

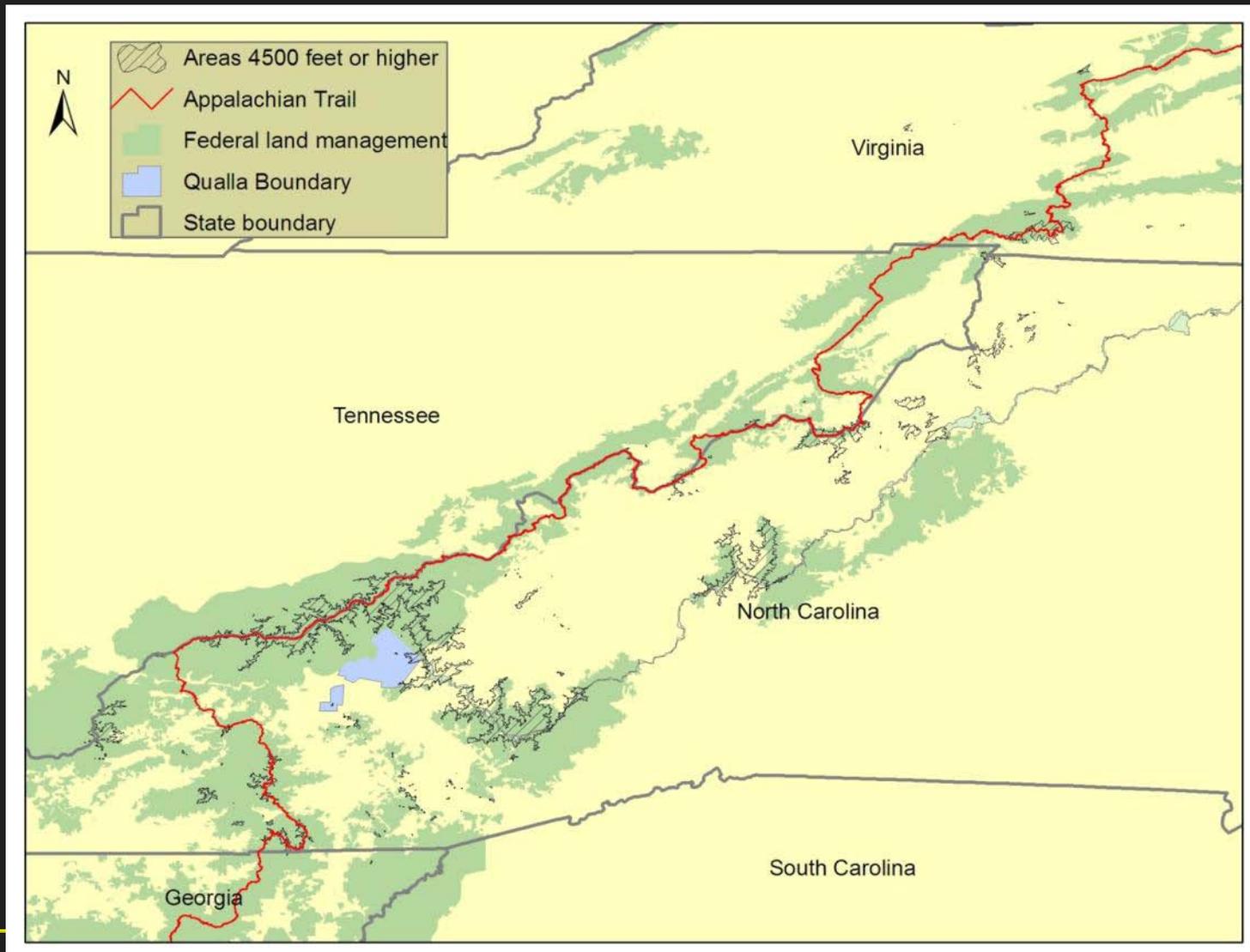
Strategic Habitat Conservation in the Southern Appalachians

*A look at high elevations and other
important plant habitats*

Appalachian SHC workshop
January 26th, 2010



High elevation overview



Southeast Region

High elevation overview

habitats



Southeast Region

High elevation overview

listed species

Heller's blazing star (E)



Spreading avens (E)



Blue Ridge goldenrod (T)

Carolina northern flying squirrel (E)



Peregrine falcon (Recovered)



Rock gnome lichen (E)

Spruce-fir moss spider (E)



Roan Mountain bluet (E)



