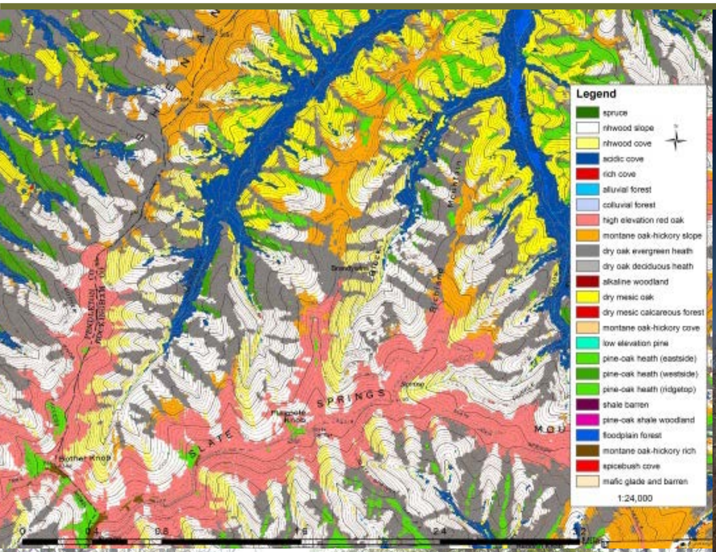
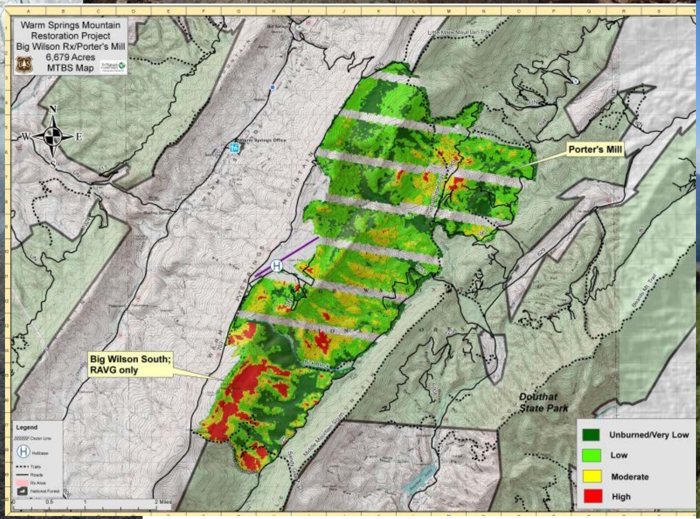
Fire Learning Networks, Landscapes & Communities:

Successful Models from Across the Country

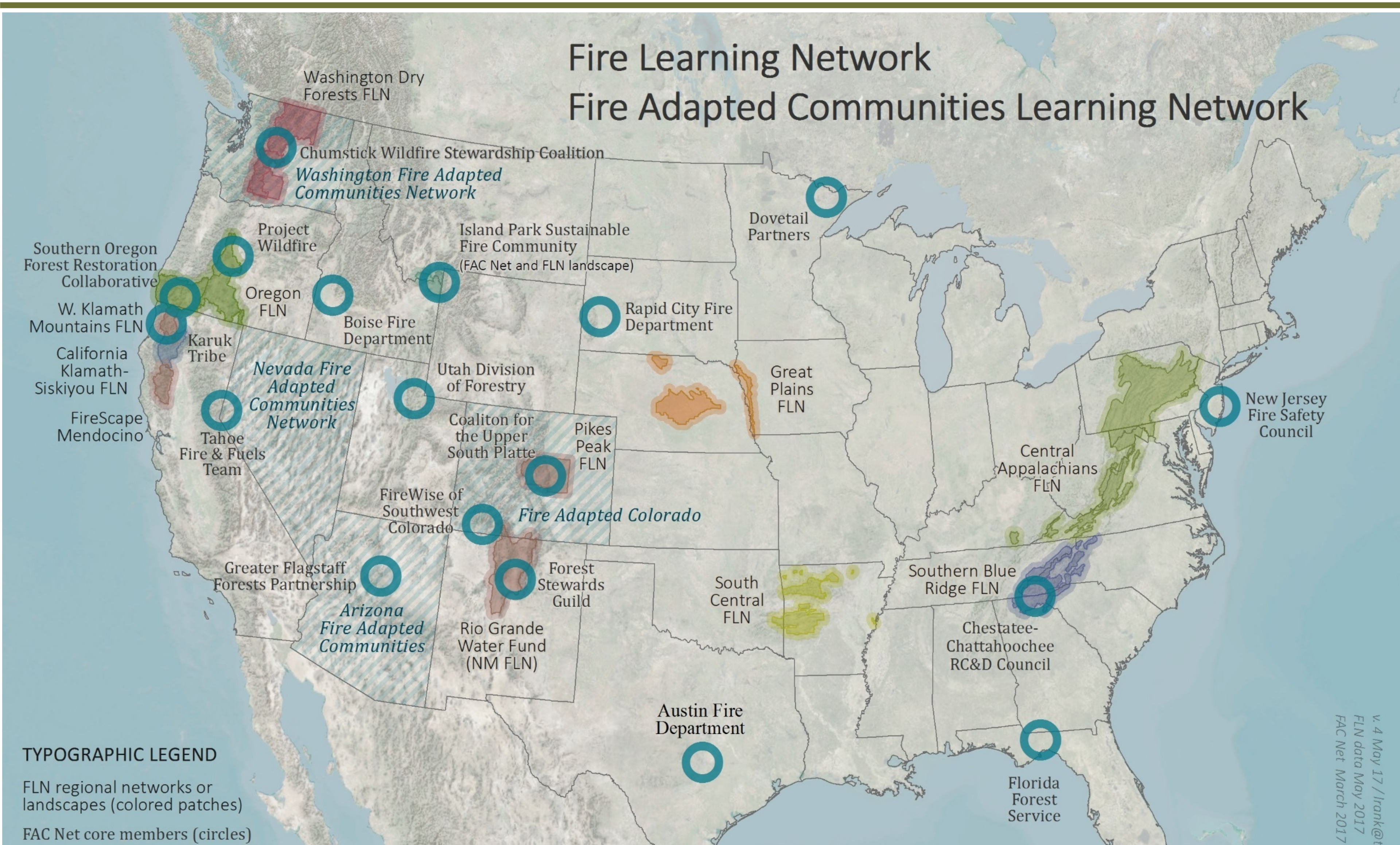
FLN

FIRE ADAPTED COMMUNITIES LEARNING NETWORK





Fire Learning Networks, Landscapes & Communities



What is Promoting Ecosystem Resilience and Fire Adapted Communities Together (PERFACT)?

