

Welcome!

**Planning for Growth and
Open Space Conservation Webinar
Series**

USDA Forest Service State and Private Forestry
Cooperative Forestry Staff
and
National Open Space Conservation Group

This web conference is being recorded

Session #3: Green Infrastructure Planning: Connecting Partners and Greenspaces



Kendra Brieche
Senior Training Associate
Conservation Leadership Network
Conservation Fund
Virginia



Rick LeBrasseur
Executive Director
Center for
Green Infrastructure Design
Utah

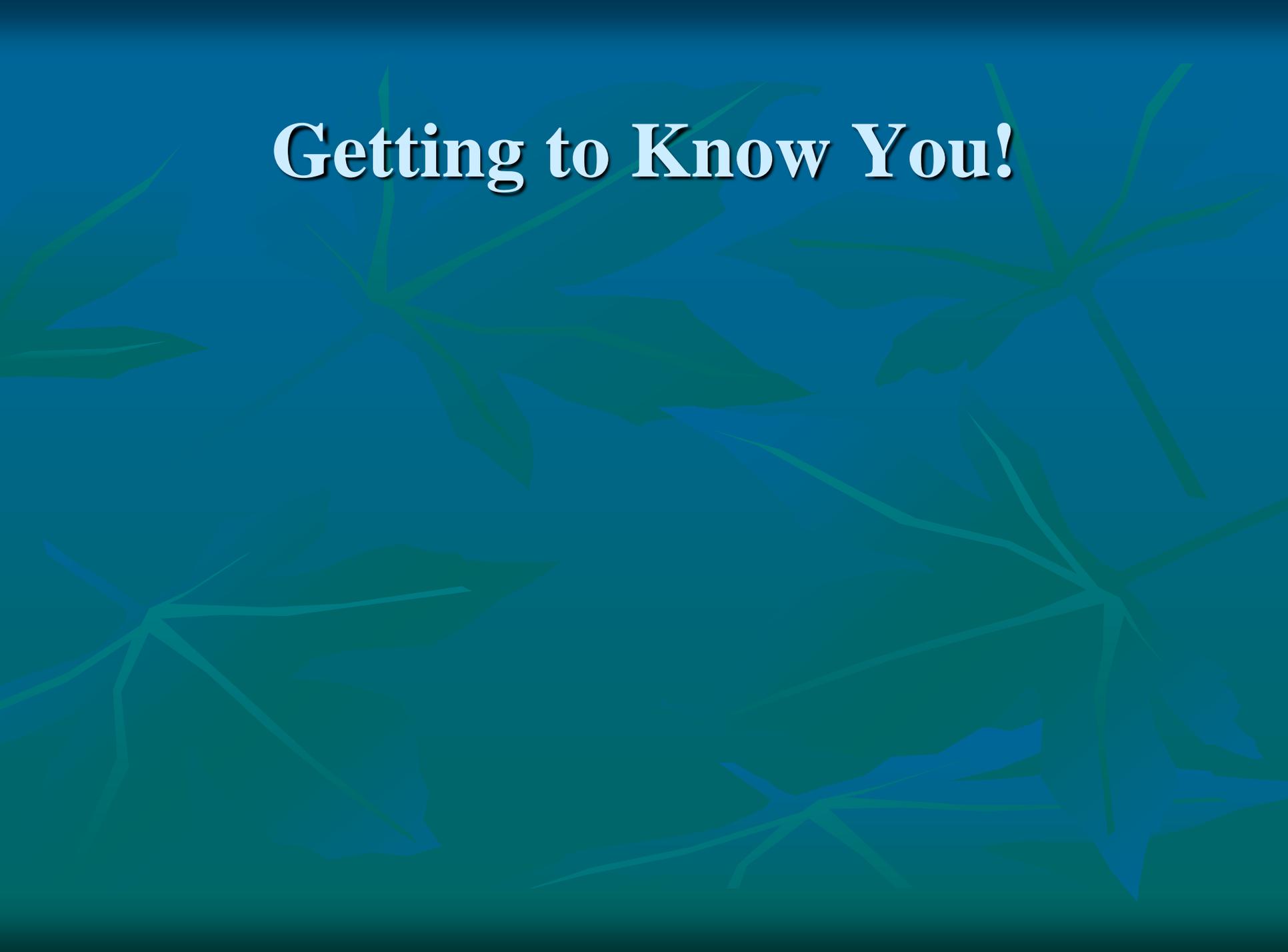


Karen Firehock
Executive Director
Green Infrastructure Center
Virginia

Logistics

- Continuing education credits - Poll pod
- Questions for speakers – Q&A periods
- Technical difficulties – Chat pod

Getting to Know You!

The background of the slide features a blue-to-teal gradient. Overlaid on this are several stylized, semi-transparent green leaves of various shapes and sizes, scattered across the frame. The leaves have a simple, flat appearance with visible veins.



Kendra Briechele

Senior Training Associate

Conservation Leadership Network

Conservation Fund

THE CONSERVATION FUND

America's Partner in Conservation

Introduction to Green Infrastructure Concepts and Values



Kendra J. Briechele, The Conservation Fund



- Which lands to conserve?

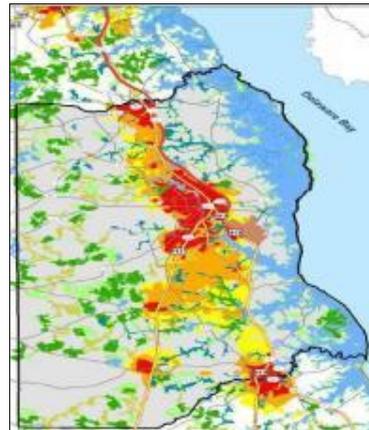


- Where to permit development?



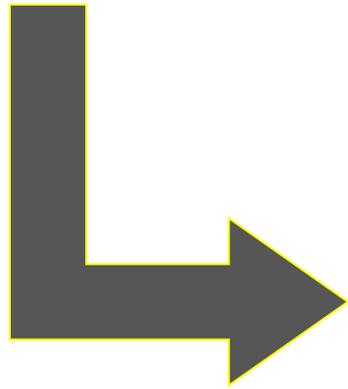
- Where to build roads and utilities?

- Where & how to select mitigation projects?



- **Proactive** not reactive;
- **Systematic** not haphazard;
- **Multi-functional** not Single Purpose;
- **Multiple Scales** not Single Scale, and
- **Scientifically defensible, transparent decision-making process**

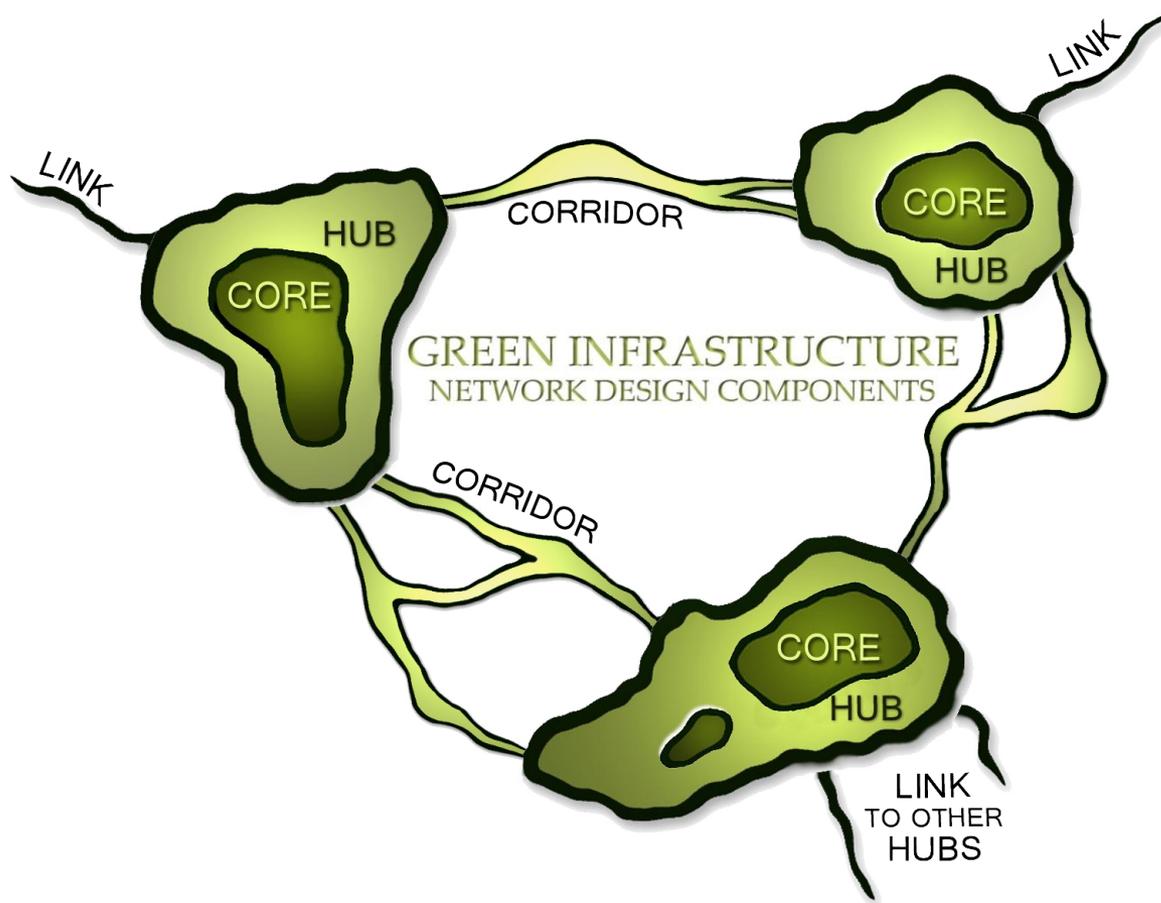
“Strategically planned and managed networks of natural lands, working landscapes and other open spaces



that conserve ecosystem values and functions and provide associated benefits to human populations”



Hub/Core/Corridor Delineation



Core Areas:

- Contain fully functional natural ecosystems
- Provide high-quality habitat for native plants and animals

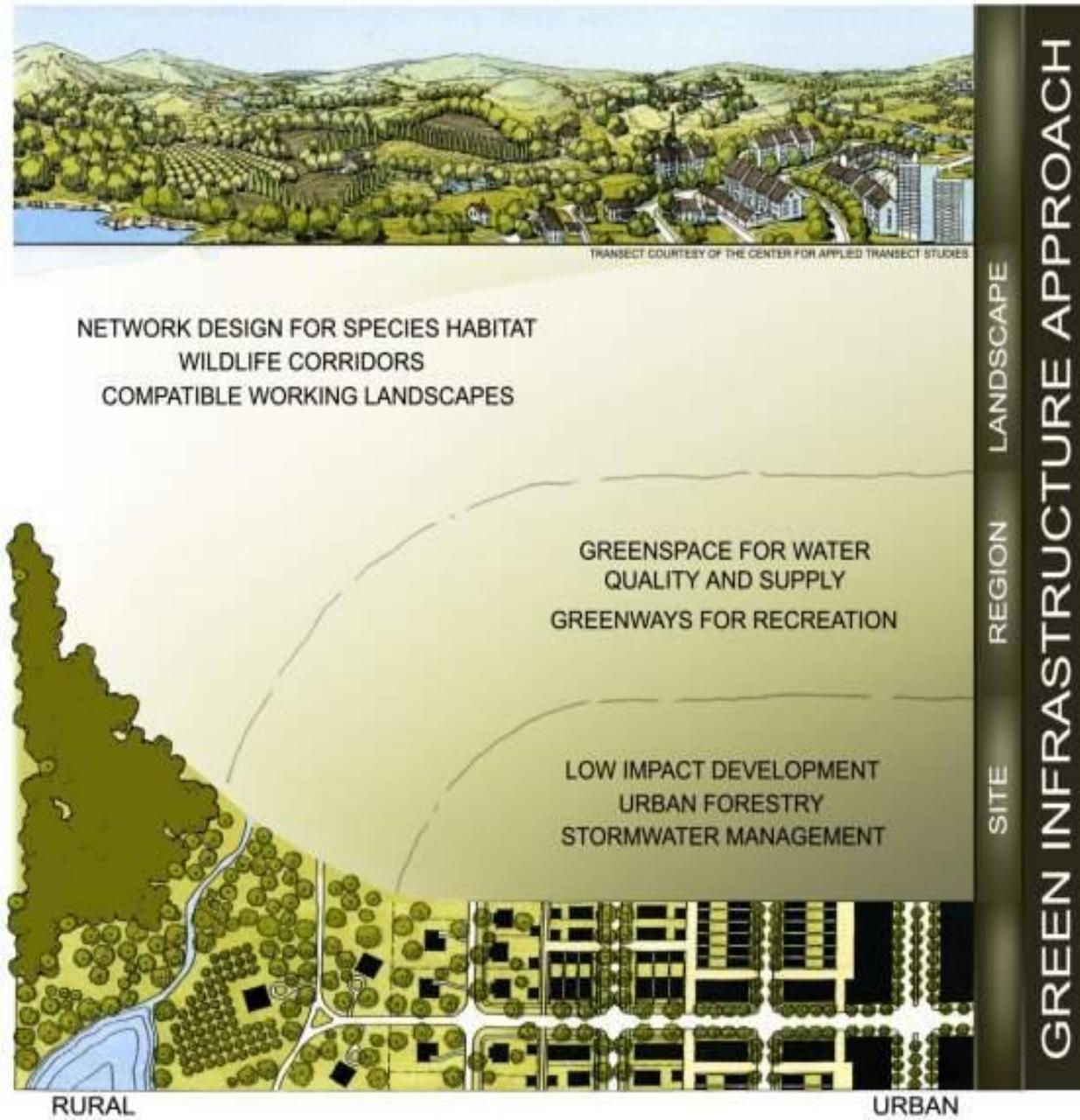
Hubs:

- Slightly fragmented aggregations of core areas, plus contiguous natural cover

Corridors:

- Link core areas together
- Allow animal movement and seed and pollen transfer between core areas

Green Infrastructure Networks



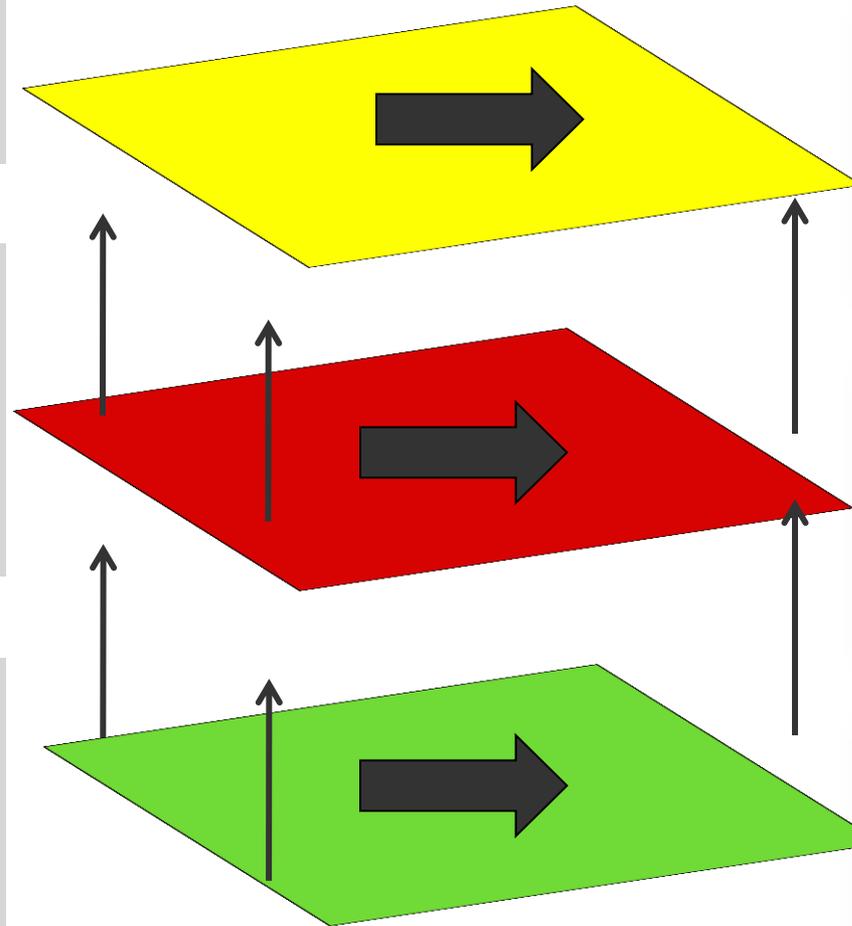
- ✓ **Lands** - public, private & non-profit
- ✓ **Scales** - statewide, regional & community
- ✓ **Landscapes** - urban, suburban, rural & wild

Green Infrastructure: What is it?