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High elevation overview

fsc

Mountain bittercress



© William S. Justice

Fraser fir



Photo by Jim Stasz

Bent avens



Appalachian Bewick's wren



Northern saw-whet owl,
Southern Appalachian population



Appalachian cottontail



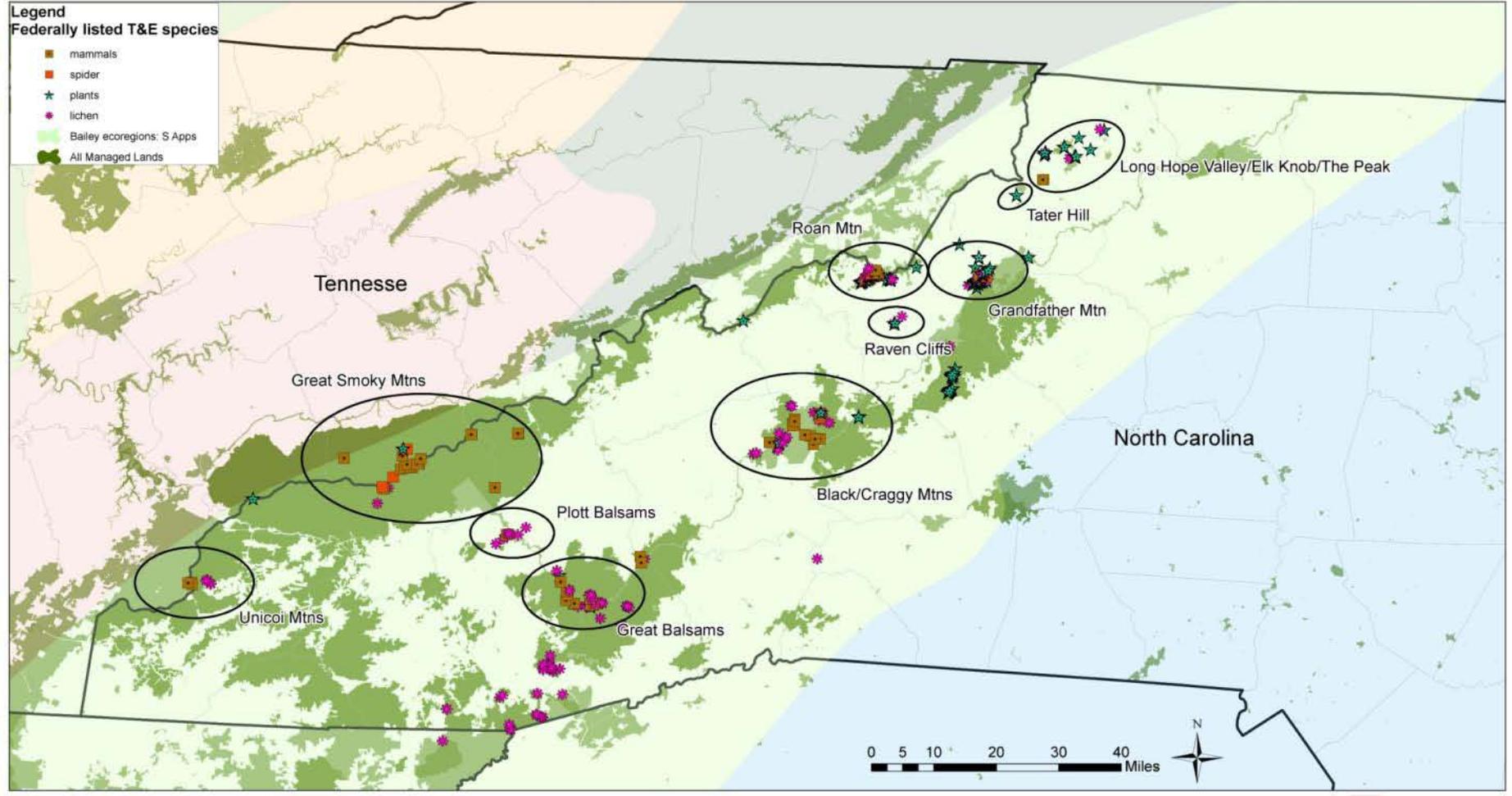
Gray's lily



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High elevation overview

Federally listed (T&E) species of high elevation habitats, NC-TN



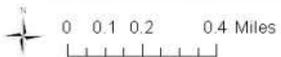
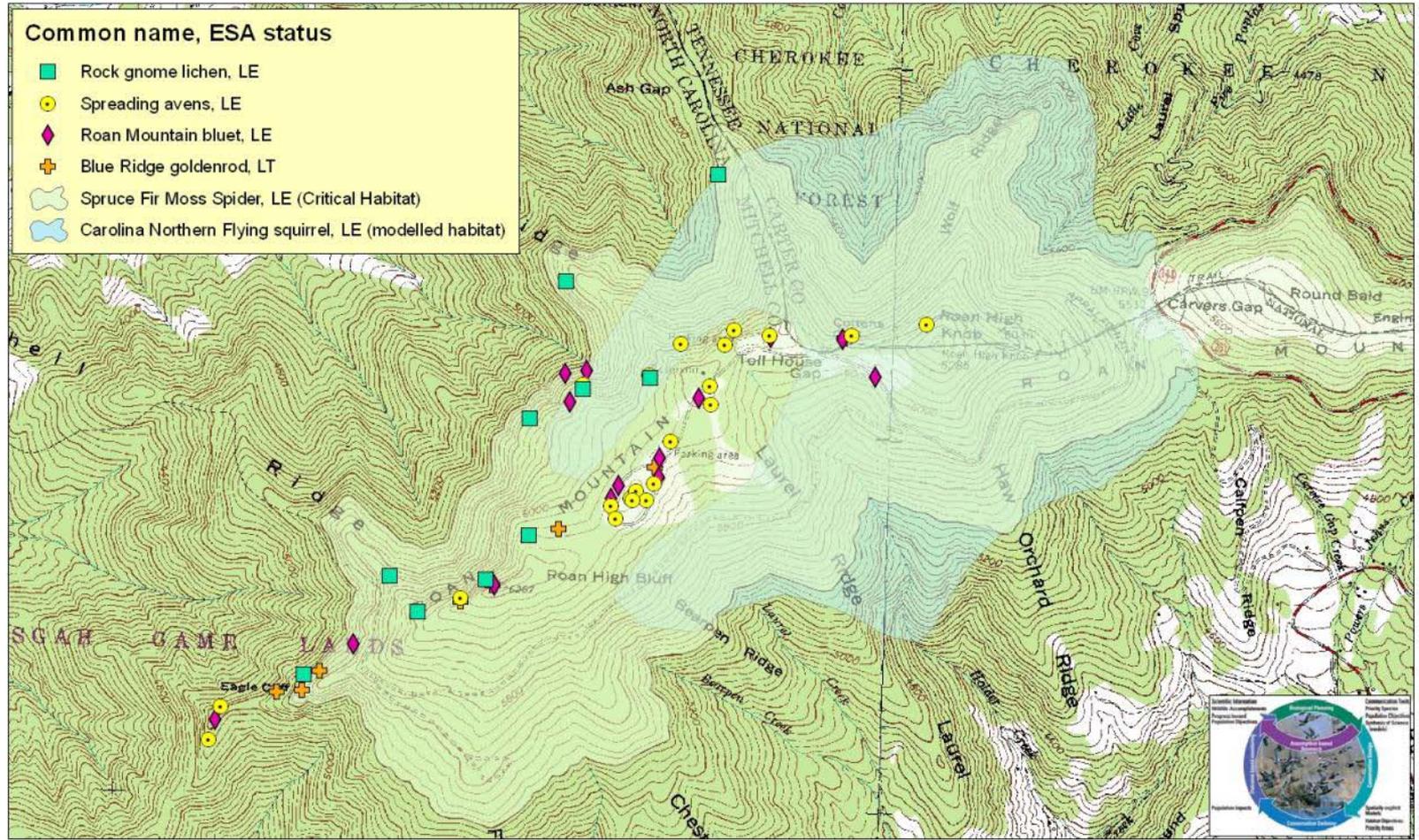
Map Author: C. Wiley, USFWS
