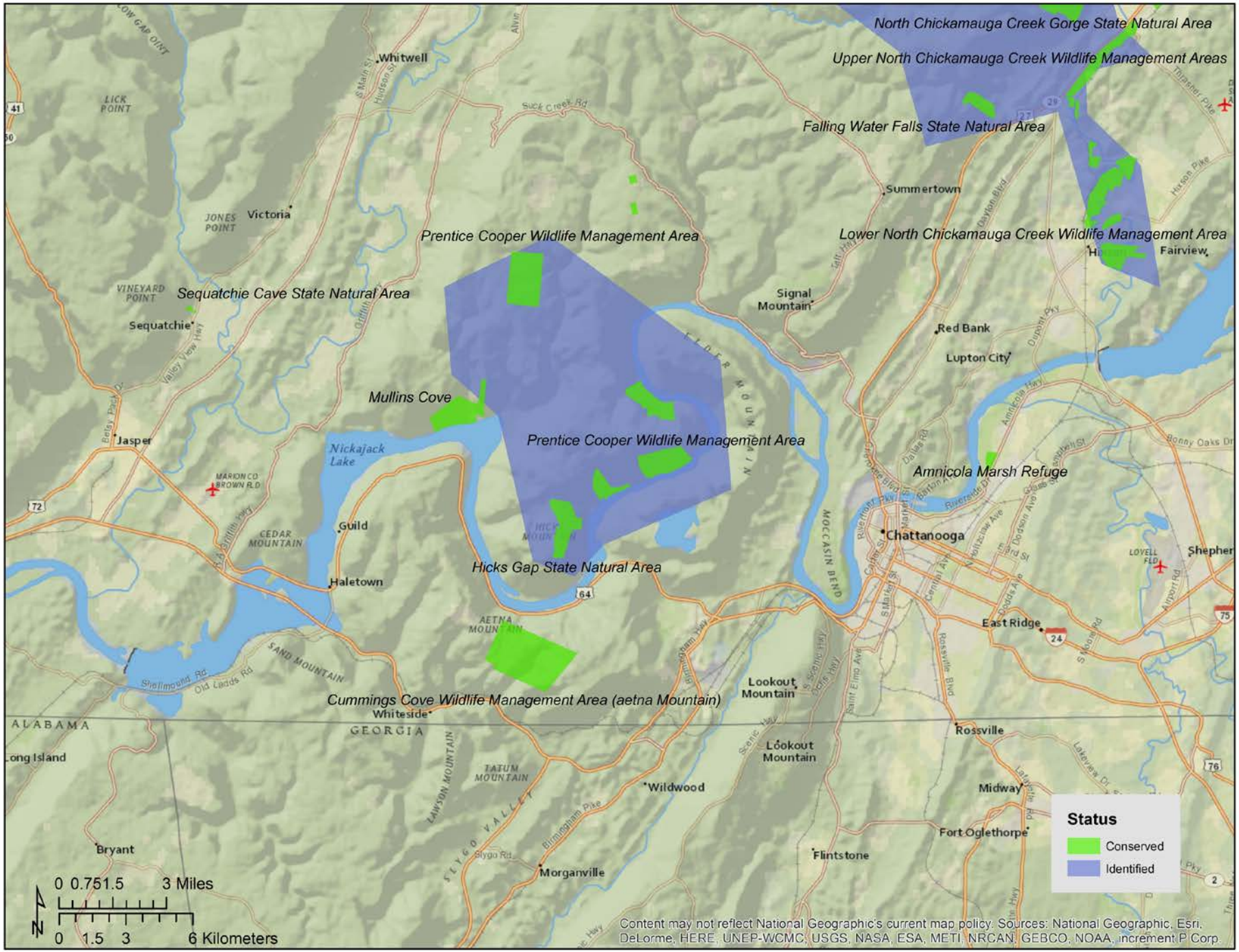
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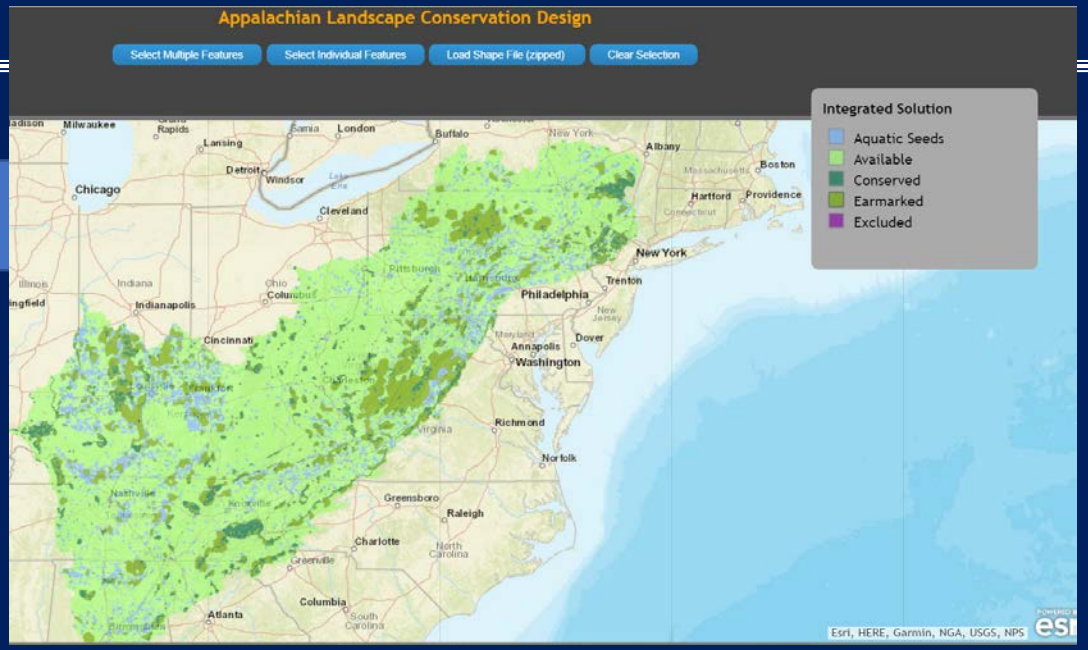
# LCD Resources