Green Infrastructure Network

Lands that Provide Associated Benefits for Human Populations

Lands that Support Natural Ecosystem Values and Functions



❑ Multi-State Scale

- ❑ NiSource Green Infrastructure Assessment
- ❑ Region 3 (Midwest) Wind Energy GI Assessment

❑ Landscape/Regional Scale

- ❑ Chicago Wilderness, IL
- ❑ Central Indiana Land Trust, IN

❑ Local/Jurisdictional Scale

- ❑ Nashville/Davidson County, TN
- ❑ Lufkin-Angelina Green Infrastructure Plan, TX

❑ Project Scale with linkage to Local Scale

- ❑ MD 301 Waldorf Area Transportation Improvements Project, MD

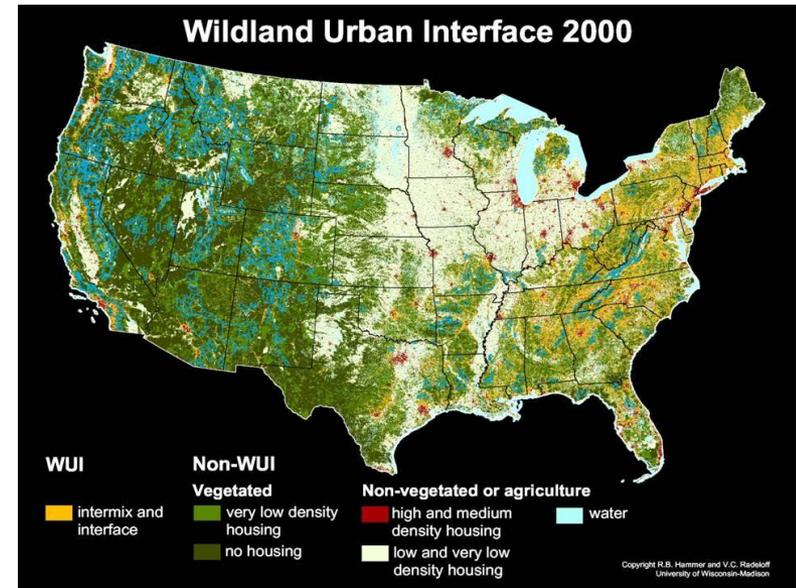


- ❑ **US Forest Service:**
 - ❑ Early Partner on Green Infrastructure
 - ❑ Open Space Conservation Strategy

- ❑ **National Courses**
 - ❑ GI & Wildland Urban Interface (WUI)

- ❑ **Place-Based Workshops**
 - ❑ DeSoto County, MS
 - ❑ Pacific Northwest, OR/WA/AK
 - ❑ Salt Lake City/Wasatch Front, UT

- ❑ **Regional GI Plans**
 - ❑ Chicago Wilderness, IL
 - ❑ Houston Wilderness, TX



Why Plan & Protect Green Infrastructure?



Providing Ecosystem Services



Supporting Working Lands/Tourism



“Selling” Homes and Communities



Enhancing Quality of Life



Why “Infrastructure”?

Infrastructure – “*the substructure or underlying foundation on which the continuance and growth of a community depends*” Webster’s New World Dictionary



Green Infrastructure and Gray Infrastructure

Both Require:

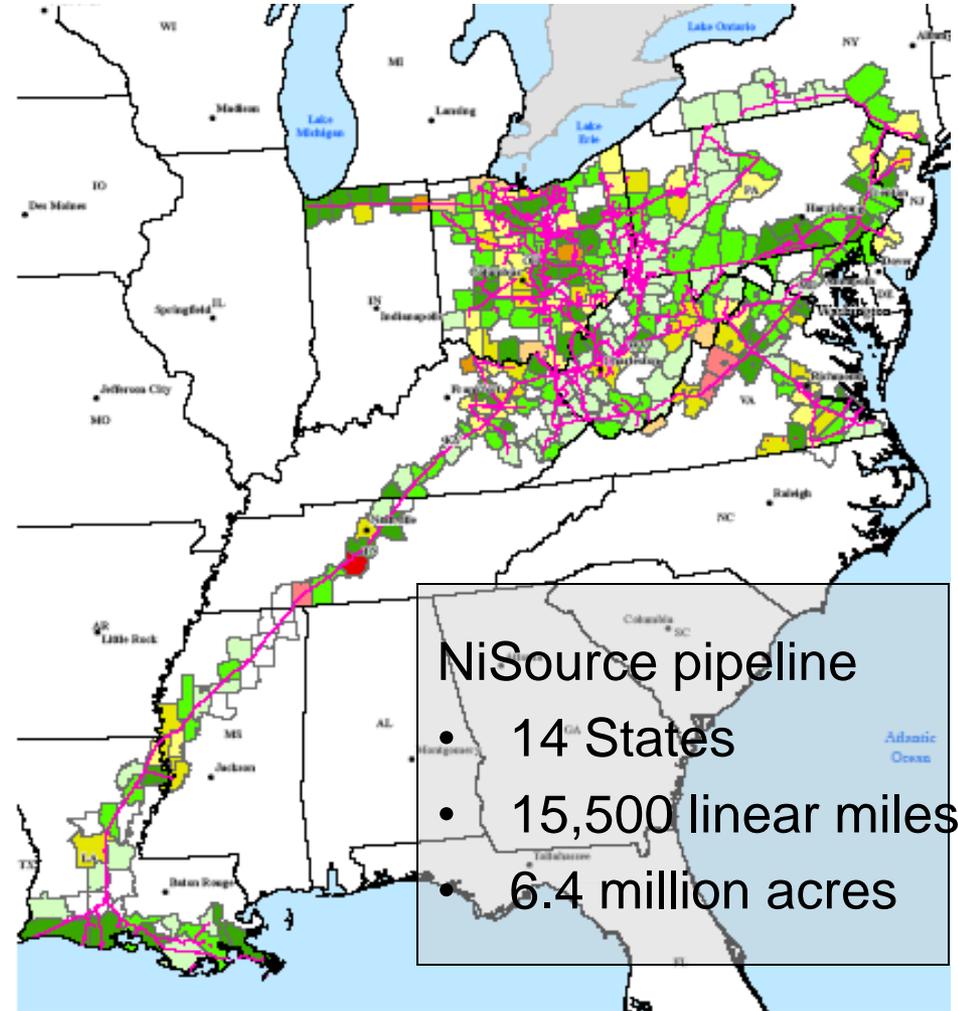
- ✓ Strategic planning to ensure optimal / functional systems
- ✓ Financing for design and maintenance
- ✓ Management to maintain services & maximize benefits



Ideally Are:

- ✓ Planned simultaneously before development
- ✓ Given equal priority in the planning process
- ✓ Planned as complementary systems
- ✓ Given equal attention in the funding process

- Transportation
- Utilities (NiSource)
- Wind Energy

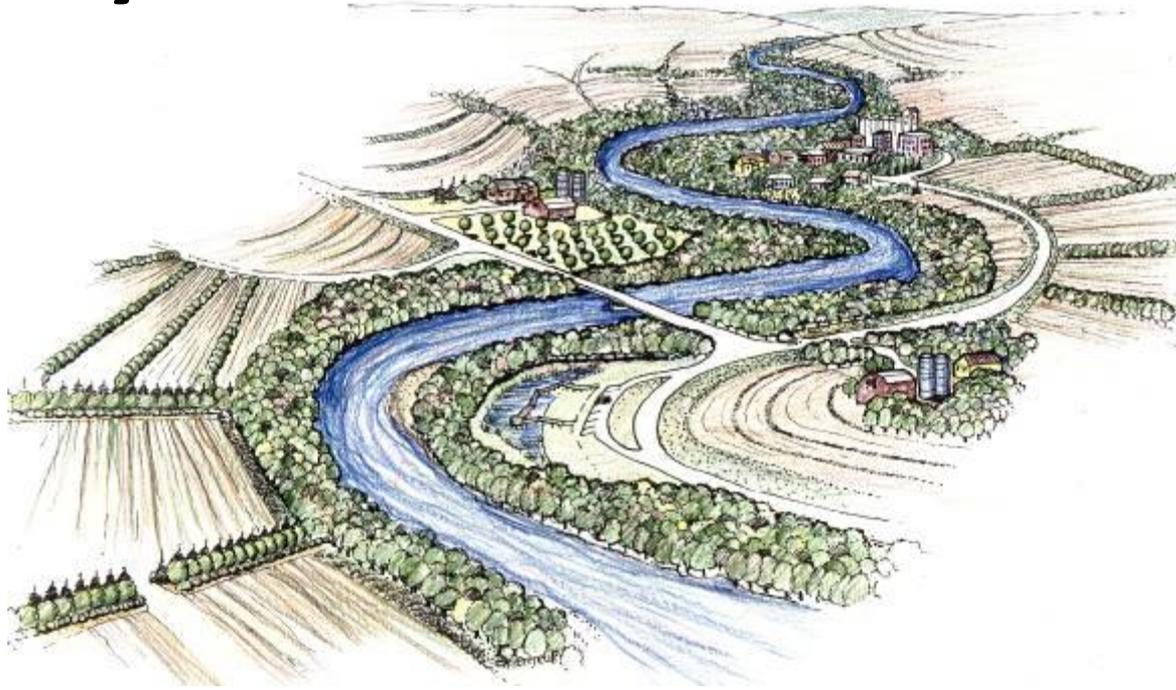


Connecting Green Infrastructure to Other Efforts

A regional vision that can be used by decision makers at the local, state and federal level to provide information and guide existing planning efforts.



Emphasize that green infrastructure, just as gray infrastructure, is a necessity not an amenity!

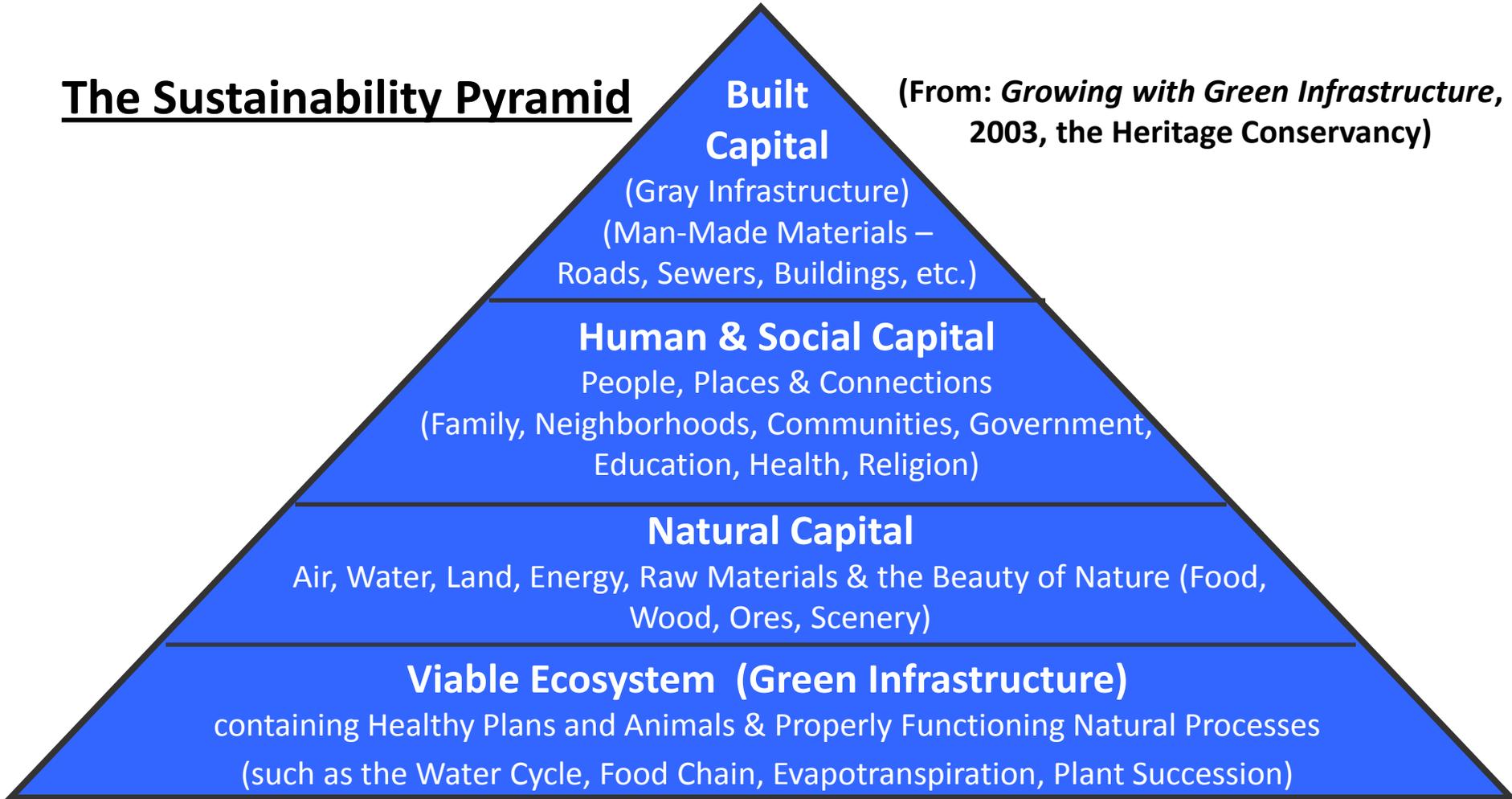


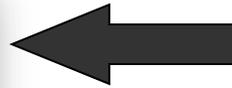
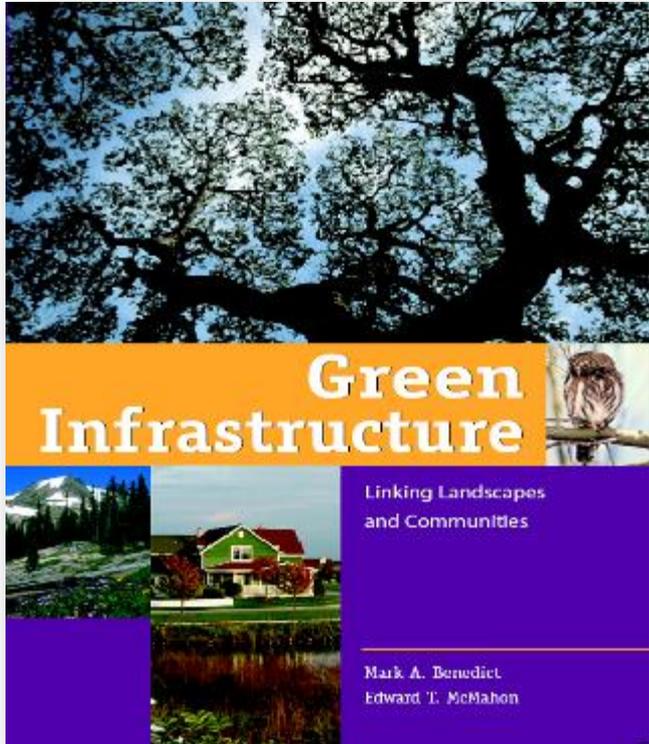
(Source: USDA National Agroforestry Center)

A Foundation of Sustainable Communities

The Sustainability Pyramid

(From: *Growing with Green Infrastructure*, 2003, the Heritage Conservancy)