Map Date: 08/27/2016



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Roan Mountain overview

Strategic Habitat Conservation: Roan Mountain, NC-TN



Map date: 8/14/2008
Map author: C. Wells, USFWS



Southeast Region

Roan Mountain

partners



THE SOUTHERN APPALACHIAN HIGHLANDS CONSERVANCY



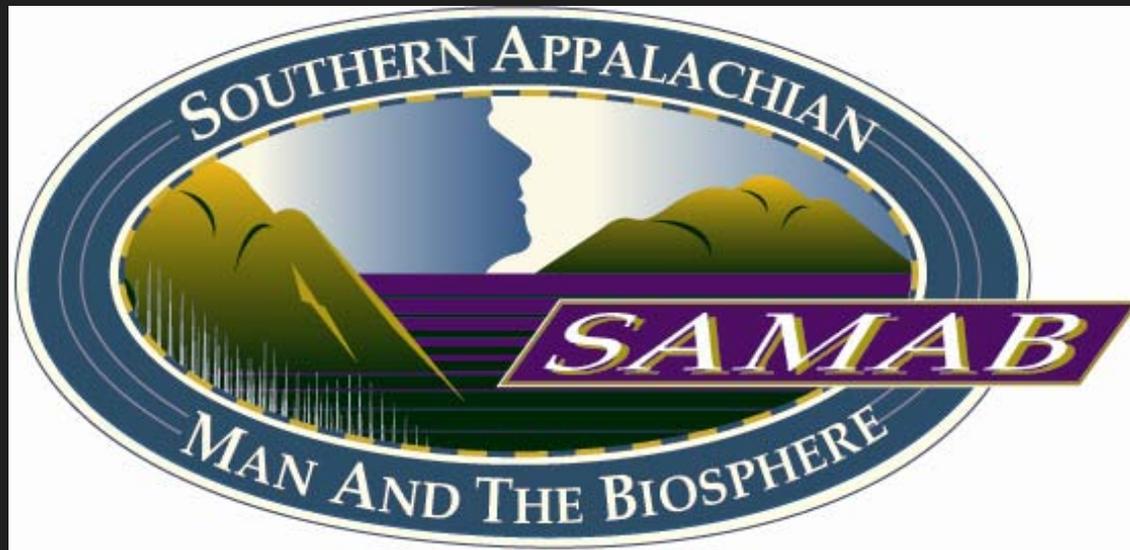
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF NATURAL AREAS



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A summit on the summits: overcoming challenges to stewardship in southern Appalachian high elevation natural communities