Cooperative agreement which facilitates:

- the Fire Learning Network (FLN), fostering collaboration for restoration and integrated fire management in landscapes across the country;
- the Fire Adapted Communities (FAC) Learning Network, which is doing the same with communities adapting to wildfire;
- prescribed fire training exchanges (TREX), experiential training opportunities that integrate a range of people, places and aspects of fire;
- targeted restoration action under Scaling-up to Promote Ecosystem Resiliency (SPER);
- the Indigenous Peoples Burning Network (IPBN), supporting traditional burning practices and cultural revitalization; and
- communication and public outreach about fire, restoration, and the collaborative work being done on them.

What is Promoting Ecosystem Resilience and Fire Adapted Communities Together (PERFACT)?

- Learning Networks
- Collaboration
- Capacity-Building
- Viral Transfer, Adoption & Spread

- Collaborative Integrated Fire Management—Before, During & After Fire
- Disaster Risk Reduction & Appropriate Response
- Water & Food Security
- Biodiverse Landscapes

- Learning Networks
- Experiential Training & Capacity-Building
- Restoring Cultural Fire Systems
- Collaborative, Multi-disciplinary, Culturally Diverse Planning

- Knowledge Building Processes and Tools
- Effective Processes for Transformational Change
- Innovation Incubators
- Adaptive Co-Management of Fire

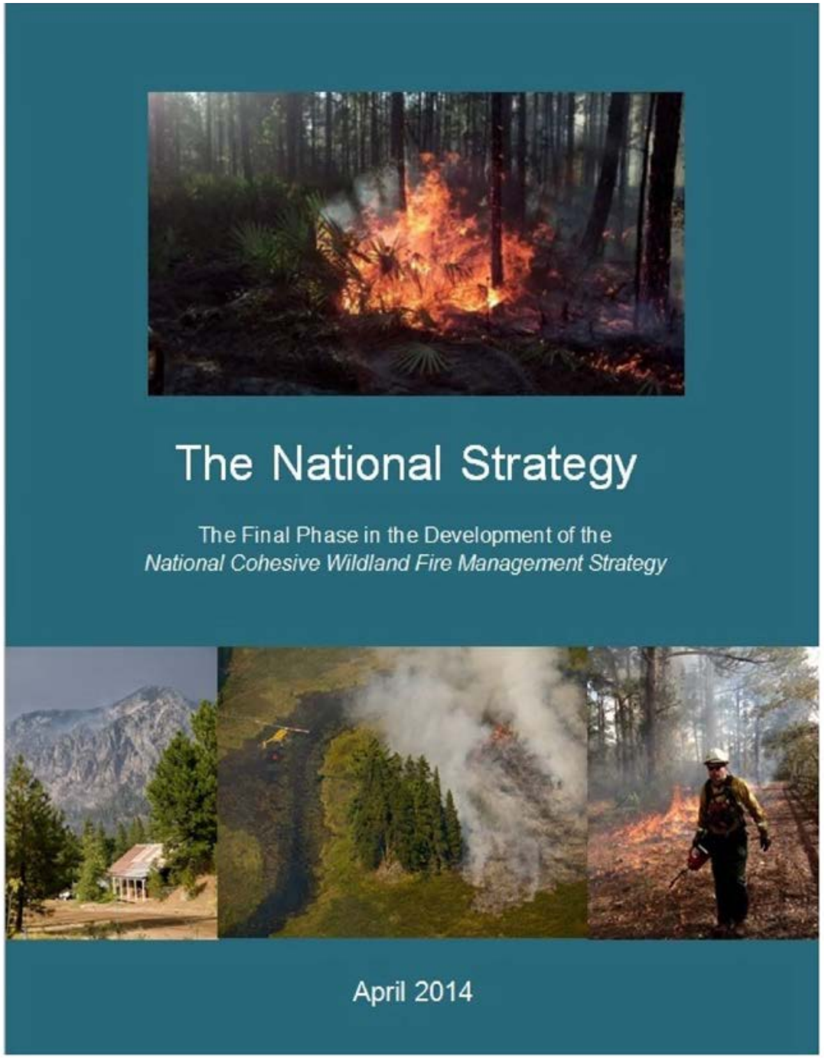
Living with Fire—fire adapted human communities, healthy natural landscapes, and the social and operational capacity to flourish in a challenging, changing fire environment—is the ultimate goal of work with partners under the proposed agreement.