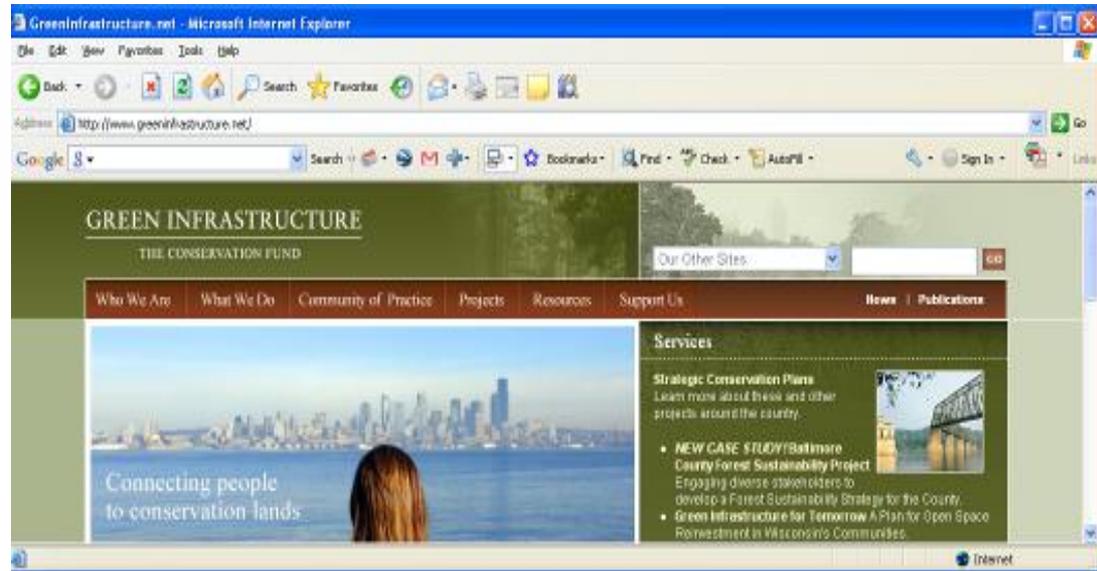


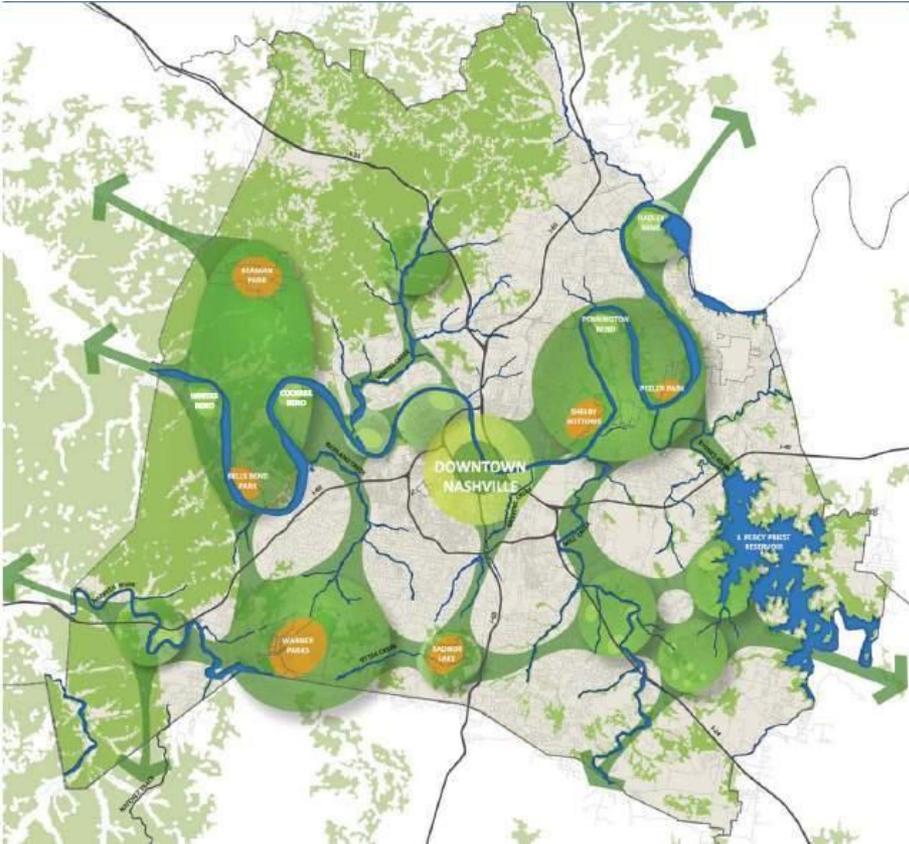


Read the Book –
Island Press, Spring 2006!



Visit the Website &
Join the GI COP
www.greeninfrastructure.net





GI 201 **Advanced Green Infrastructure Implementation Pilot Course!**

July 16 – 20, 2012

GI 101 **Strategic Conservation Planning Using a Green Infrastructure Approach**

September 10 – 14, 2012

The Conservation Fund's **Conservation Leadership Network**

- ❖ Kris Hoellen, Director, CLN, 304-876-7462
khoellen@conservationfund.org
- ❖ Kendra Briechle, Senior Associate, 703-908-5817,
kbriechle@conservationfund.org
- ❖ Katherine Allen, Associate, 304-876-7925,
kallen@conservationfund.org
- ❖ Margarita Carey, Program Associate, 304-876-7924
mcarey@conservationfund.org,

Rick LeBrasseur

Executive Director

Center for Green Infrastructure Design

Utah



Welcome

June 20, 2012

Planning for Growth and Open Space Conservation

Connecting Partners and Green Infrastructure

A Case Study



Rick LeBrasseur
Executive Director
The Center for Green Infrastructure Design



Focusing on Environmentally Responsible Land Use Planning

The Center for Green Infrastructure Design (CGID) is a unique 501(c)(3) non profit organization dedicated to providing education, research and professional assistance to communities contemplating green infrastructure planning and improving the vitality, value and function of our natural and social environments.



The Center for Green Infrastructure Design supports agencies, municipalities, regional governments, cities, and communities which have a strong desire to sustain and strengthen their existing environmental assets. We help incorporate green infrastructure into planning agendas through the development of visions, plans and implementation strategies that address needs for carefully planned and linked green infrastructure networks as well as better patterns of development & land use decisions.



www.greeninfrastructuredesign.org



The Center for Green Infrastructure Design passionately believes in the safeguarding of our valued landscapes before they are lost forever. **CGID** is pleased to bring solutions to the challenges surrounding growth and conservation issues. Our ultimate objective is to assist communities and municipal agencies in effectively implementing strategies and techniques to meet their green infrastructure goals.



Contact:

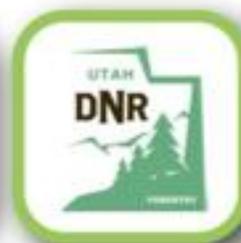
Rick LeBrasseur, Executive Director
The Center for Green Infrastructure Design
423 West 800 South #A319
Salt Lake City, UT 84101
Tel : 435-232-9792
rick@greeninfrastructuredesign.org



Center for
Green Infrastructure
Design

(re)connect

The Wasatch Front Green Infrastructure Plan



Karen Firehock

Executive Director

Green Infrastructure Center, Virginia

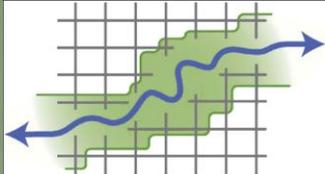




Connecting Across Ownerships: Using A Connected Landscape Strategy to Conserve Forests

Karen Firehock
Green Infrastructure Center

www.gicinc.org

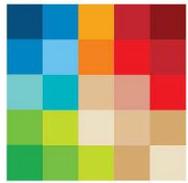


Green Infrastructure Center

June 21, 2012



Thanks to Our Current Funders!



Altria





The mission of the nonprofit Green Infrastructure Center is to help localities evaluate their natural assets and manage them to maximize ecological, economic and cultural returns.

We conduct green infrastructure planning at the regional, county, city and town scales.

GIC field tests in Virginia

Charlottesville City (2008)

Madison County (2008)

Lynchburg City(2008)

New Kent County (2009)

*Crater and Richmond Regional
Districts (2009)*

Staunton City (2009)

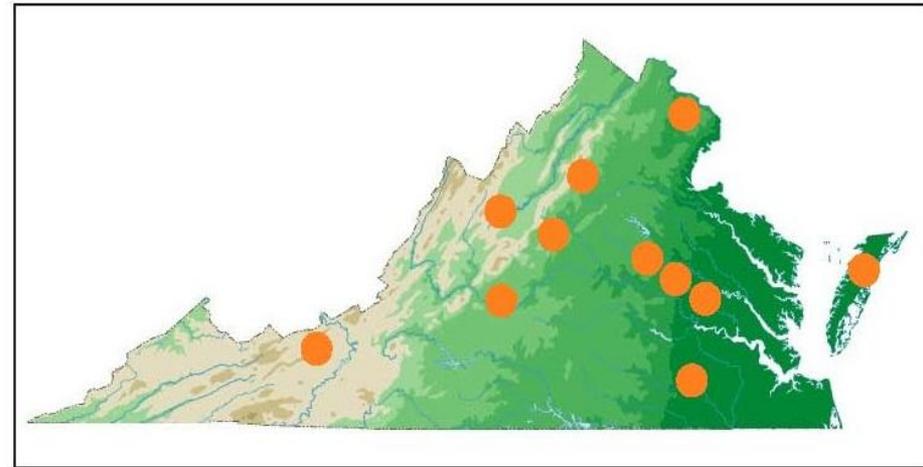
Accomack County (2010)

Nelson County (2011)

City of Richmond (2010-11)

Richmond Bellemeade Watershed (on-going)

Planni

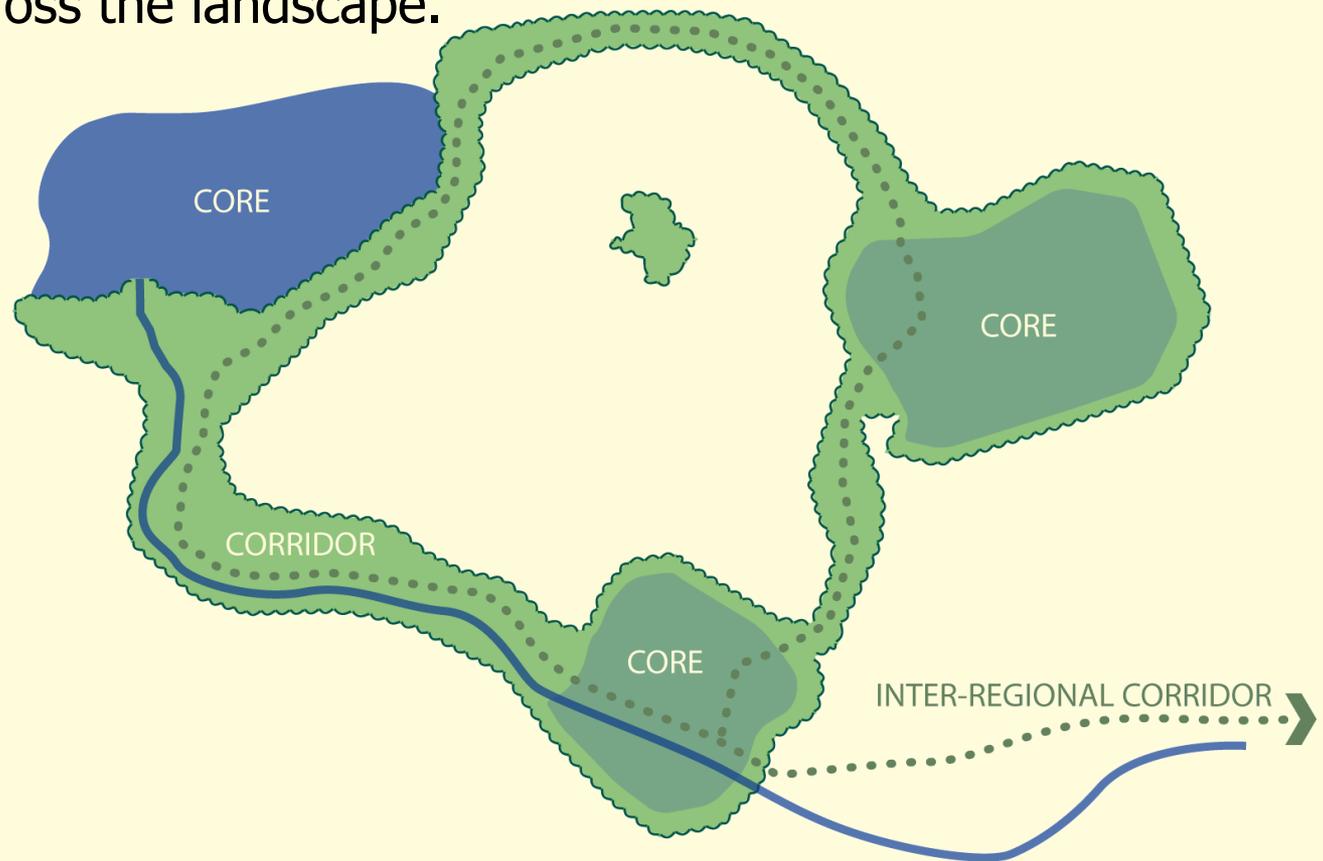


We also provide consulting to other regions, such as the New River Valley PDC, Northern Va. Regional Commission and Rappahannock Rapidan Regional Commission.

These field tests are used to inform our planning guide now underway for VA, NC , AR.

Green Infrastructure Network

A green infrastructure network is made up of connected core habitats and connecting corridors that help animals, seeds, and people move across the landscape.



Natural Assets are Green Infrastructure

Green infrastructure includes all landscape elements that support our existence.



Natural Assets Include Land Suited for Farms or Forestry

Soils suited for forestry or agriculture provide an ecosystem service and their locations vary and should be considered in land planning.

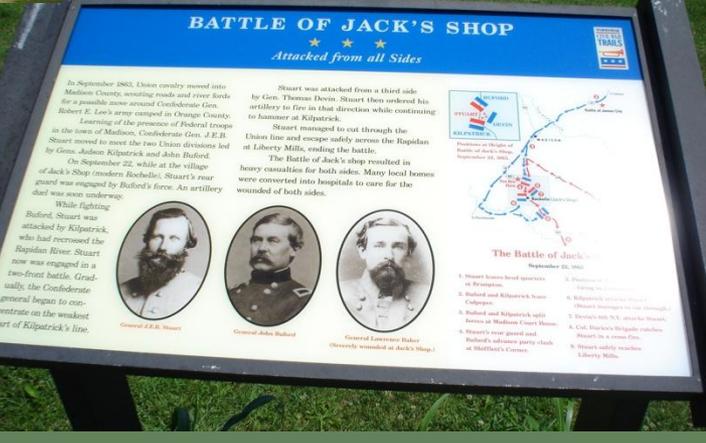
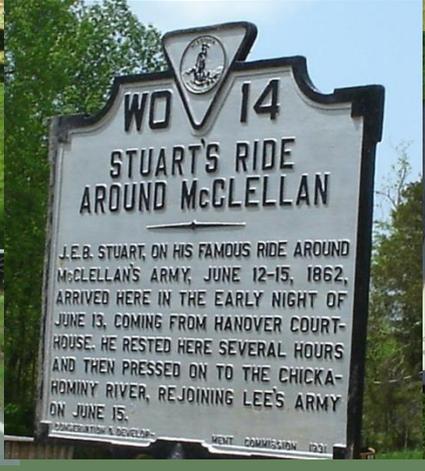
While Virginia's forests have increased in acreage overall in the past 70 years, the state is losing an average of 16,000 acres annually to land conversion.

And, while total acreage is important, the quality and intactness of these forests also matters. Forest fragmentation remains the greatest threat to southern forests.



Natural Assets Also Support Cultural Assets

Natural assets support the landscape context of important historic and cultural features.



Why Green Infrastructure Plans Now?