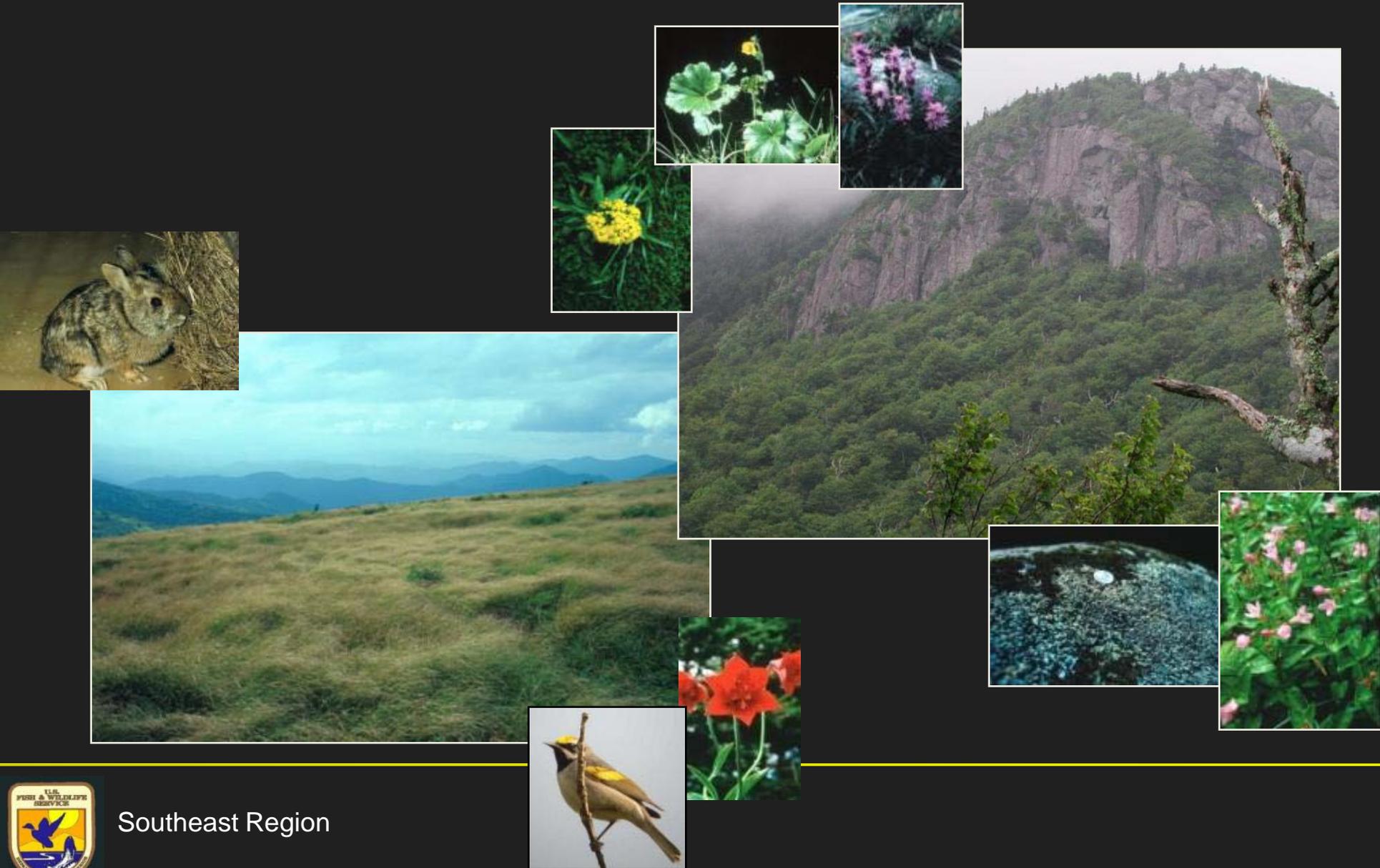


October 22-24, 2007
Johnson City, TN



Roan Mountain

focal habitats and species



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Roan Mountain *high elevation rocky summits*



Heller's blazing star



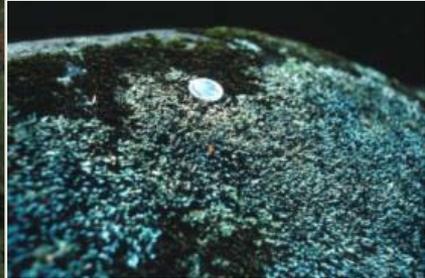
Roan Mountain bluet



Spreading avens



Blue Ridge goldenrod



Rock gnome lichen



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5-year reviews for listed species

- compile population data (locations, sizes, extents)
- identify, review threats (species-habitat relationships)
- identify best available data for setting *provisional, current* population objectives
- identify untested assumptions (targets for research)



Roan Mountain

conservation design

- Assess current state of populations
- Develop decision support tools (Miradi)
- Designate priority areas & objectives (Miradi)
 - where & how much habitat?
 - how will quality habitat be defined?
 - acceptable levels of various threats?



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Roan Mountain

conservation delivery

- Acquire and protect habitat (still populations unprotected at Roan, elsewhere)
- Control recreation-related threats
 - education and outreach
 - physical barriers, trail counters
 - closures, law enforcement