National Cohesive Strategy and Resilient Landscapes

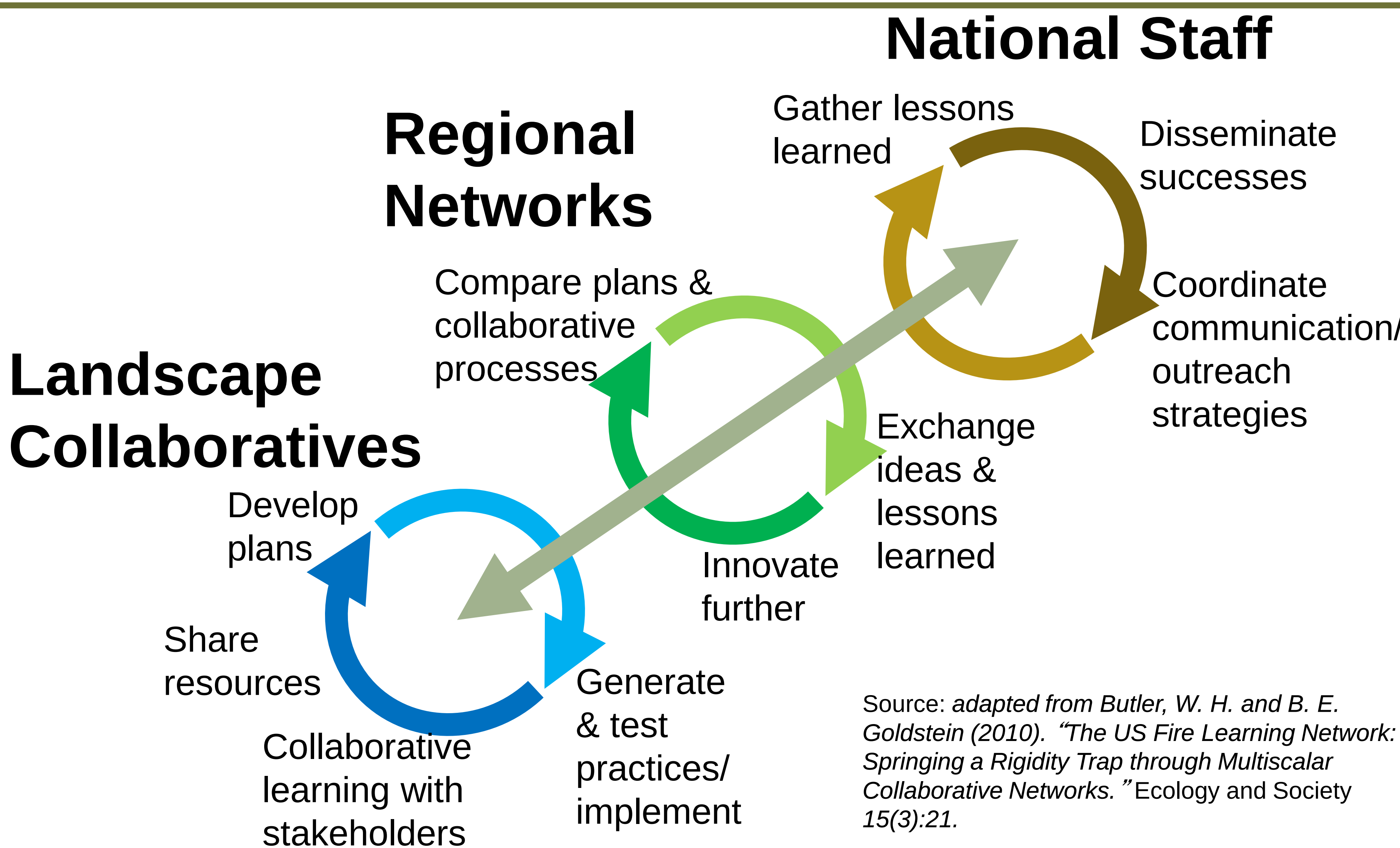
The National Cohesive Wildland Fire Management Strategy is a strategic push to work collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress towards the three goals:

1. Resilient Landscapes
2. Fire Adapted Communities
3. Safe and Effective Wildfire Response

Guided by these goals, focus in Phase III on: increasing the pace and scale of on-the-ground implementation;
strategic alignment of efforts; integration; and enabling conditions for success: local leadership, collaborative engagement and capacity for collective action.



How the Fire Learning Network Functions



Source: *adapted from Butler, W. H. and B. E. Goldstein (2010). "The US Fire Learning Network: Springing a Rigidity Trap through Multiscalar Collaborative Networks."* Ecology and Society *15(3):21.*

A Typical Landscape-level Collaboration in the FLN

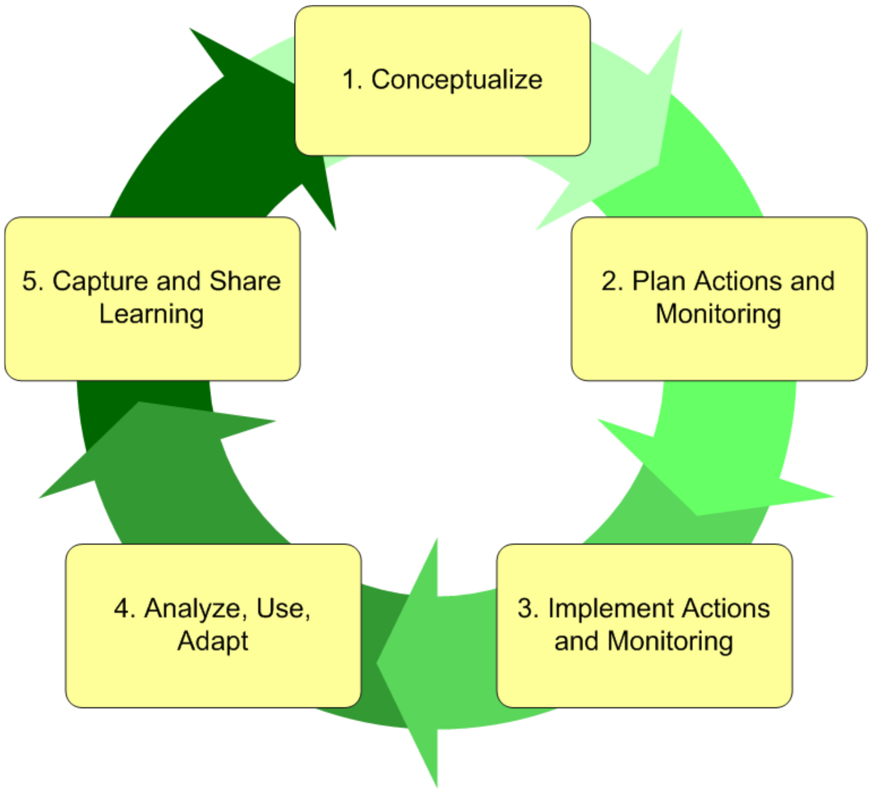
•Geography:	½ to 2 million acres in extent
•Participants:	100 people from 25 – 30 organizations and interested citizens
•People:	Care deeply about their landscape and its people
•Mood:	Unsatisfied with the current and future fire situation
•Energy:	Ready to work in new ways to change their future.
•Approach:	Implementation based on shared values, goals, learning

1. Participation is voluntary
2. Nobody tells the others what to do
3. Everyone works - no one watches
4. Everyone gets fed

Landscape-Level Collaborative Process

- Combined social-ecological systems
- Shared learning approach – science, local knowledge, TEK
- Open, transparent and inclusive facilitated collaborative planning process
- Focus on zones of agreement
- Start with small, tangible successes on the ground to build collaborative muscle
- Network to achieve larger goals