Growth and land use conflicts

U. S. Region	Pop. Change	Change in Urbanized Land
Midwest	7.06%	32.3%
Northeast	6.91%	39.10%
South	22.23%	59.61%
West	17.02%	48.94%
Total U.S.	17.02 %	47.14%

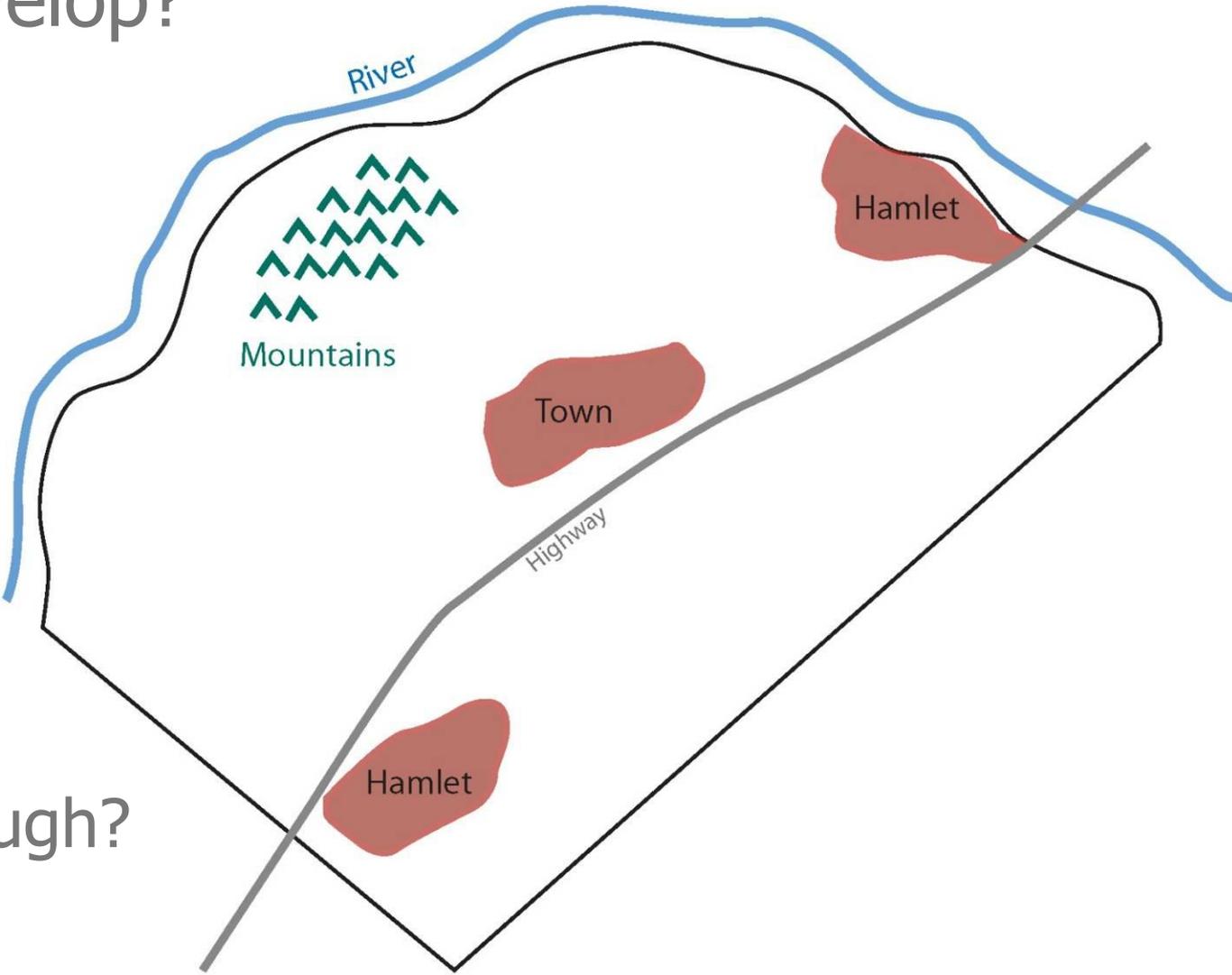


Where to develop?

Smart Growth =

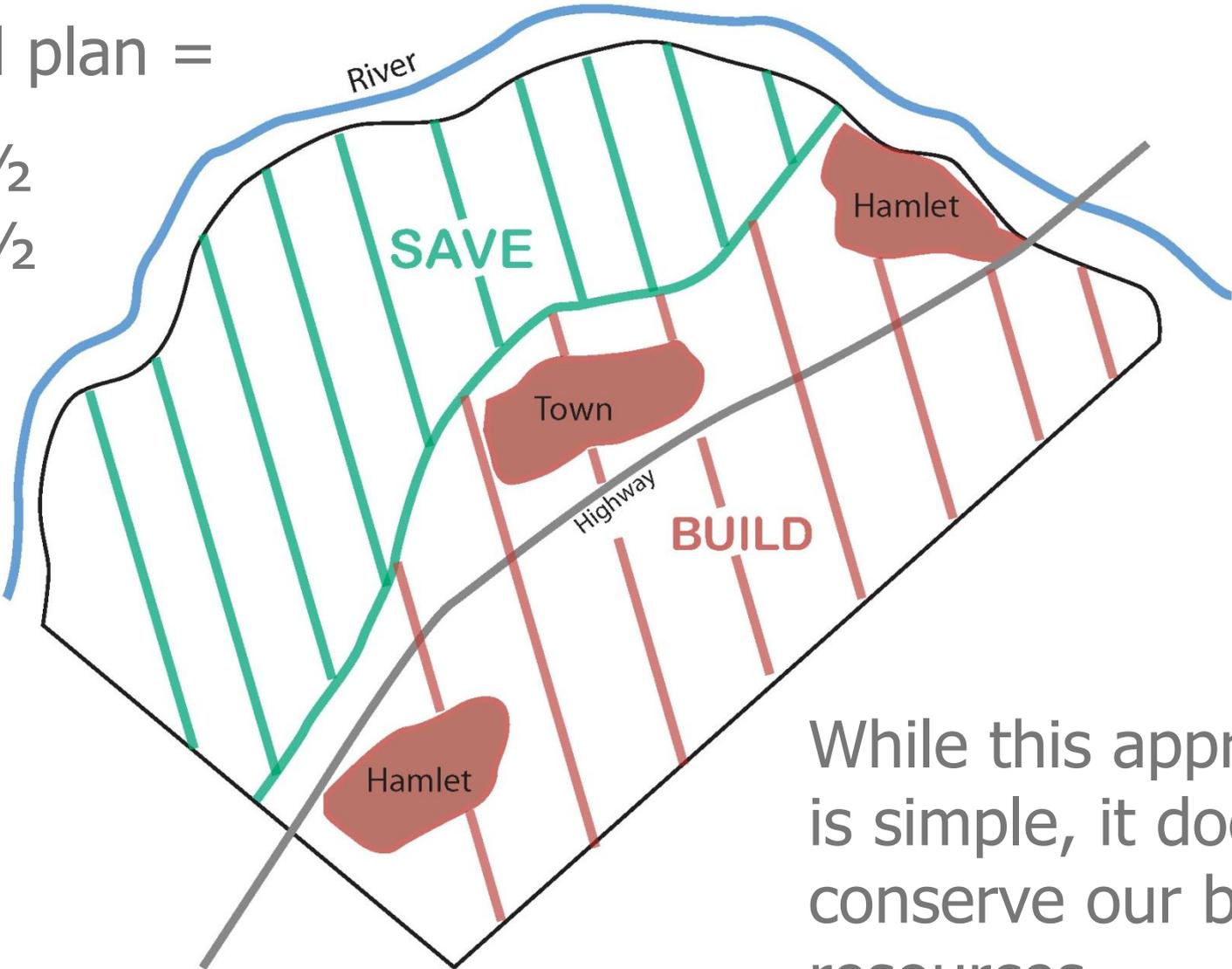
Using Existing (grey) Infrastructure

But is this enough?



Typical plan =

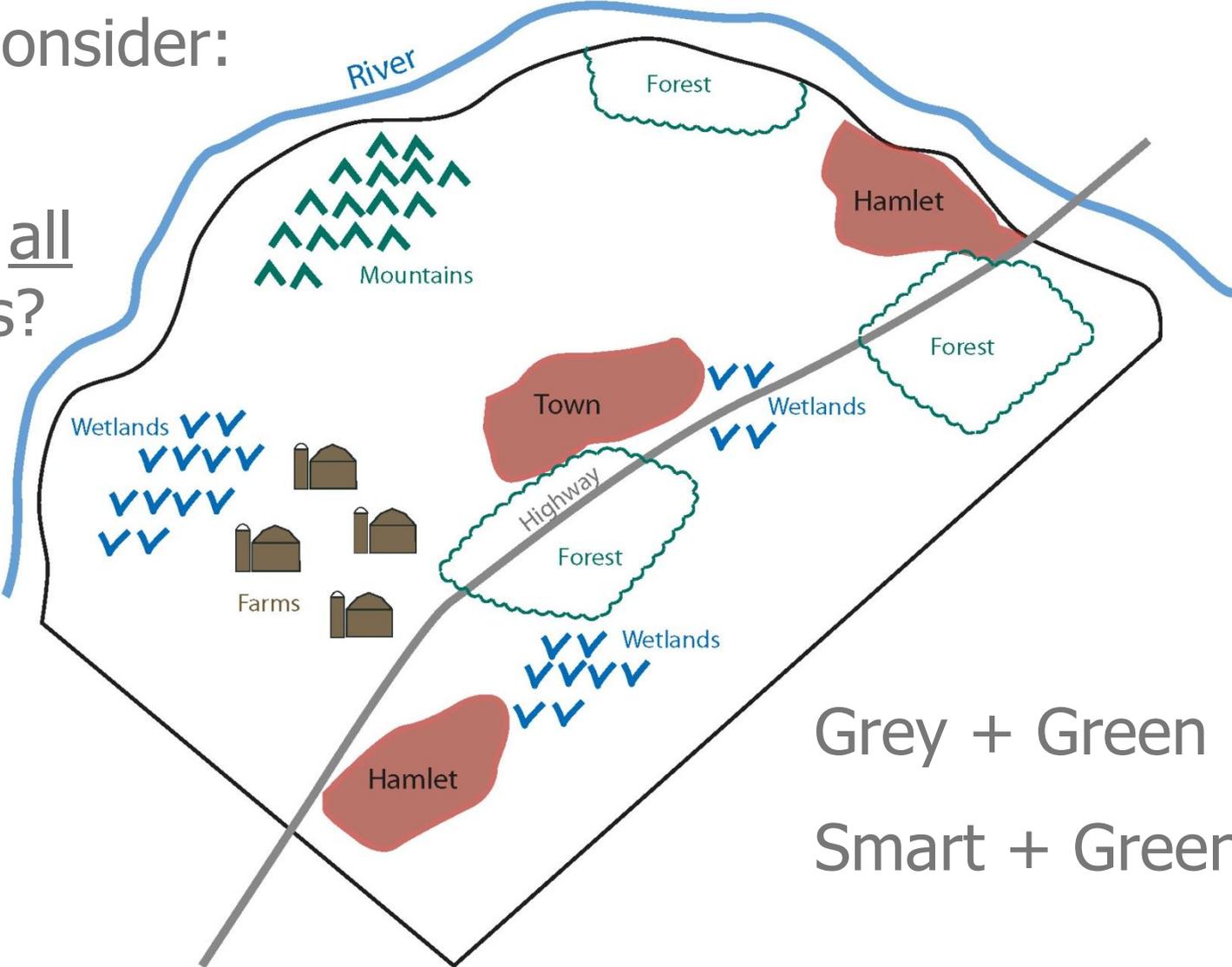
Save 1/2
Build 1/2



While this approach is simple, it does not conserve our best resources.

Need to consider:

What are all the assets?

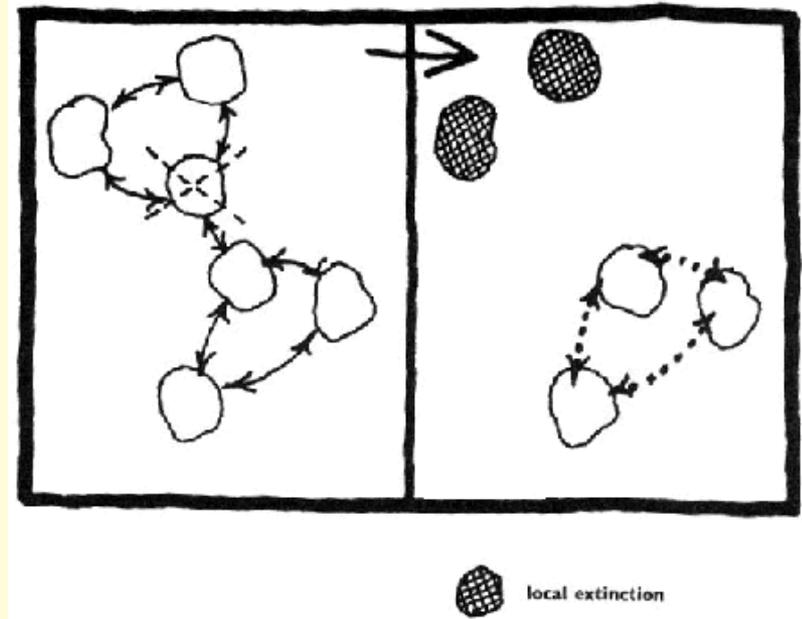


Grey + Green =
Smart + Green

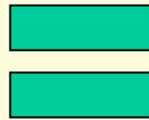
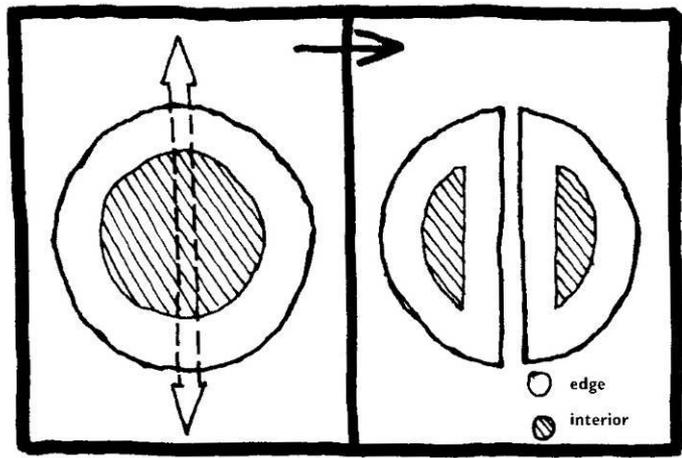
Assessment and Mapping

What happens when a forest patch is removed?

- Causes habitat loss
- May reduce habitat diversity
- May reduce population size of species dependent upon that habitat type



If forests become more fragmented
then we have less natives, more
invasives...