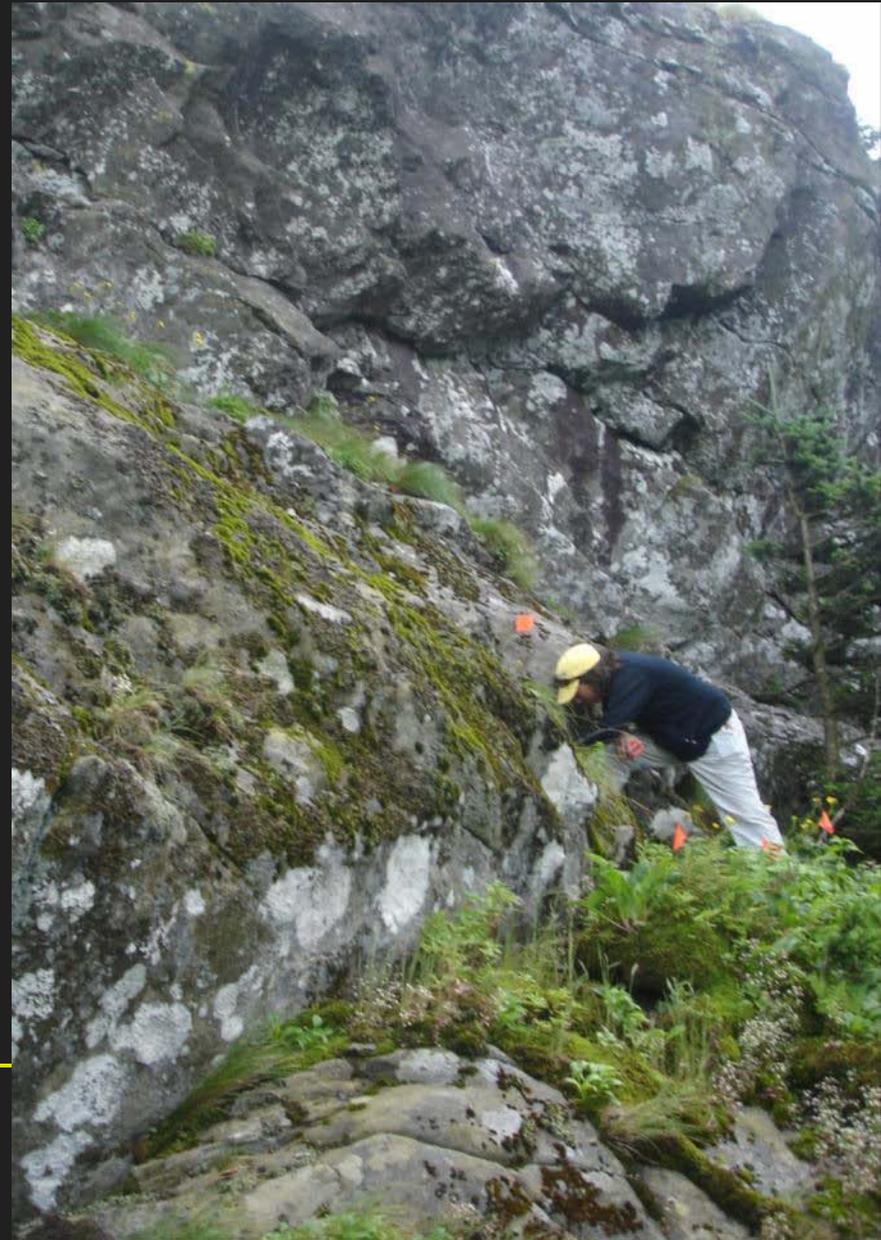


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Roan Mountain

monitoring and research

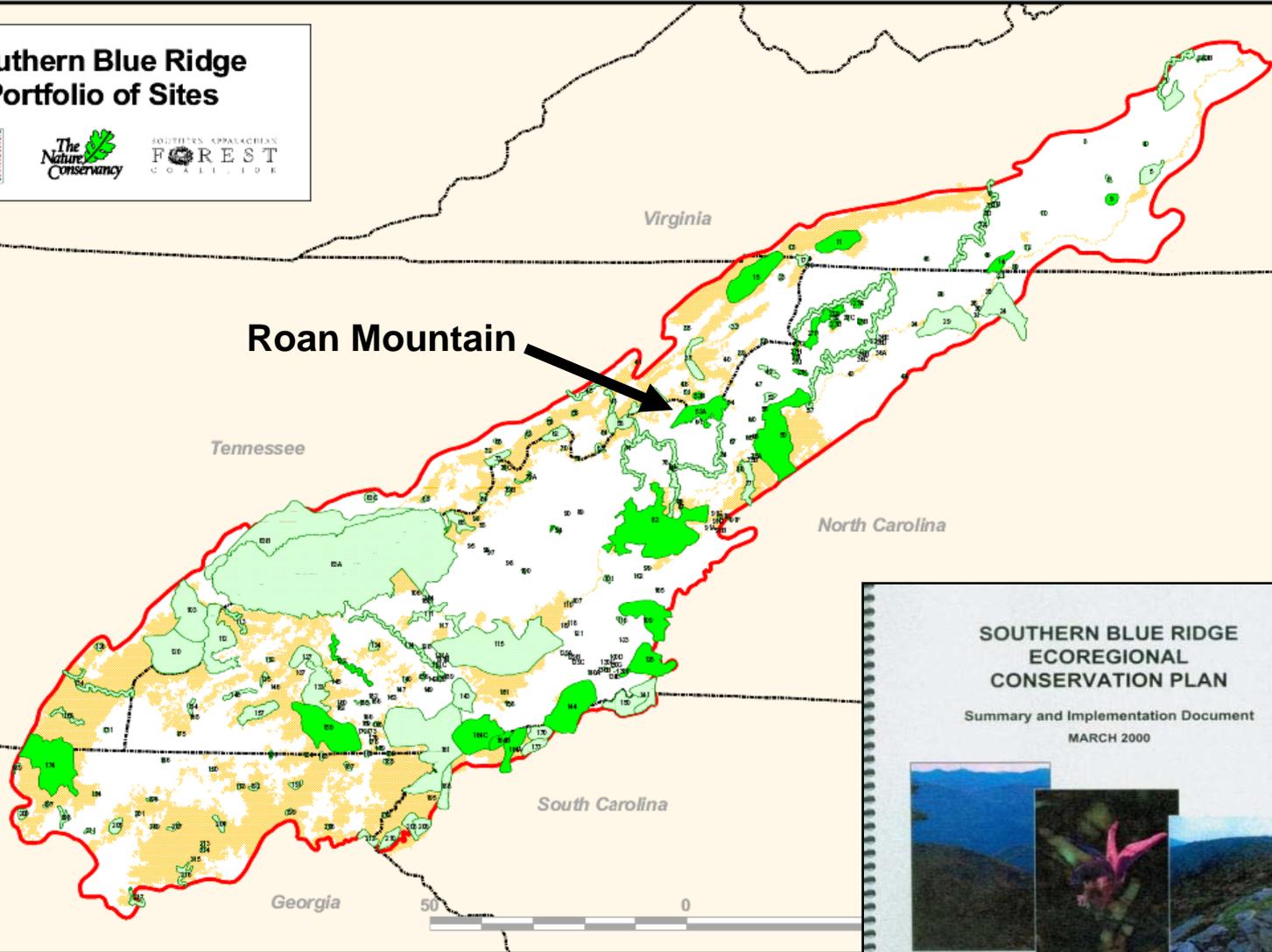
- Population monitoring and PVAs (defensible population objectives)
- Monitoring/investigation of threats (poaching, trampling, succession, climate change)
- Investigation of species-habitat relationships
 - temperature, moisture availability
 - elevation, aspect, slope
 - geology, microhabitat characteristics (rock fissures)