Open Standards for the Practice of Conservation



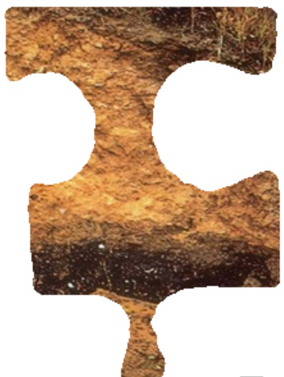
www.conservationmeasures.org

Landscape Workshops & Co-Learning Experiences

Understanding the Historic Fire Regime

Peat Bog Deposits

Soil Charcoal



Cultural Knowledge & Historical Accounts

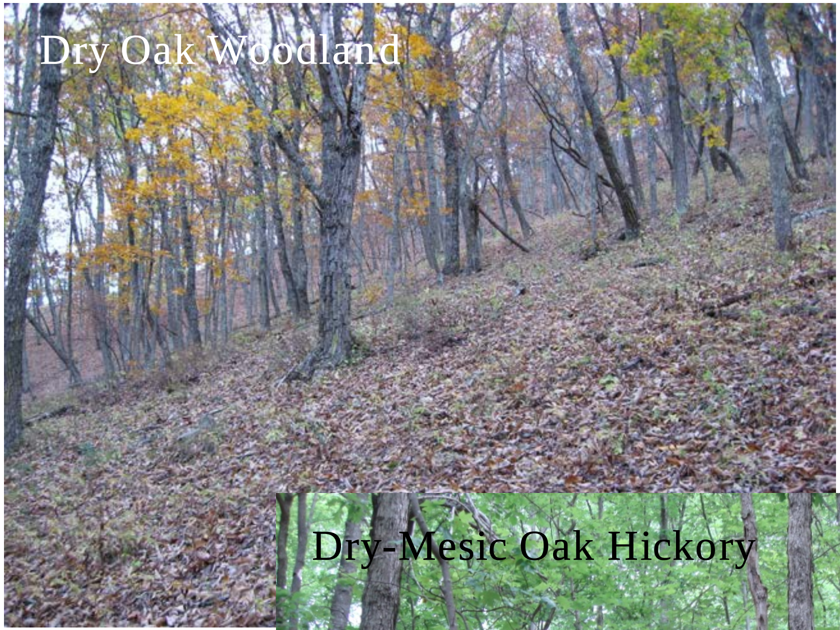
Lightning Records

Dendrochronology

FLN

Fire-adapted Ecological Systems

FIRE ADAPTED COMMUNITIES
LEARNING NETWORK



Successional Class and Ecological Models

FLN

FIRE ADAPTED COMMUNITIES LEARNING NETWORK

SOUTHERN APPALACHIAN MONTANE PINE ECOLOGY

Class A

<16 years
Early Development
NRV: 12%
Current: 6%

With Fire

No Fire

Class B

16-70 years
Mid Dev.
Closed
NRV: 3%
Current: 13%

Class C

16-70 years
Mid Dev.
Open
NRV: 25%
Current: 1%

Class D

>70 years
Late Dev.
Open
NRV: 55%
Current: 3%

Stand Replacement Fire with Pine seed source

- OR –
"Harvest" & Plant

Class E

>70 years
Late Dev.
Closed
NRV: 5%
Current: 55%

No fire.
Insects / disease likely

Uncharacteristic Oak Dominated

NRV: 0%
Current: 20%

82% departure

Fire Literature Bibliographies

2031

Fire history from three species on a central Appalachian ridgetop

Amy E. Hessl, Tom Saladyga, Thomas Schuler, Peter Clark, and Joshua Wixom

Abstract: The impact of settlement era fires on Appalachian forests was substantial, but whether these fires affected the extent of fire-adapted ridgetop plant communities is poorly understood. Here we present fire history and stand structure of an Appalachian ridgetop (Pike Knob, West Virginia) based on fire scars from three species (*Pinus pungens* Lamb., *Pinus resinosa* Soland., and *Quercus rubra* L.) and stand structure from two species (*P. pungens* and *P. resinosa*). Our research objectives are to determine (*i*) the degree to which the fire frequency on Pike Knob was affected by European American settlement (~1780–1900) and (*ii*) how the history of fire on Pike Knob shaped the current age structure of *P. resinosa* and *P. pungens*. All three species documented fire activity beginning in the mid- to late 1800s and continuing into the middle of the 20th century, when pasture lands were most active. The majority of *P. pungens* and *P. resinosa* established during or shortly after the ~85-year period of fires (1868–1953), suggesting a strong influence of past land use on current forest composition. Ridgetop pine communities have been resilient to both the absence of fire and frequent fire, indicating that pine communities will also be resilient to modern fire management, whether fire is excluded or re-introduced.

Résumé : L'impact des feux à l'époque de la colonisation sur les forêts appalachiennes a été important mais on ne sait pas si ces feux ont influencé l'étendue des communautés végétales adaptées au feu sur le sommet des montagnes. Nous présentons ici l'historique actuel des feux et la structure du peuplement situé sur un sommet des Appalaches (Pike Knob en Virginie-Occidentale) en se basant sur les cicatrices de feu présentes sur trois espèces (*Pinus pungens* Lamb., *Pinus resinosa* Soland. et *Quercus rubra* L.) et sur deux espèces (*P. pungens* et *P. resinosa*) dans le cas de la structure du peuplement. Nos objectifs consistaient à déterminer (*i*) dans quelle mesure la fréquence des feux à Pike Knob a été influencée par la colonisation de l'Amérique par les européens (~1780–1900) et (*ii*) comment l'historique du feu à Pike Knob a modelé la structure d'âge actuelle de *P. resinosa* et *P. pungens*). Les trois espèces témoignaient de l'activité du feu à partir du milieu à la fin des années 1800 jusqu'au milieu du 20e siècle, lorsqu'il y avait le plus de pâturages. La majorité des *P. pungens* et *P. resinosa* se sont établis durant ou peu de temps après la période des feux qui a duré 85 ans (1868–1953), ce qui indique que l'utilisation passée des terres a fortement influencé la composition actuelle de la forêt. Les communautés de pin situées sur les sommets ont résisté tant à l'absence du feu qu'au passage fréquent du feu, ce qui indique que les communautés de pin résisteront aussi à la gestion moderne du feu, que le feu soit exclu ou réintroduit.

[Traduit par la Rédaction]

Introduction

In Appalachian forests of North America, lightning-caused fires are currently infrequent (<1%) (Lynch and Hessl 2010; Malamud et al. 2005), but human-ignited fires may have had a substantial impact on ecosystems prior to, during, and after Euro-American settlement. Paleoecological evidence indicates that Native American use of fire may have been important for millennia, particularly near native settlements during the Woodland period (3000 years before present) (Delcourt and Delcourt 1997, 1998; Fesenmyer and Christensen 2010). The few fire history studies based on fire-scarred trees that extend prior to Euro-American settlement also document a history of frequent fire (fire return intervals of ~5–8 years) in eastern forests, despite major cultural and population changes resulting from contact between Europeans and Native Americans (Shumway et al. 2001; Aldrich et al. 2010). During the settlement period, fire activity increased in many locations, likely the result of increased population densities, logging, railroads, and other activities (Harmon 1982; Guyette and Spetich 2003; Maxwell and Hicks 2010). However, whether these changes in land use, ignitions, and fire frequency affected the extent of fire-adapted plant communities is poorly understood.