Virginia Modeling Tools

- VA Natural Landscape Assessment – Forest Habitats
- Cultural Model – Historic Resources
- Vulnerability Model -- -Growth predictions and threats
- Forest Economics Model – Economically viable forests
- Agricultural Model – Lands suitable for farming
- Recreation Model – Trails, Parks, Hunting and Fishing
- Watershed Integrity Model
- Ecological Integrity

For general information: www.dcr.virginia.gov/natural_heritage/vclnagr.html

For simple maps: <http://www.vaconservedlands.org/gis.aspx>

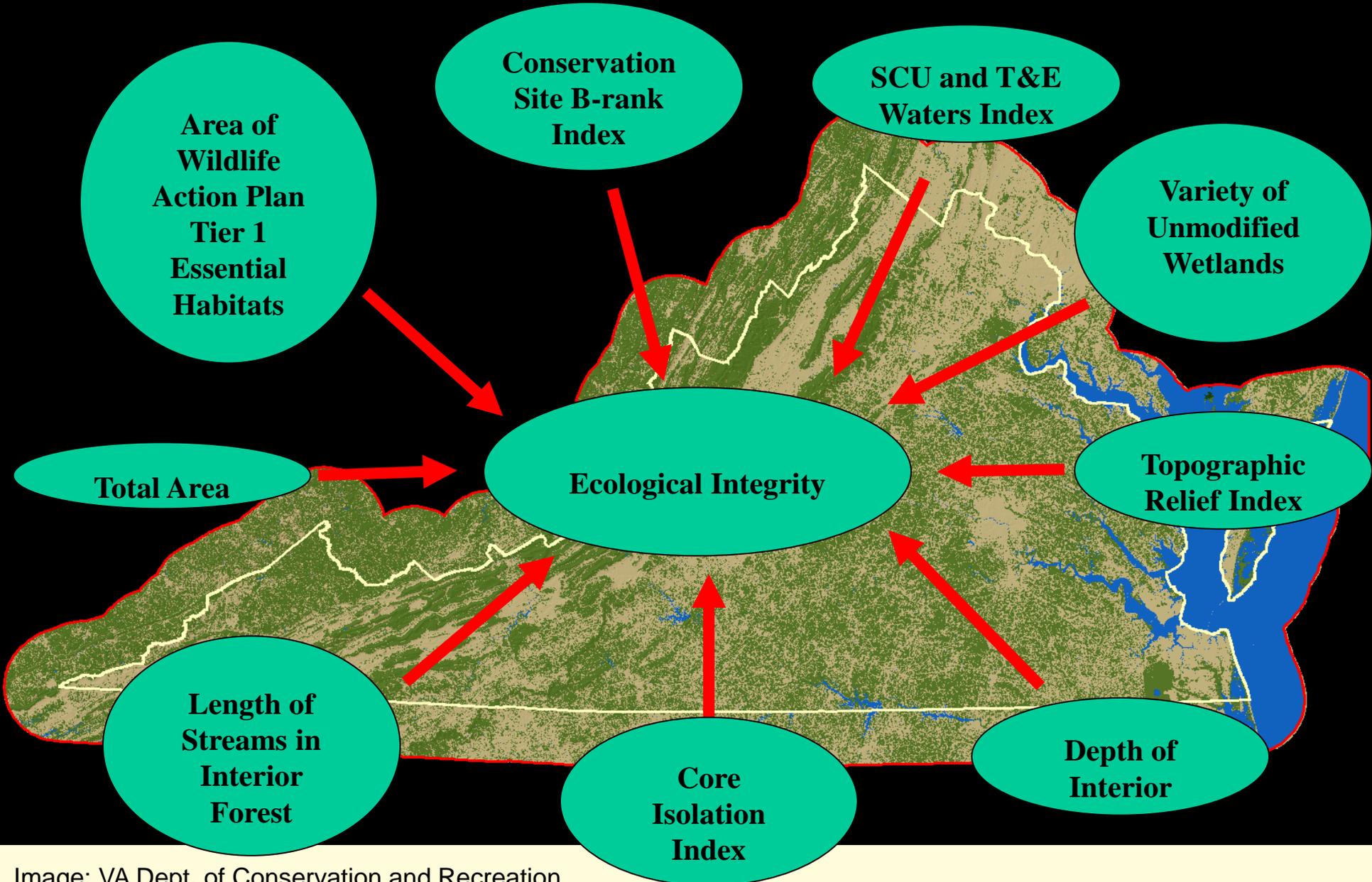
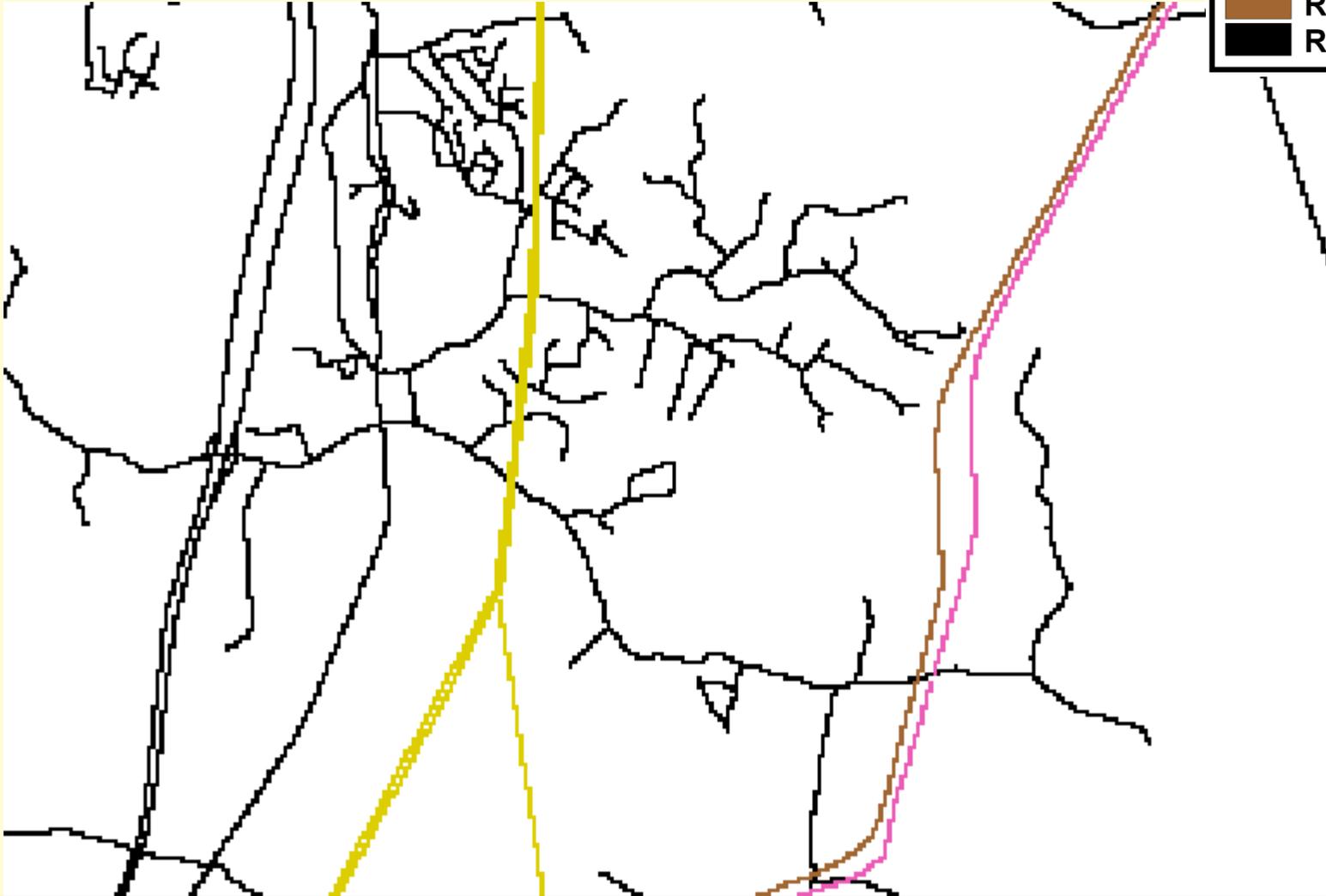


Image: VA Dept. of Conservation and Recreation

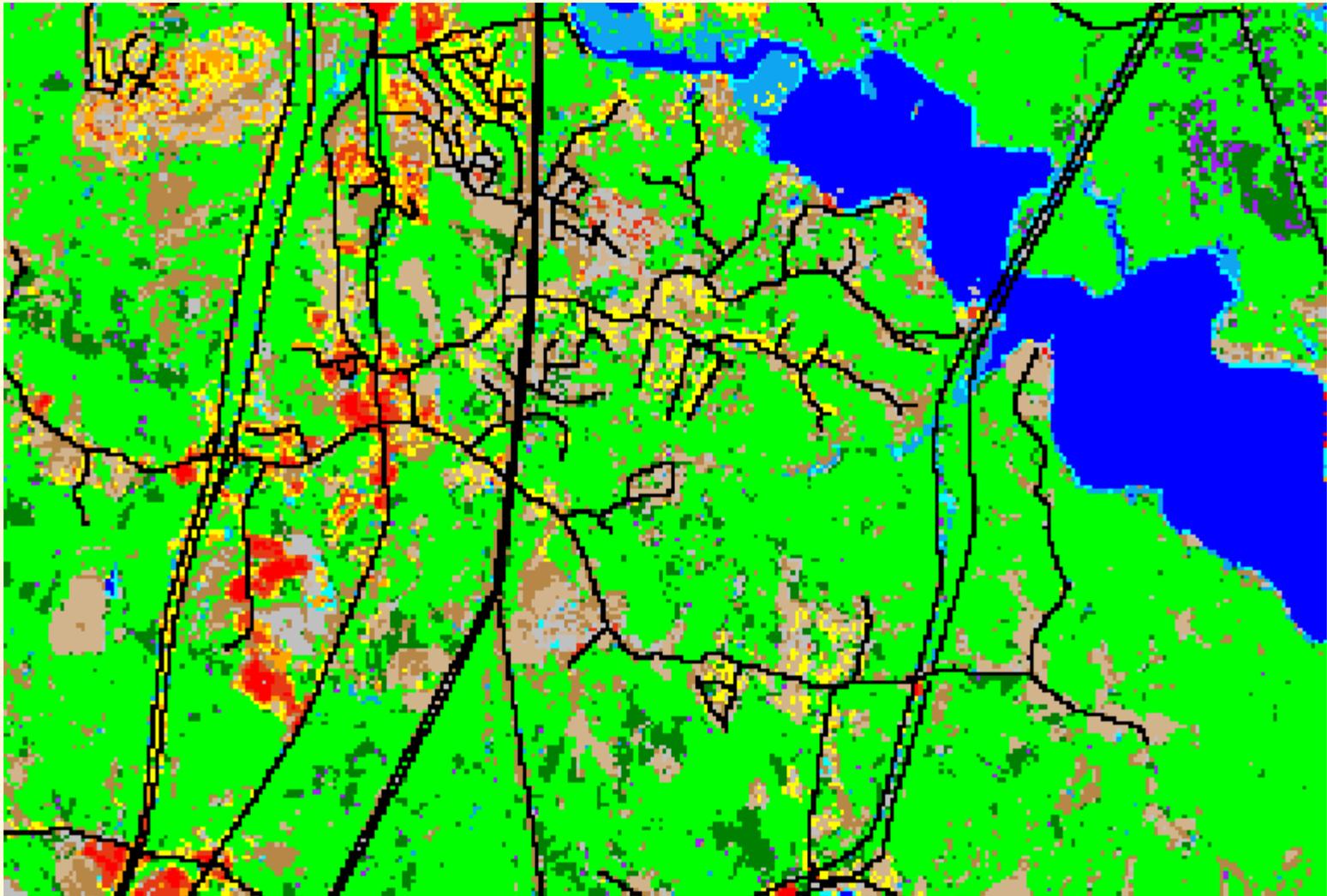
VCLNA Fragmentation Layer

Legend

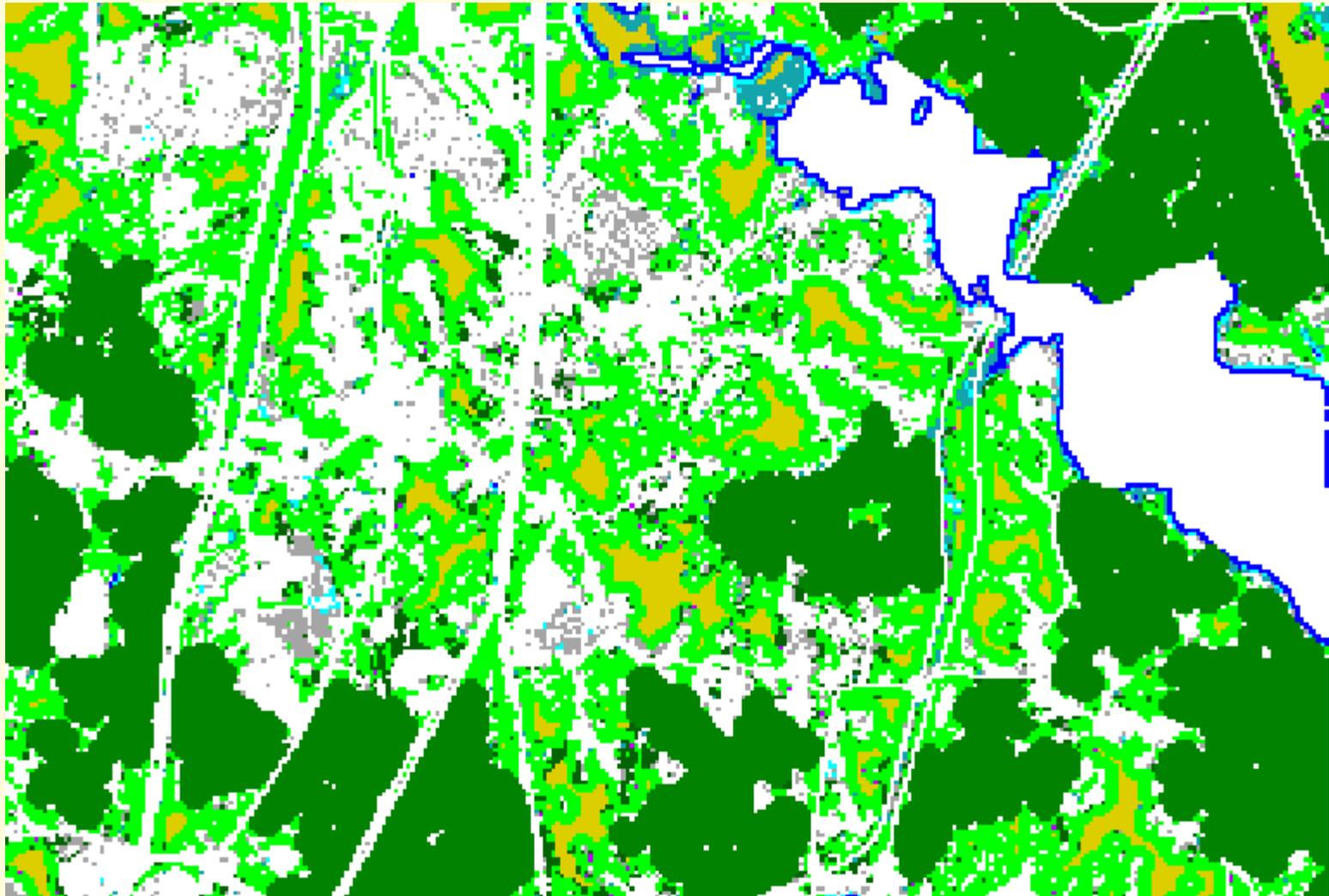
- Pipeline
- Power Line
- Rail
- Road



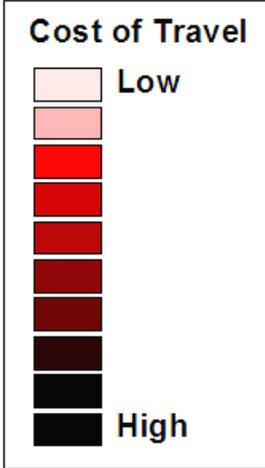
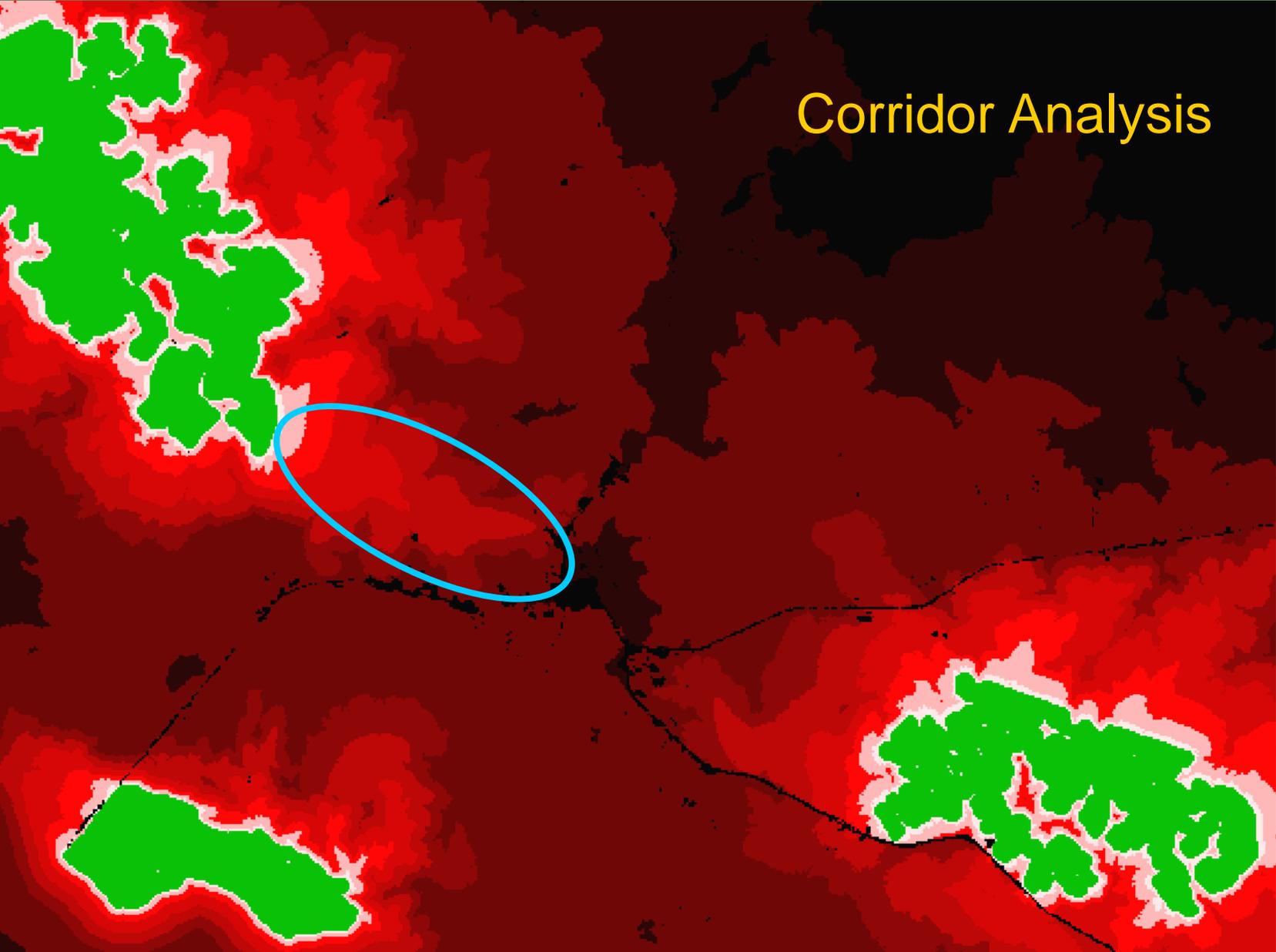
Fragmented Land Cover Image



Cores



Corridor Analysis



Who can use corridors? (300 meters is ideal...)