Southern Blue Ridge Portfolio of Sites



Roan Mountain



SOUTHERN BLUE RIDGE ECOREGIONAL CONSERVATION PLAN

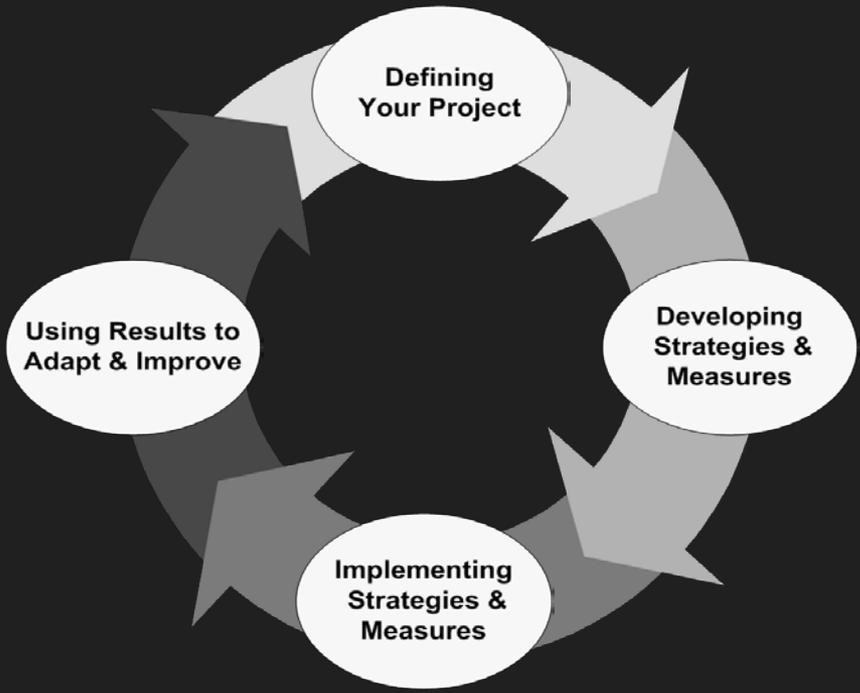
Summary and Implementation Document
MARCH 2000



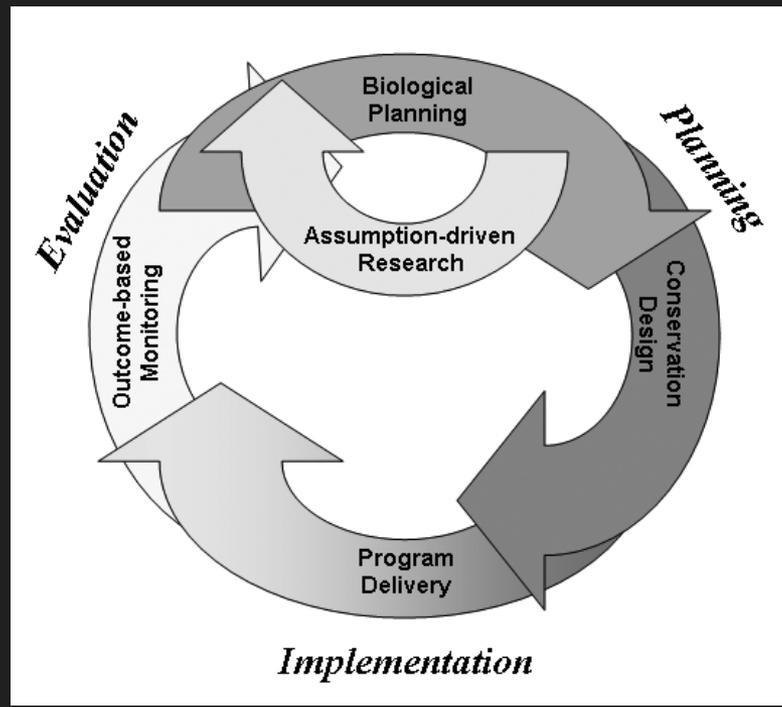
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Roan Mountain

integrating approaches



Conservation Action Planning



Strategic Habitat Conservation



Communities on the landscape



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Objective: develop a Habitat Conservation Plan in the Cumberlands of Tennessee to cover Tennessee Wildlife Resource Agency's timber management related activities on State Wildlife Management Areas