It is well known that Appalachian ridgetop pine forests are fire-adapted (Whittaker 1956; Harmon 1982; Williams 1998). These xeric forests are dominated by shade-intolerant pines (*Pinus pungens*, *Pinus rigida*), with thick fire-resistant bark, serotinous cones, and other adaptations to disturbance such as epicormic and root sprouting (Zobel 1969). In some locations, hardwood species have outcompeted the pines following fire exclusion (Harrod et al. 2000), suggesting that fire may be required to maintain these systems (Lafon and Kutak 2003). Others have argued that Appalachian pine stands

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Can. J. For. Res. 41: 2031–2039 (2011) doi:10.1139/X11-125 Published by NRC Research Press

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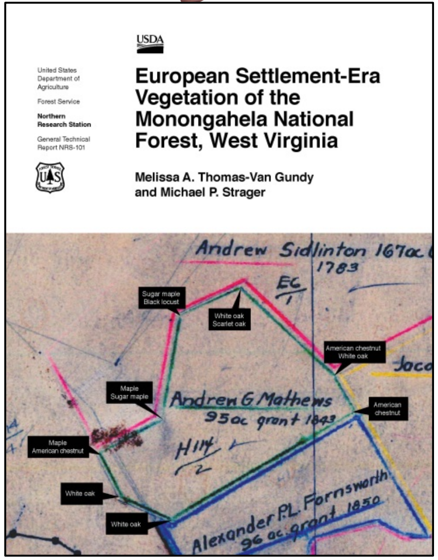


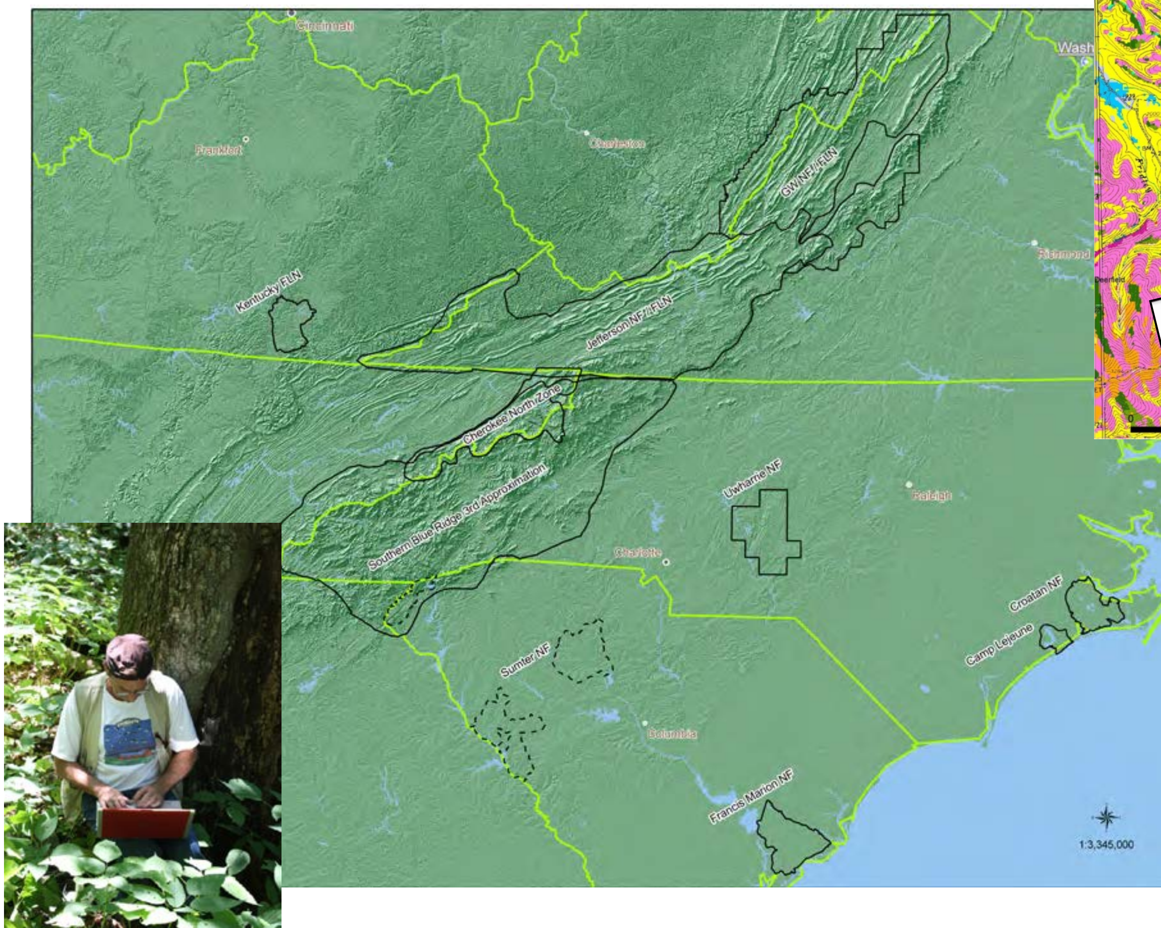
USDA

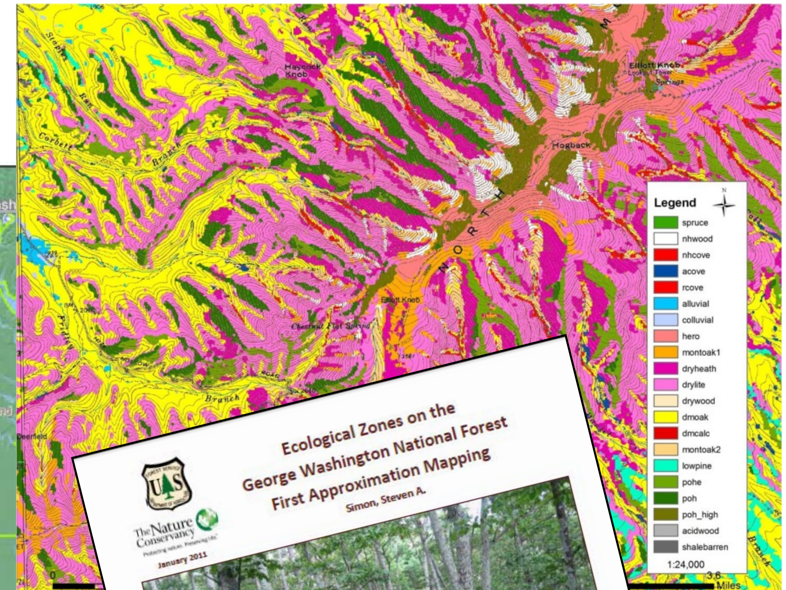
United States Department of Agriculture
Forest Service
Northern Research Station
General Technical Report NRS-101

European Settlement-Era Vegetation of the Monongahela National Forest, West Virginia

Melissa A. Thomas-Van Gundy and Michael P. Strager

Vegetation Modeling and Mapping





Ecological Zones on the George Washington National Forest First Approximation Mapping

Simon, Steven A.