## Visualization Tool

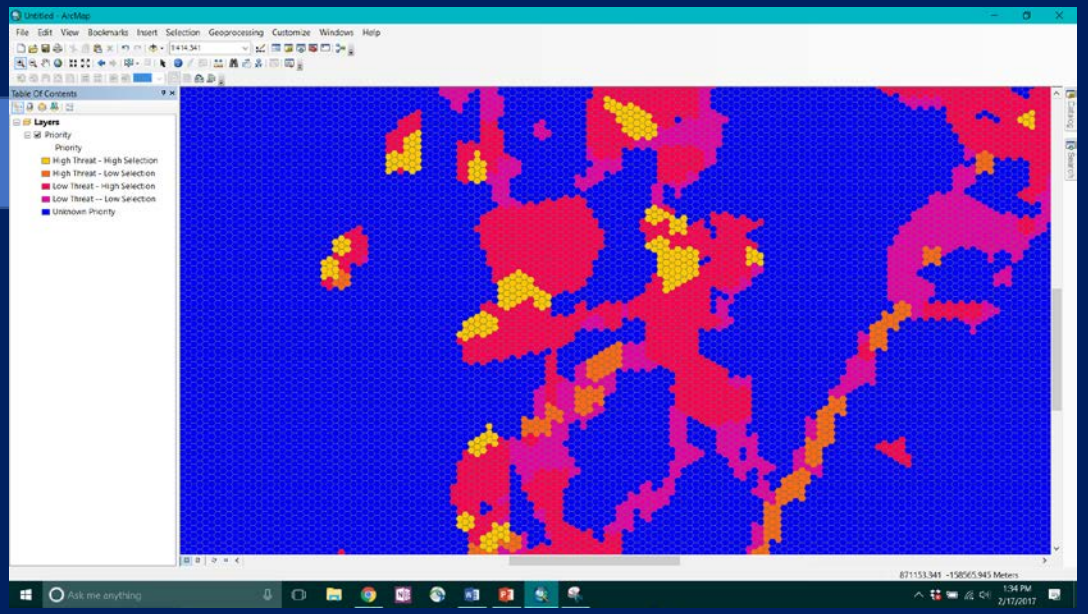
- Illustrates location of key focal landscapes and priority resources