Project Management Team:

- The Nature Conservancy
- University of Tennessee
- Tennessee Tech University

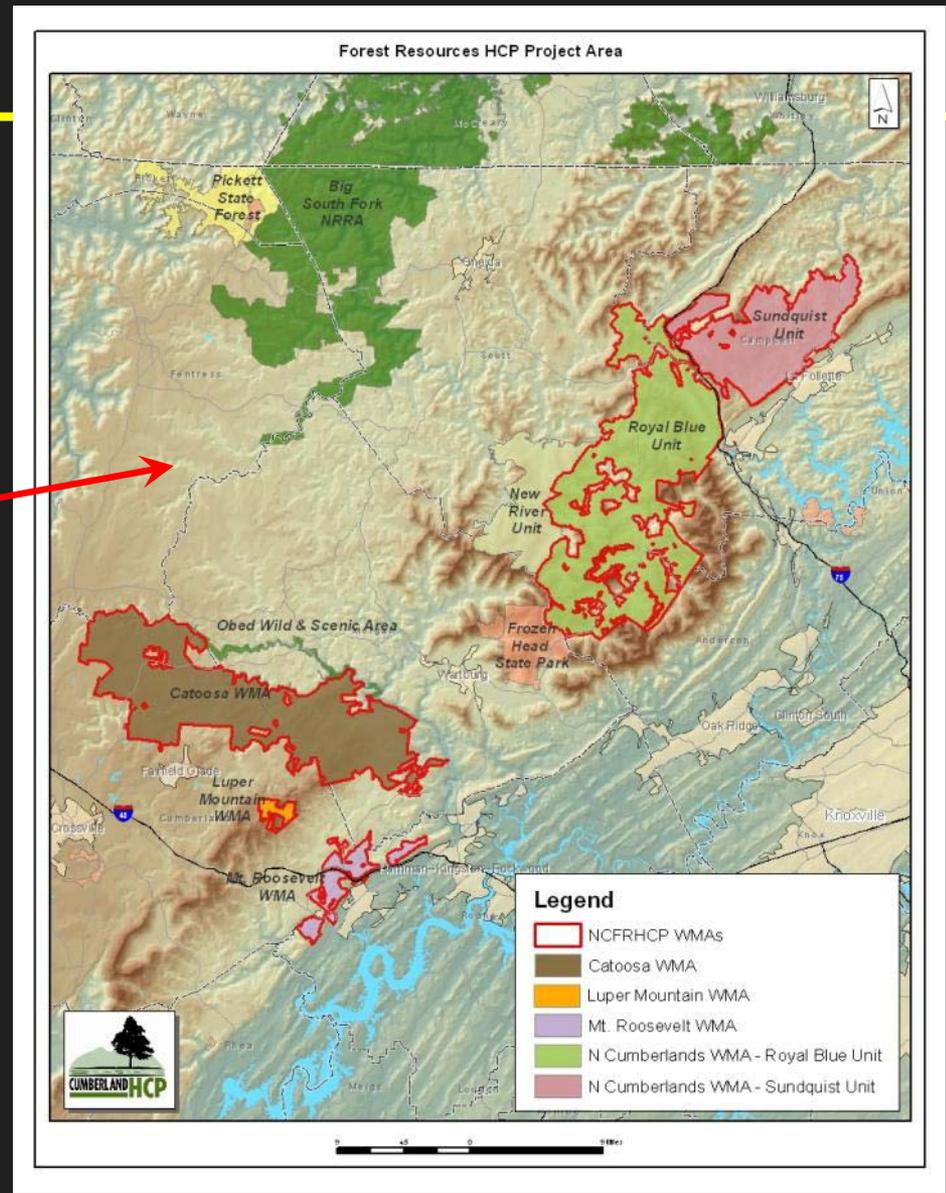


Funding provided by
HCP Planning
Assistance grants





Covered lands located in Cumberland Plateau and Mountains of northern TN



- 38 covered species
- 6 plants - 2 endangered, 1 candidate
- Organized into ecological communities for planning purposes



Community: Perennial Mainstem Aquatic and Forested Riparian Systems ($\geq 4^{\text{th}}$ Order Streams)

Umbrella Species: Swainson's warbler, purple bean, ashy darter, spotfin chub, tangerine darter



Also covers: Eastern small-footed bat, Indiana bat, Allegheny woodrat, masked shrew, smoky shrew, southeastern shrew, timber rattlesnake, green salamander, olive darter, sickle darter, Obed crayfish, Emory River crayfish, hellbender, **Cumberland rosemary**, **Virginia spiraea**, Large-flowered Barbara's buttons, Tennessee pondweed, Cumberland sandgrass, climbing fumitory

Conservation approach: Establish buffers to protect riparian forest ecosystems. Ensure compliance with Tennessee BMPs to protect and enhance water quality.