The Nature Conservancy

January 2011

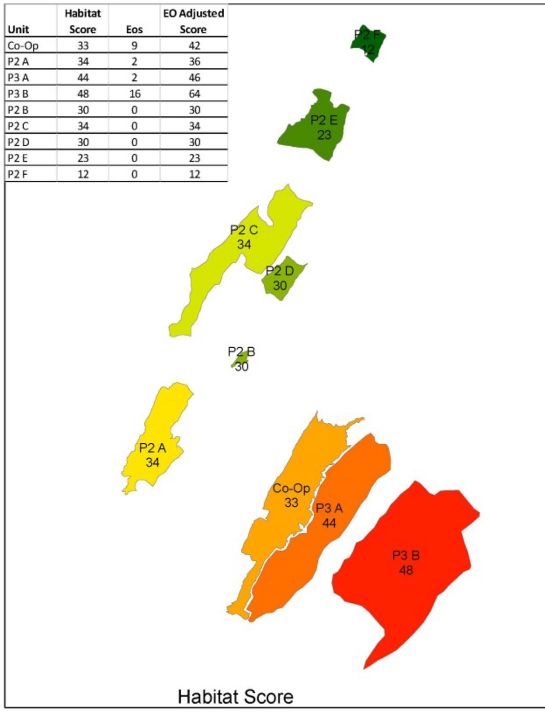
Burn Unit Prioritization Tools

ALLEGHENY HIGHLANDS FLN

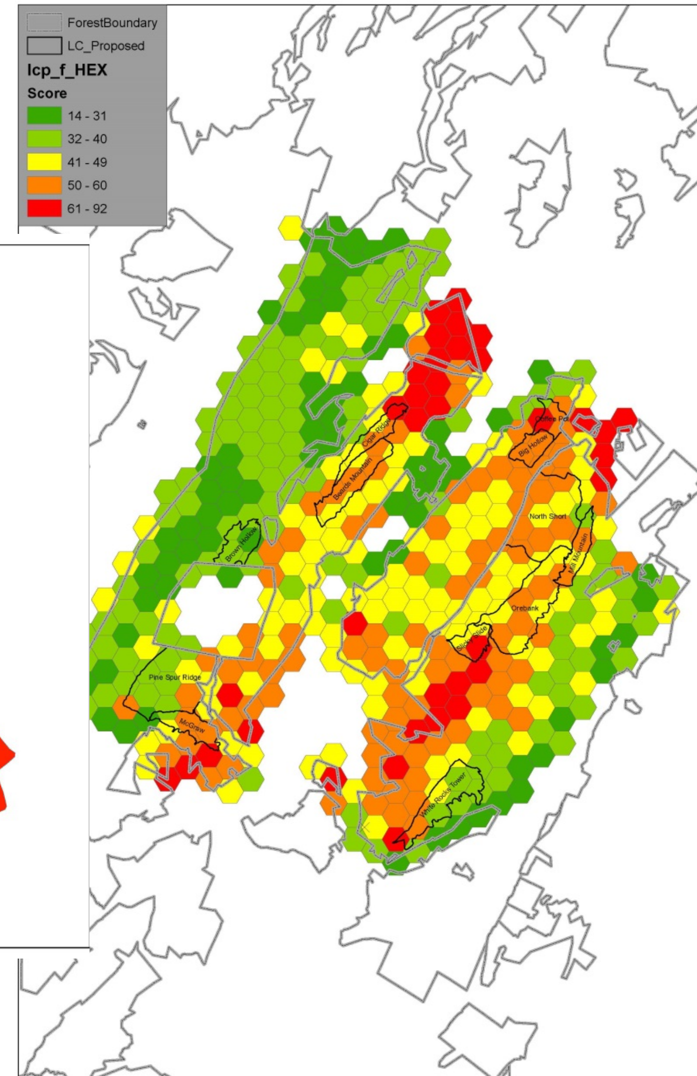
Allegheny Highlands Fire Learning Network
Draft Burn Unit Prioritization Criteria
October 21, 2011 Version 1.1

Category/Criteria	Weight
Landscape Condition	
% Fire Regime Condition Class = 3 by acreage	
26-50%	3 Points
>50%	5 Points
Landscape Context	
# of Adjacent Burn Units	1 Point/Unit
100% Perimeter Lines Exist	Yes = 5 Points
Restoration & Management History	
# of Previous Burns within Unit	1 Point/Burn
Acres of Wildlife Openings	
1-5 acres	1 Point
>5 acres	2 Points
Years to Planned Timber Harvest	<5 Years = -10 Points
Fire-adapted Communities	
% Oak Forests and Woodlands[1] by acreage	
26-50%	10 Points
51-75%	15 Points
76-100%	20 Points
% Pine Forests and Woodlands[2] by acreage	
1-25%	5 Points
26-50%	10 Points
51-75%	20 Points
76-100%	30 Points
% Barrens and Glades[3] by acreage	
1-25%	5 Points
>25%	10 Points
Fire-dependent and Fire-enhanced Plant Species[4]	
Presence of 1-2 Species from EOs	5 Points
Presence of >2 Species from EOs	10 Points

Unit	Habitat Score	Eos	EO Adjusted Score
Co-Op	33	9	42
P2 A	34	2	36
P3 A	44	2	46
P3 B	48	16	64
P2 B	30	0	30
P2 C	34	0	34
P2 D	30	0	30
P2 E	23	0	23
P2 F	12	0	12