https://www.fws.gov/map/




## Geospatial Data

- Near Optimal
- Richness
- Selection Frequency
- Priorities



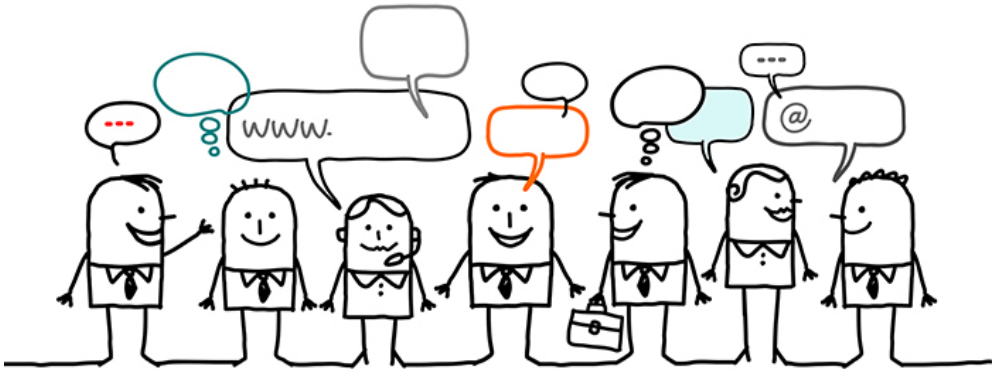

Q
A

# LCD Visualization Tool – Hands on exercise

http://webgis.coe.clemson.edu/mapapps/selectspecies/

https://www.fws.gov/map/

# Team Break-Out Session



# Team Break-out Session

**How AppLCC resources can enhance workshop participants' work and how participants may apply these resources in their own conservation planning efforts.**

Do you think these resources can make your work more effective and sustainable?

Are there opportunities to utilized these resources to knock down barriers identified by the community?

How might these resources serve as guidance or be applied in the work plans to support your organization?

# Team Break-out Session – Participant Report Out

## How AppLCC resources can enhance workshop participants' work and how participants may apply these resources in their own conservation planning efforts.

Help be more strategic in efforts and info can help to sell ideas

Help with acquisition strategy

Tools are at your disposal for your use

Did not see as useful as a sustainability for academic – but yes for teaching perspective

Aide in collaboration – know who is doing what with whom

Shows how a piece of land can contribute to the whole – be strategic vs opportunistic

Help share why we do what we do

Help to be strategic with access, with land acquisition

Networking opportunities

Clearinghouse info*

Resources can be used for planning purpose – look for areas to avoid

Provide collaboration opps

Finding experts in the field

Pooling of resources, redundancy reduction

Use to expand across boundaries of Land Trusts – might be bale to show justification of why to broaden boundaries

Help develop long term work plan

Help ID land targets and help prioritize

# Wrap-up

- Revisit introduction notes and first facilitated group discussion notes
  - Were your objectives for this event met?
  - Were there resources presented to help barriers?
  - Are there barriers that AppLCC can enhance support for?
- Feedback survey – include any questions we did not have time to answer
- Sign up for a portal account!
- Visit with us! – we are here to help
- **Thank YOU and TRGT**