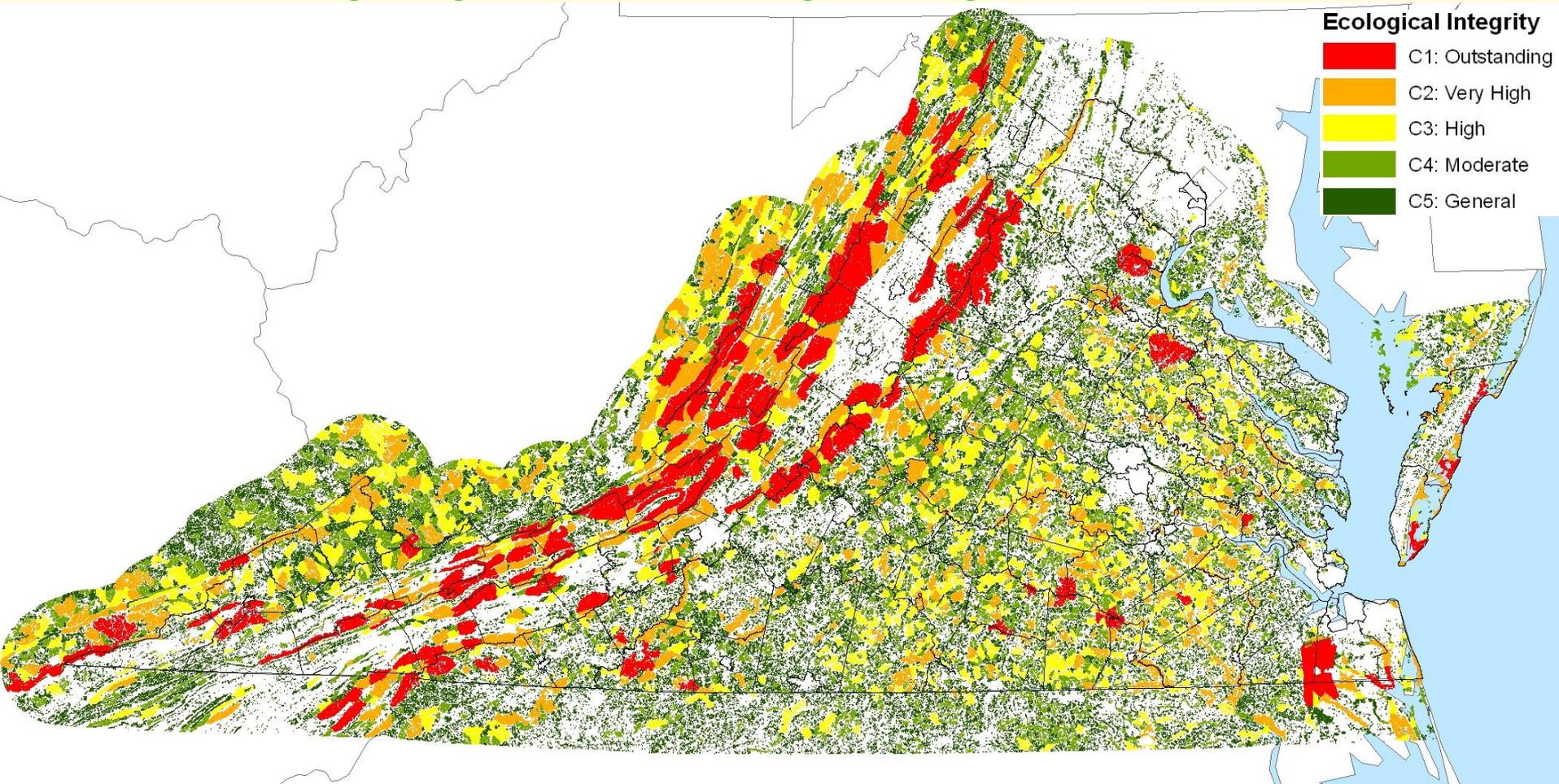
Cindi Johnson - 2010



Virginia Natural Landscape Assessment

a landscape-scale GIS analysis for identifying, prioritizing, and linking natural habitats in Virginia

www.dcr.virginia.gov/natural_heritage/vclnagr.html



Forest Conservation Value: Virginia Department of Forestry (DOF) has established a *relative Forest Conservation Value (FCV)* for all of the forestland in the state. FCV ranks forests based on the following:

Forest benefits + level of land conversion threat = FCV

Ranked low to high as 1 – 5 . **Ranks 4-5 = High FCV**

FCV 4-5 = high priority for land conservation action such as conservation easements, Purchase of Development Rights (PDRs) or Ag-Forestal Districts (AFDs).

Data layers are available to download:

<http://www.dof.virginia.gov/gis/datadownload.htm>

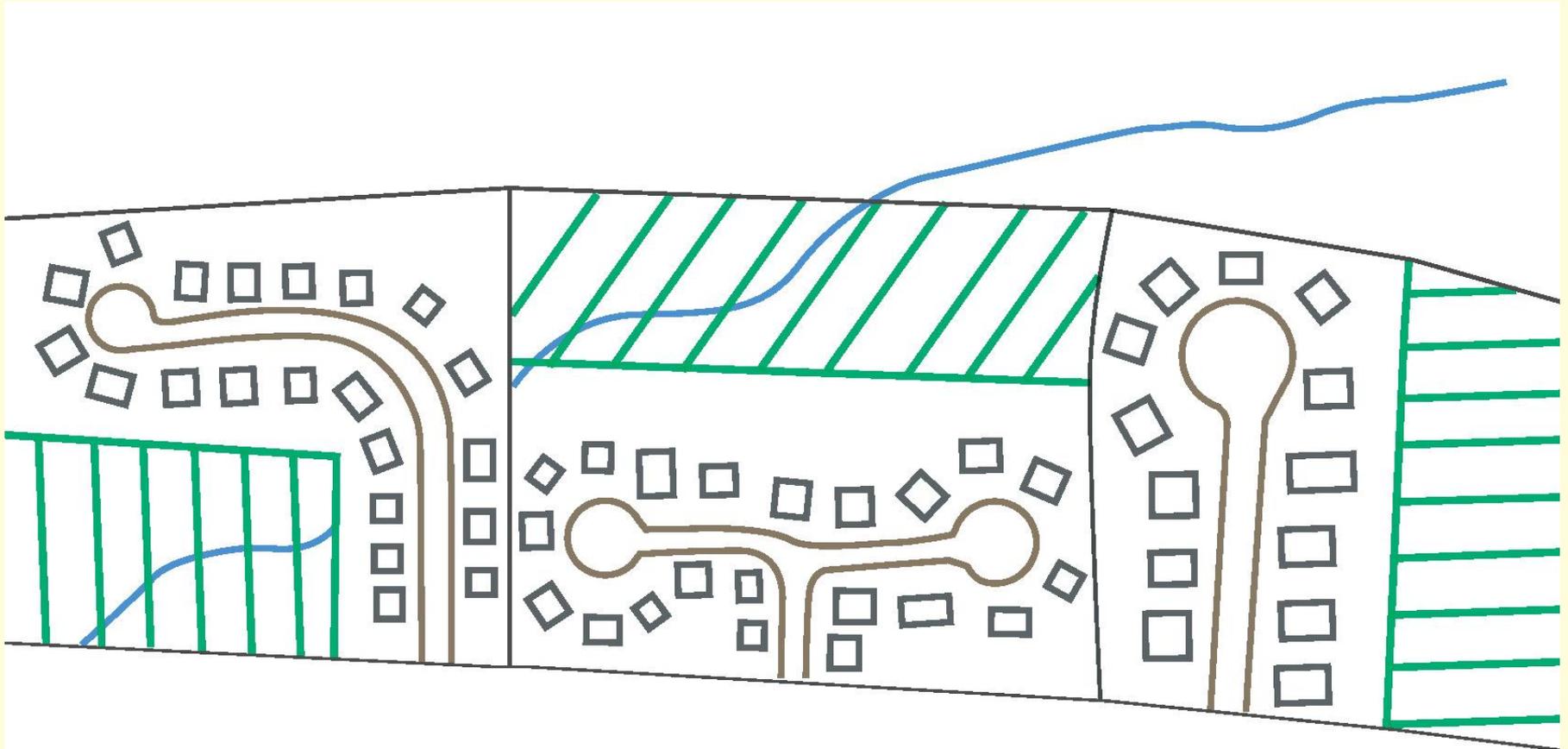
Strategic Land Planning

Clustering = setting buildings closer together to conserve green space

Within a subdivision, clustering can add to open spaces and provide an amenity for wildlife and recreation. But which land is protected and how it is connected are critical.



Here's the problem when cluster developments don't look outside the parcel:



Green infrastructure approach helps keep corridors intact.



Green Infrastructure Planning Applications

Park and open space planning

Identify lands for PDR or TDR programs

New ordinance development

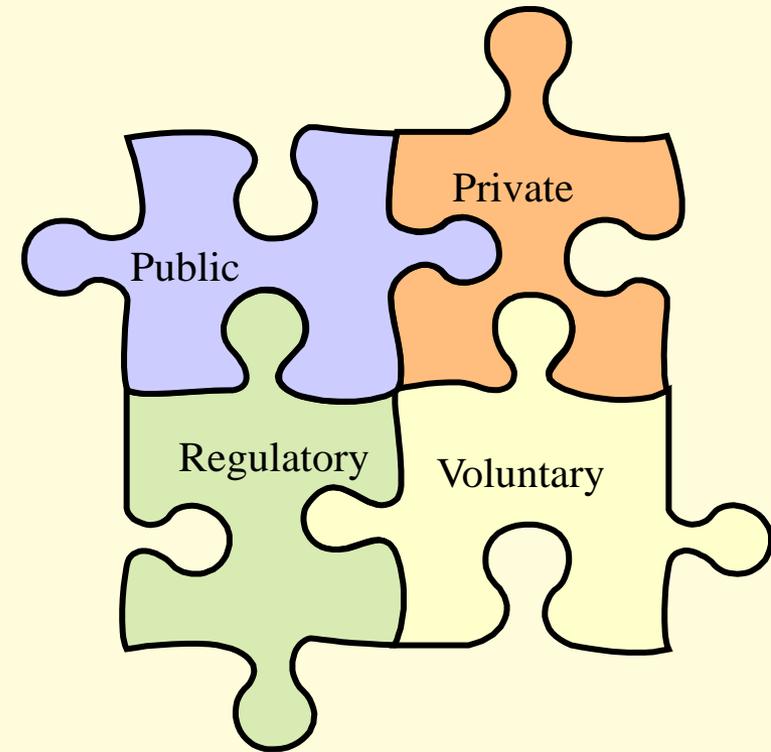
Species protection

Heritage tourism and viewsheds

Ag and Forestal Districts

Transportation planning: roads/trails

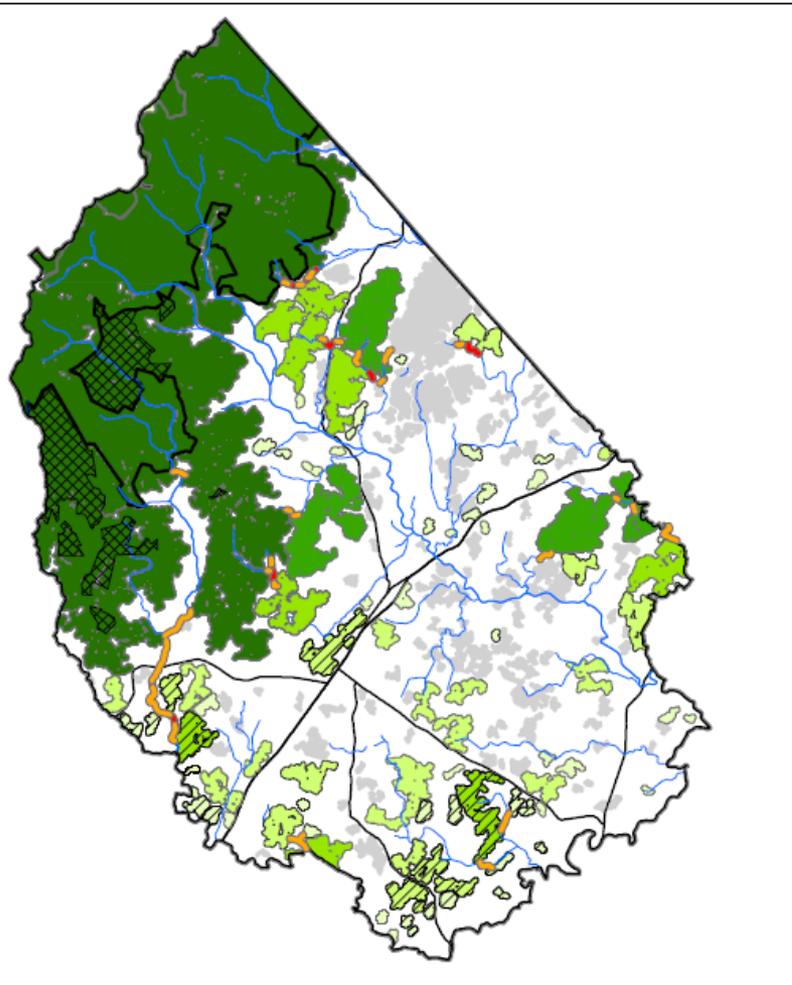
Targeting easements



Simplified Steps:

1. Need to determine what is protected and/or managed.
 2. How is land zoned?
 3. What is at risk?
 4. What can be saved or restored?
 5. What does community want?
- = Strategy