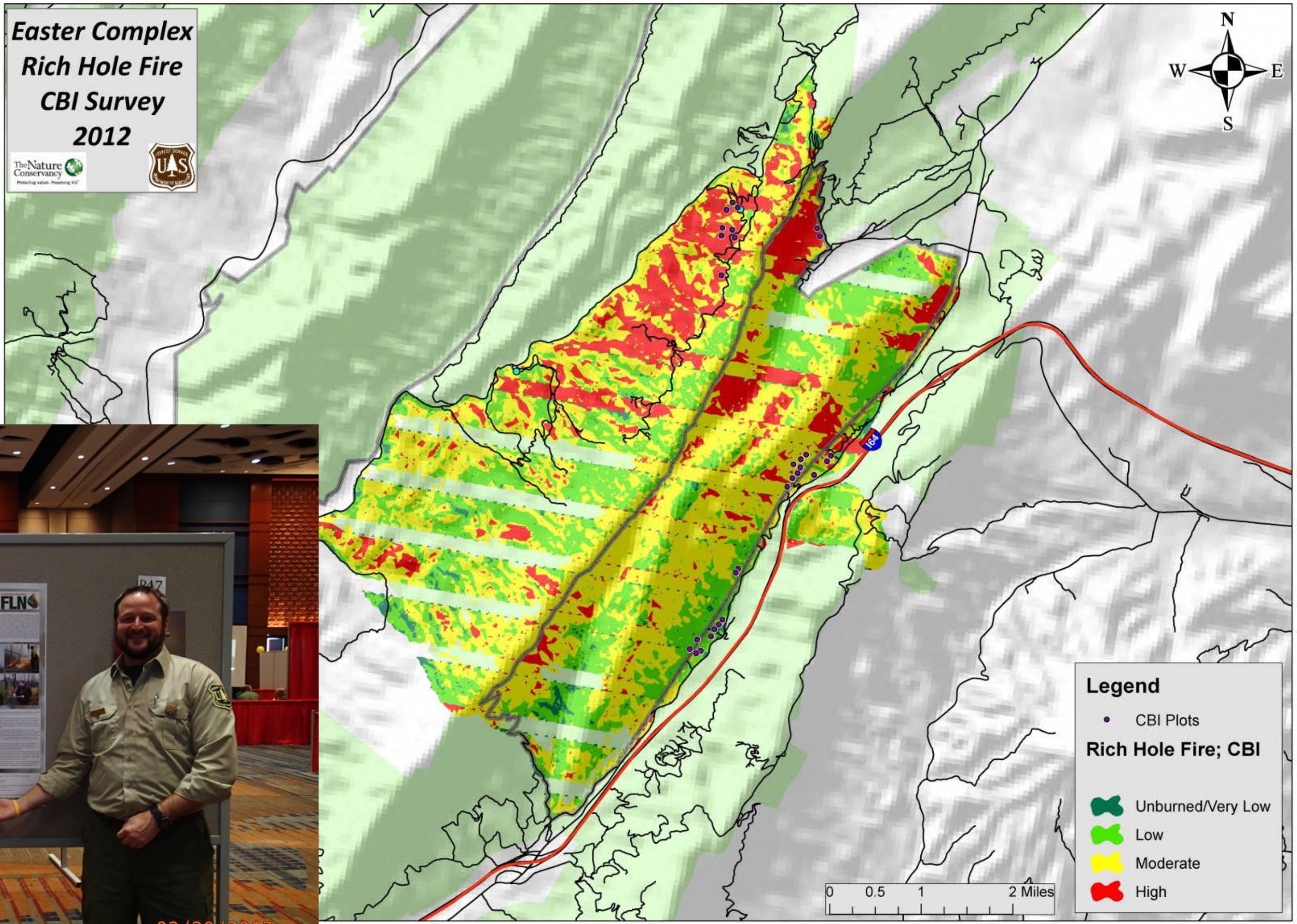


Habitat Score

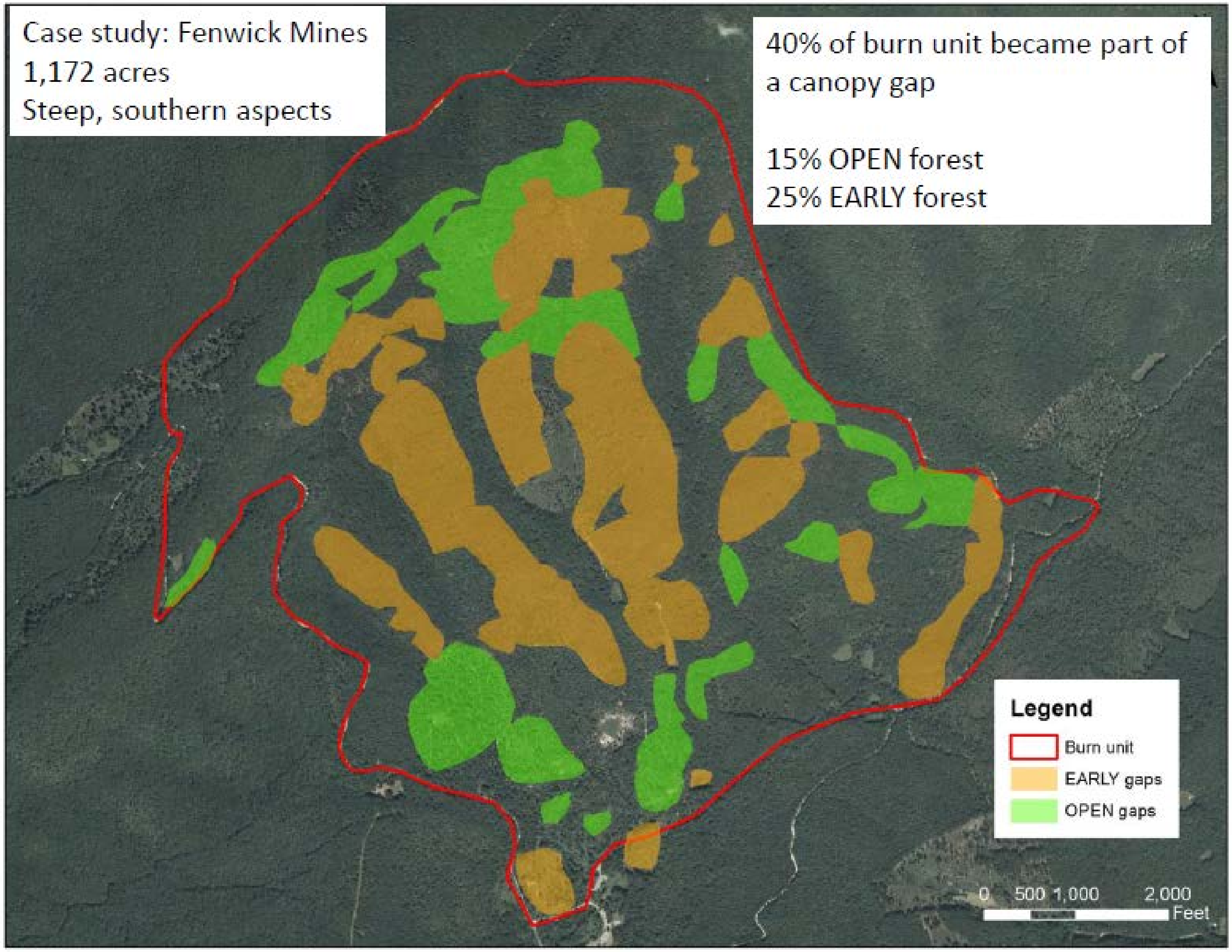


Burn Severity Assessments

CBI
RAVG
MTBS



Canopy Gap Analysis and Characterization



FLN

Fire Effects Monitoring and Adaptive Management

FIRE ADAPTED COMMUNITIES LEARNING NETWORK

FLN

Avian and Wildlife Monitoring Programs

FIRE ADAPTED COMMUNITIES
LEARNING NETWORK

Education and Outreach

MOUs and Agreements

CHALLENGE COST SHARE AGREEMENT
Between The
VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION
And The
USDA, FOREST SERVICE
GEORGE WASHINGTON AND JEFFERSON NATIONAL FORESTS

This CHALLENGE COST SHARE AGREEMENT is hereby made and entered into by and between the Virginia Department of Conservation and Recreation, hereinafter referred to as "DCR," and the USDA, Forest Service, George Washington and Jefferson National Forests hereinafter referred to as the "U.S. Forest Service," under the authority: (1) Department of

Cooperative Agreement between the DGIF and TNC, Page 1

MEMORANDUM OF UNDERSTANDING

BETWEEN

DEPARTMENT OF GAME AND INLAND FISHERIES

And

THE NATURE CONSERVANCY
Virginia Chapter

Prescribed Fire Training Exchange (TREX), Capacity Building & Workforce Development

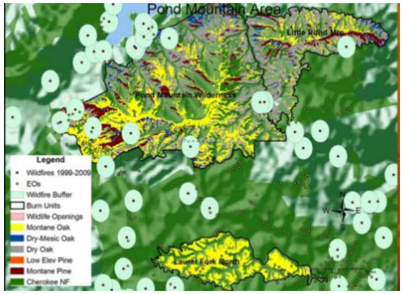
Prescribed Burn Implementation

Landscape-Scale Planning and Spatial Analysis Tools for Ecological Restoration

Ecological System	% Departure	Acres (rounded to next 10)
Cove Forest	48	102,980
Montane Red-Chestnut Oak	47	71,850