C.13. Goal:

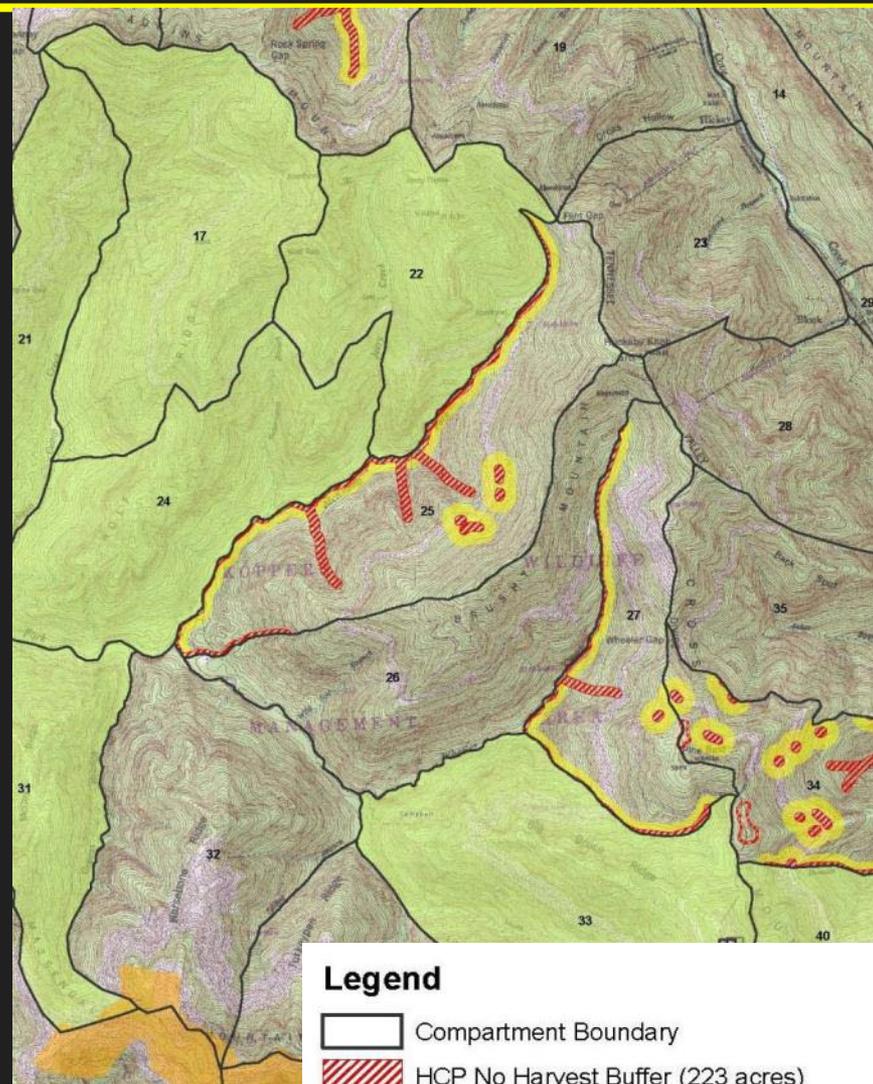
Maintain intact riparian forest ecosystems surrounding $\geq 4^{\text{th}}$ order streams.

C.13.1. Objective:

Manage terrestrial habitat critical to both riparian forest and aquatic dwelling covered species.

C.13.1.1. Conservation Measure:

Establish a 300 ft (91 m) buffer surrounding all $\geq 4^{\text{th}}$ order streams as measured from the high water mark. In the first 100 ft (30 m) from the stream, no timber harvest is allowed. In 101-300 ft (30 - 91 m) from the stream, single tree or group selection timber harvest is allowed but 50% canopy cover must be maintained overall and no gaps > 1 acre (0.4 hectare).



Legend

-  Compartment Boundary
-  HCP No Harvest Buffer (223 acres)
-  HCP Partial Harvest Buffer (369 acres)
-  Early Successional Mgt Areas (549 acres)
-  Forest Interior Reserves (6043 acres)

- Monitoring protocols under development
- Research
 - CEWA response to silvicultural treatments
 - Indiana bat telemetry
 - Underwater video habitat mapping
 - Collecting current distribution data for Black Mountain and Cumberland dusky salamanders
- Adaptive Management
 - AM plan for managing Hemlock Woolly Adelgid developed using SDM
 - Lessons learned will be applied to other AM frameworks for HCP



Cedar Glade Endemics



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- Recovery Plans for Tennessee coneflower and leafy prairie clover
 - describe threats and actions needed to abate them
 - establish recovery criteria, including population goals
- Habitat destruction is greatest recognized threat





- TNC and TN Natural Heritage Program identified a portfolio of sites for protection
- Sites acquired by TNC and TN Division of Natural Areas over period of 15 years
- Recovery Land Acquisition grants instrumental in protecting significant sites

Cedar Glade Endemics *monitoring & research*



Monitoring ongoing for listed species – designed to assess progress towards recovery criteria and assess threats



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