Priority Natural Habitats in Madison County, VA



Review Draft 12/5/2007

Enlisting Decision Makers and Community



Planning commissions

Boards of supervisors

Landowners

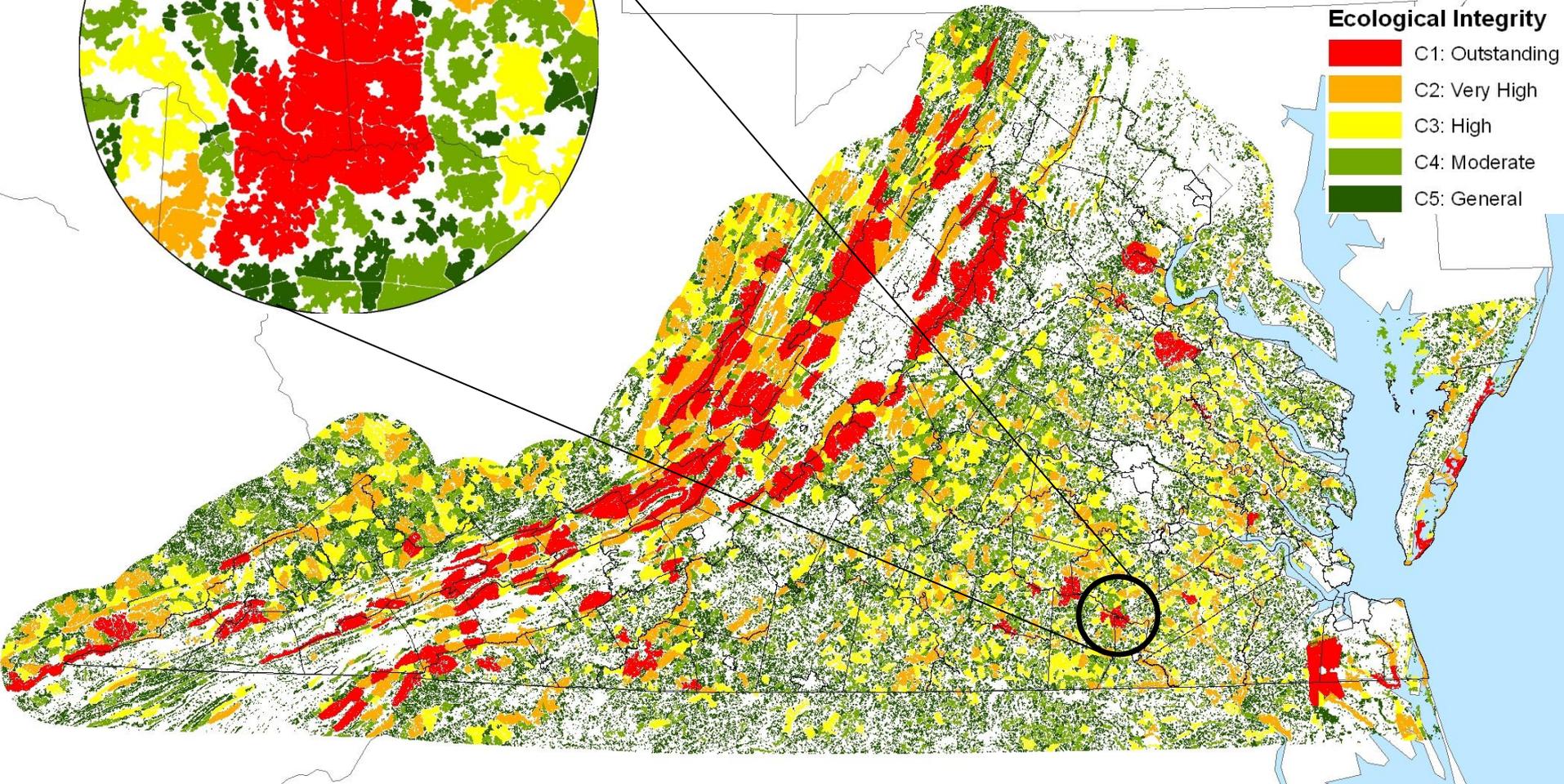
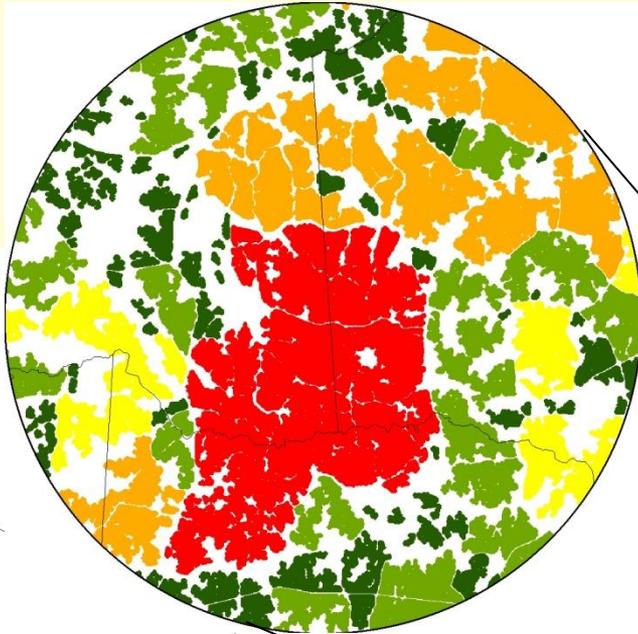
General public

Interest Groups

Developers



Applying statewide models to the local level

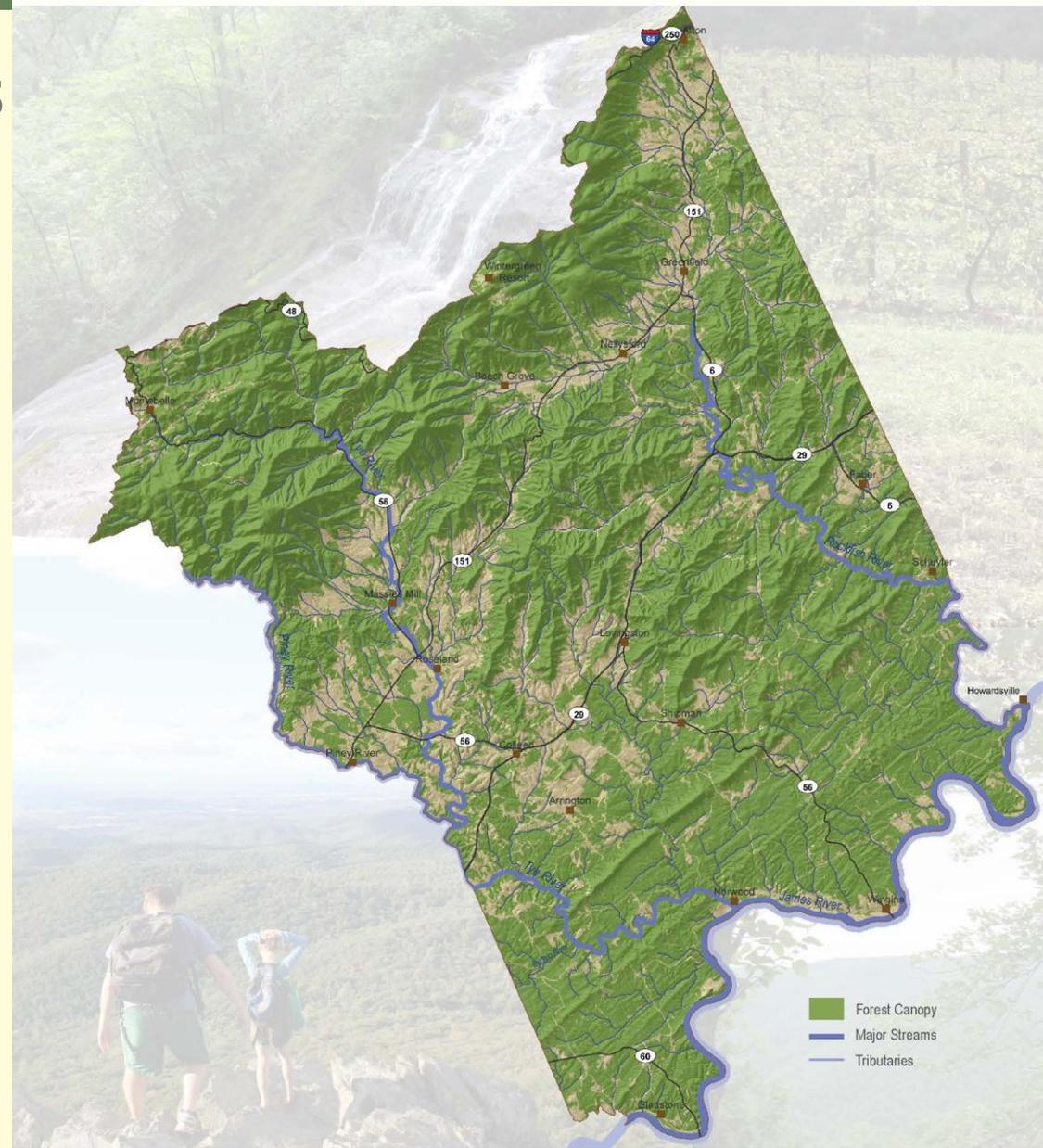


Green Assets: Forests

Nelson County, VA:
More than 2/3
forested

Includes the George
Washington and
Jefferson National
Forests

<http://www.gicinc.org/projectsnelson.htm>



Themed Maps

There is one base map for intact forests and then a series of themed overlays. Forests serve as the base map and show under each of the others.

Forests: wildlife and forestry uses

Water: water quality and human resources

Agriculture: high value ag soils and ag uses

Culture, Heritage, Recreation: historic and scenic assets, natural resource-based recreation

Why is Nelson County so special?

311,784 acres of habitat cores

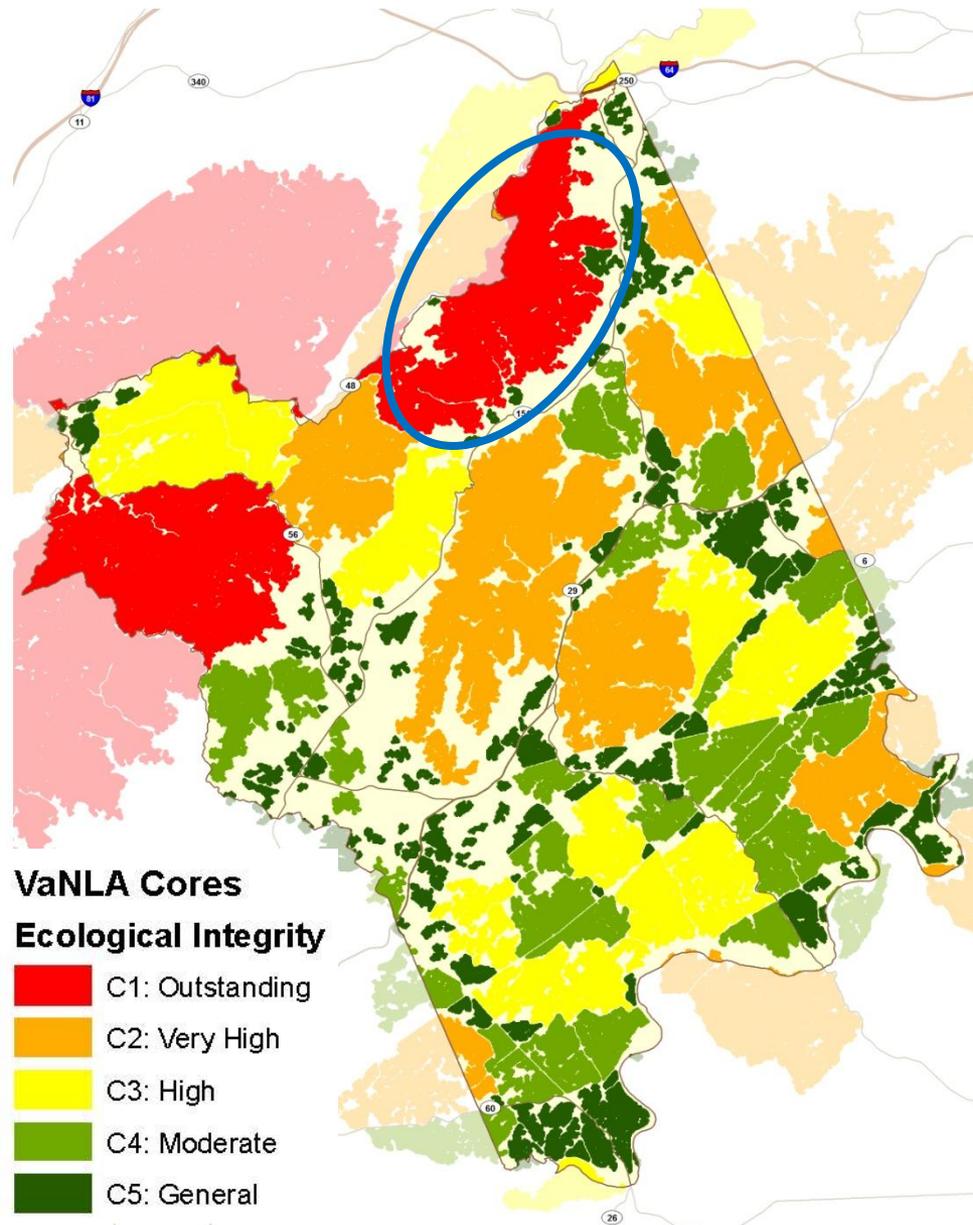
249,274 acres are outstanding (red) to very high quality (orange).

See example core at left (red core) has:

✓ 20,406 acres

✓ 14 element occurrences

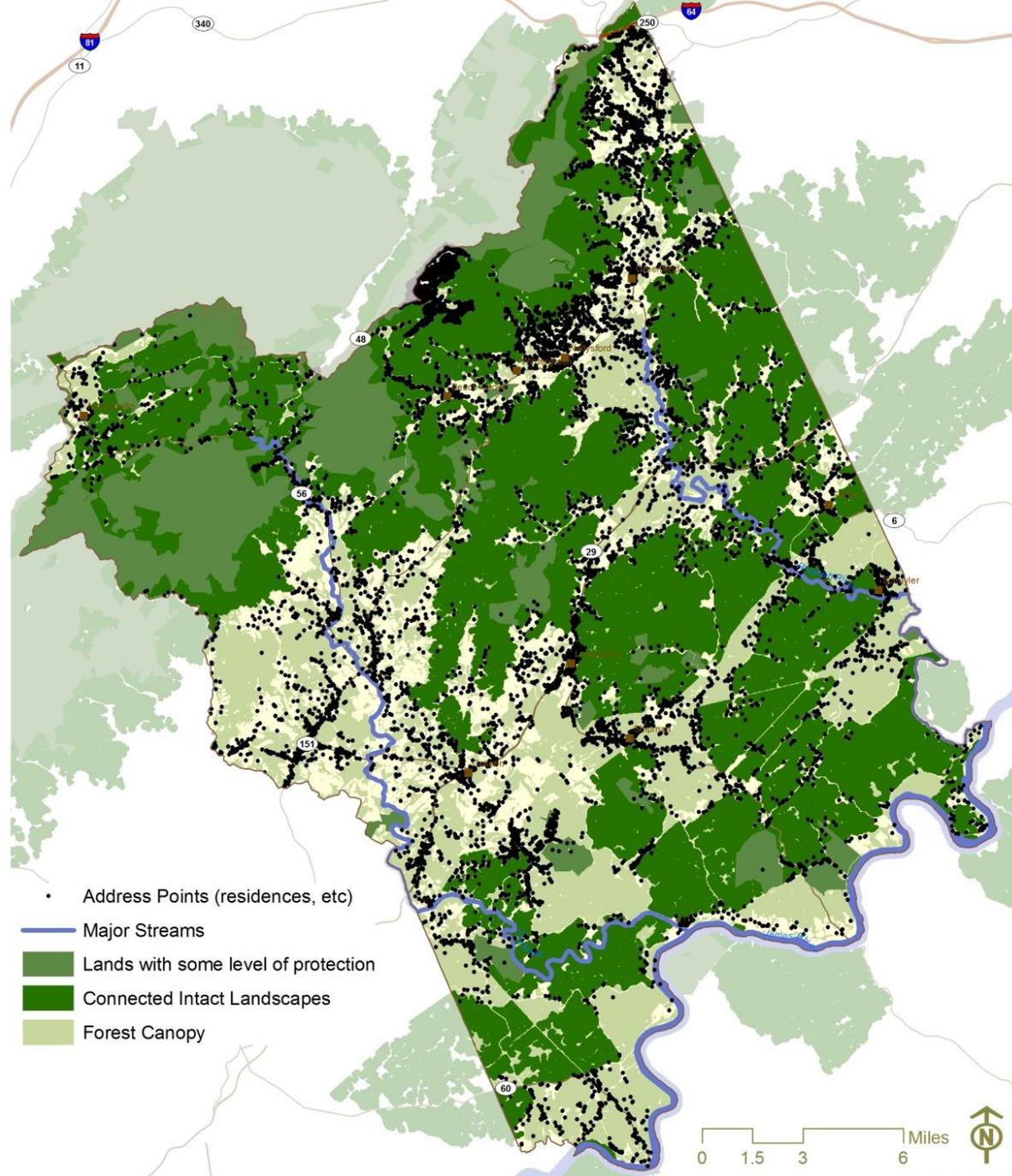
✓ 5,523 drinking water acreage



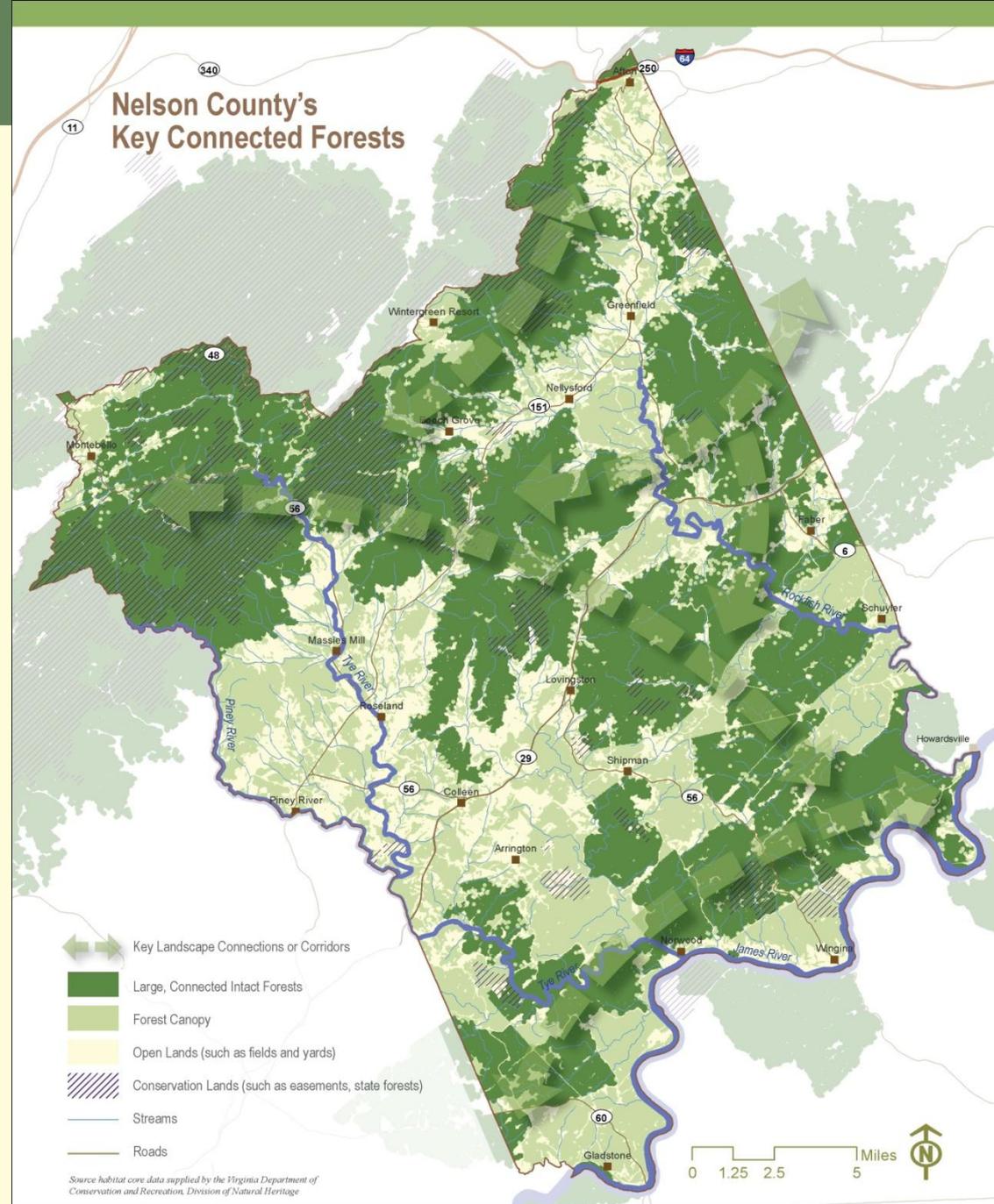
Green Assets: Forests and development patterns

Cores Updated for New Development (2000-2007)

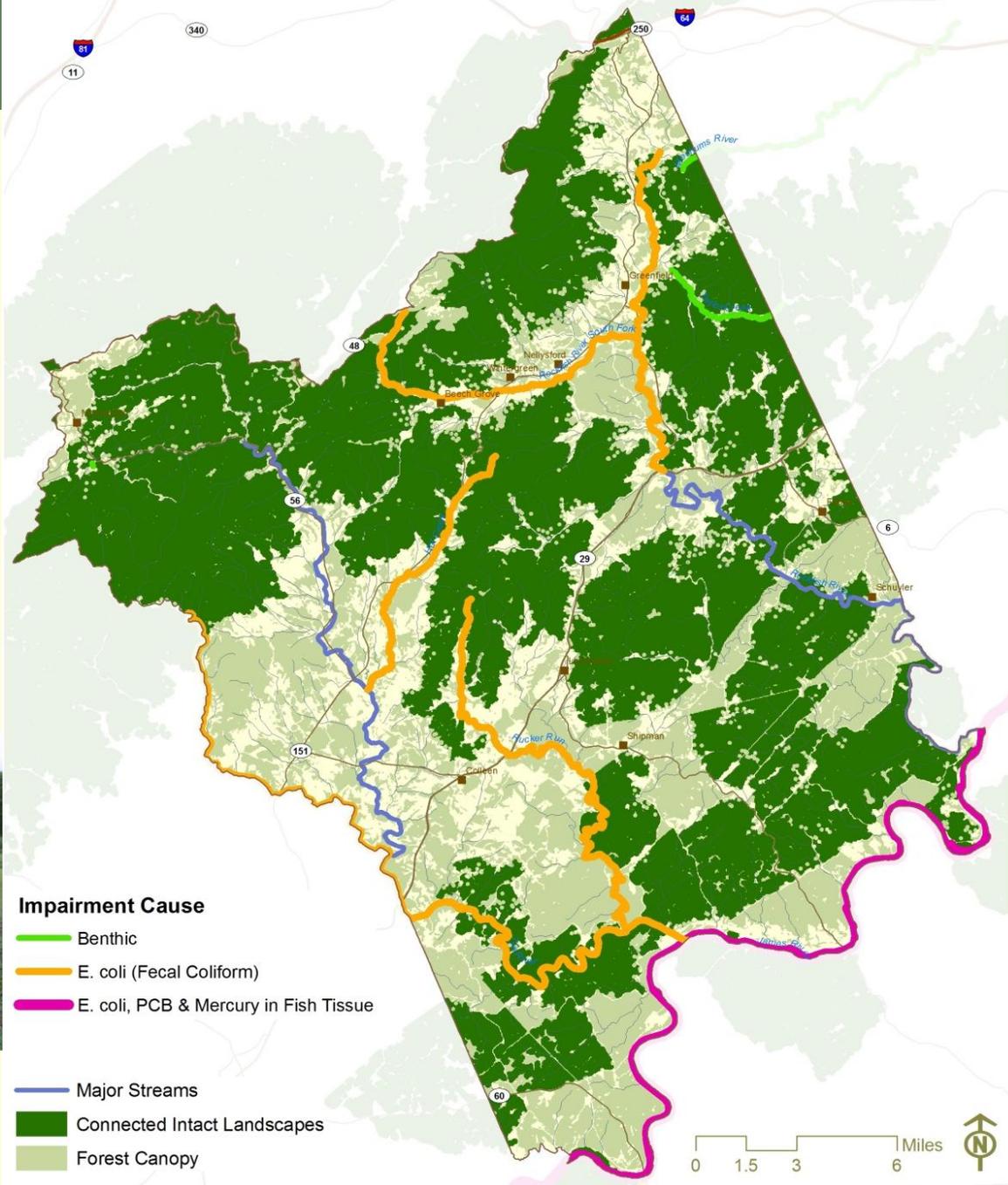
Areas at risk from
development – note areas
of development near
protected lands.



This map shows the highest value cores and connected corridors =
High Integrity Cores
Connector Patches



Water Impairments



Culture, Heritage and Recreation Assets by watershed



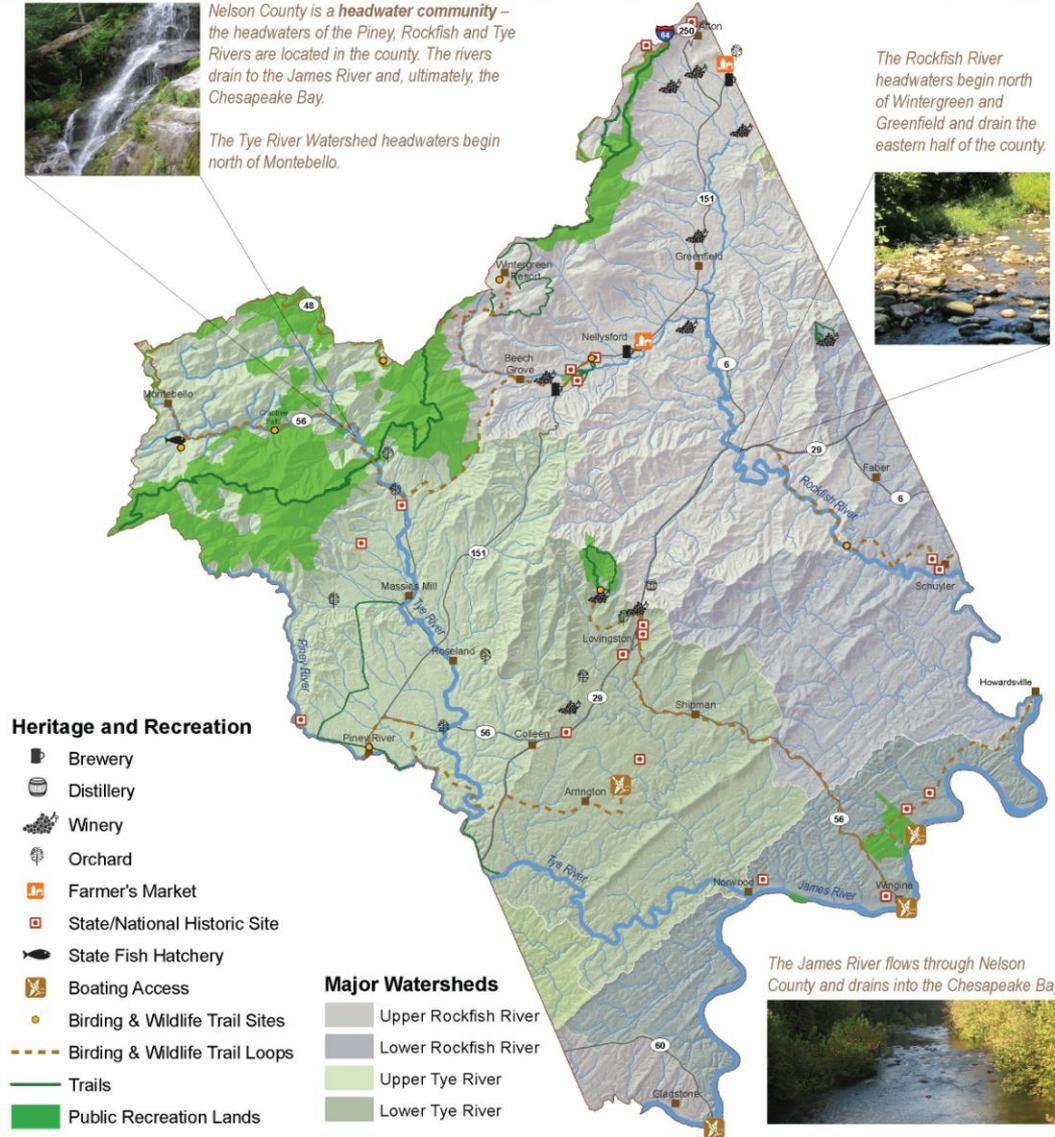
Taylor Smack, Owner
Blue Ridge Mountain Brewery



Nelson County is a **headwater community** – the headwaters of the Piney, Rockfish and Tye Rivers are located in the county. The rivers drain to the James River and, ultimately, the Chesapeake Bay.

The Tye River Watershed headwaters begin north of Montebello.

The Rockfish River headwaters begin north of Wintergreen and Greenfield and drain the eastern half of the county.



The James River flows through Nelson County and drains into the Chesapeake Bay.



County, town and regional planning



Virginia's Comprehensive Planning

15.2-2230. Comp Plans reviewed at least once every 5 years.

“...careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants.” “...guiding and accomplishing a coordinated, adjusted and harmonious development ...which will, in accordance with present and probable future needs and resources, promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants...”

Zoning must be “in accordance” with comprehensive plans – so comp plans should include maps of key natural assets.

Why planners need information about national forests and why these forests should link with local plans

Forests do not end at county boundaries.

Often, development pressure is highest at the boundaries and needs special attention to ensure compatible zoning.

Wildland Urban Interface (WUI) issues (invasives, encroachment, fire risk) occur at those boundary areas.

Many local economies depend on National Forests for their \$ value = increased local spending for recreation (in addition to other payments) as well as sustenance (hunting, wood, food gathering etc.)



How often do planners incorporate forest information in their comprehensive plans?

- ❑ 35 out of 68 Comp Plans reviewed include the number of forested acres within the county.
- ❑ 19 counties were given a score of 4 for their thorough discussion of the environmental benefits associated with forestland.
- ❑ 18 counties were given a score of 4 for their thorough discussion of the economic benefits associated with forestland.
- ❑ 6 counties were given a score of 4 for their thorough discussion of the social benefits of forestland.

These data were collected by University of Virginia's Institute for Environmental Negotiation under a grant from the Virginia Department of Forestry. The scale ranking is from 0-4.

Steps

- ❑ Ask local planners: What does the comprehensive plan or local zoning propose for areas adjacent to or near your forests? How can you help your counties be more strategic in forest land conservation? What knowledge can you share?
- ❑ How do your plans for access and management compliment or conflict with local plans (and visa versa?)

Steps

- ❑ Share technology: Do your localities have your boundaries in their GIS?
- ❑ Evaluate: Have you studied the economic value of your forest for your local counties (e.g. recreation or water recharge)?
- ❑ Strategize: What land uses depend on a healthy and intact forest for their viewsheds? Can you help your counties be more strategic in forest land conservation?

To review example projects:

GIC Inc.

921 Second St. SE

Charlottesville, VA, 22902

434-975-6700, #222

info@gicinc.org www.gicinc.org



Time for Questions!

Please type your
question in the chat pod

Future Topic Areas

- Landscape-level planning for natural resource professionals;
- Open space conservation efforts by federal agencies (USDA, DOT, DOT, and DOI);
- The art of using science to guide planning efforts

Session #4

The Forest Service Toolbox: Land Acquisition and Conservation Easement Programs

Thursday, July 19th, 2 pm Eastern

- **Nancy Parachini**, US Forest Service, National Program Manager for Land and Water Conservation Fund
- **Dierdre Raimo**, US Forest Service, Northeast Program Manager, Forest Legacy
- **Case Studies:** To Be Announced

Future Topic Areas

- Landscape-level planning for natural resource professionals;
- Open space conservation efforts by federal agencies (USDA, DOI, DoD, and DOT);
- The art of using science to guide planning efforts

For More Information or to Provide Feedback

www.fs.fed.us/openspace/webinars

Or Contact

Susan Stein – sstein@fs.fed.us

Sara Comas – scomas@fs.fed.us