Dry Oak Forest	61	65,880
Dry-Mesic Oak Forest	54	40,770
Low-Elevation Pine Forest	90	23,810
Montane Pine Forest &Woodland	82	21,840
Northern Hardwood Forest	13	11,640
Riparian & Floodplain Systems	59	2,550
Spruce-Fir Forest	82	2,240
Total Acres		343,560

Ecological Departure Analysis

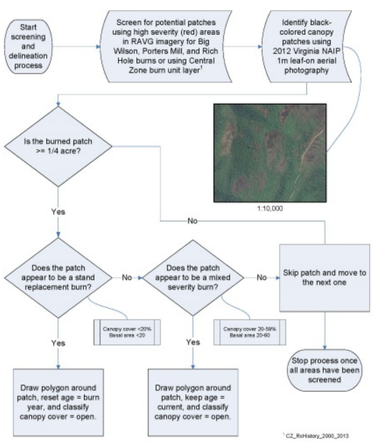
Ecological Burn Prioritization

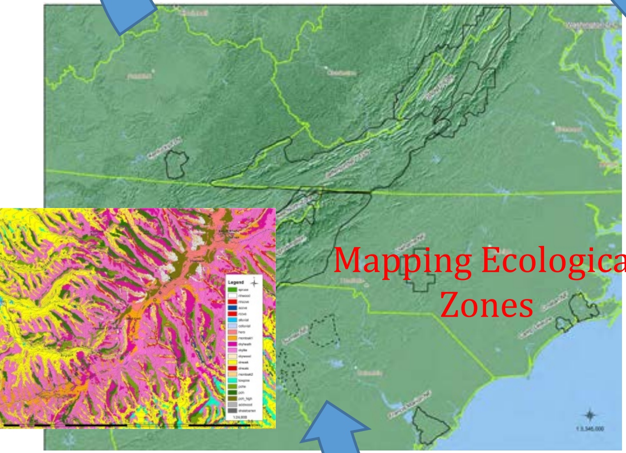


Application of Tools:

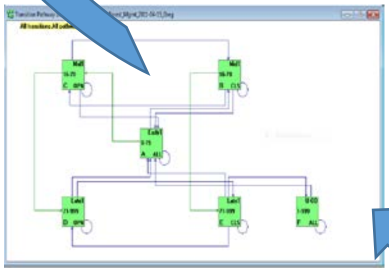
- Cherokee National Forest Landscape Restoration Initiative—North Zone of the Cherokee
- Revised LRMP and Lower Cowpasture Restoration Project—George Washington National Forest
- Upper Warwoman Project area—Chattahoochee National Forest
- Nantahala-Pisgah LRMP Revision process
- Sumter and Francis Marion National Forests

Screening and Delineation Process for Georeferencing Openings from Fire





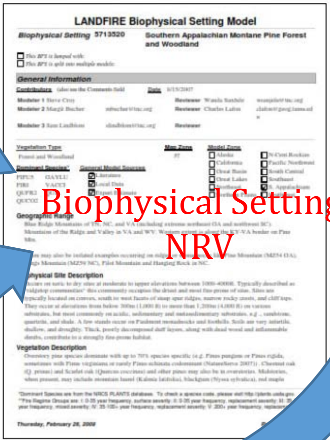
Mapping Ecological Zones



VDDT

Desired Conditions

Fire Effects Monitoring



Biophysical Settings NRV

The Nature Conservancy

Protecting nature. Preserving life.

FLN Survey Results:
What did the FLN do for you?

72% Improved group process and collaboration
59% MOUs/Agreements signed to create efficiencies for action
52% Appropriate fire restored to landscape
48% Significant cost savings resulted
41% Public acceptance of fire and restoration improved
34% Fire management practices changed for the better
14% Policy change resulted

www.conservationgateway.org/fln

fireadaptednetwork.org