



A NATIONAL COHESIVE WILDLAND FIRE MANAGEMENT STRATEGY

PHASE II NATIONAL REPORT

The Wildland Fire Leadership Council adopted a vision for this century:

“To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a Nation, to live with wildland fire.”



May 2012



Big Cypress National Preserve Complex on Florida Panther National Wildlife Refuge. Credit: Florida Forest Service

Table of Contents

Executive Summary.....	1
Introduction.....	4
A Collaborative Approach.....	6
Guiding Principles and Core Values.....	6
The Three National Goals.....	7
Governance.....	7
A Three-Phase Process.....	8
Comparative Risk Assessment within the Cohesive Strategy.....	9
Regional Strategy Committees.....	11
Phase II – Regional Assessments and Strategies.....	12
Regional Conditions and Context.....	13
Policies and Regulations.....	16
Values.....	17
Trends and Uncertainties.....	22
Objectives and Actions.....	25
Actions and Activities.....	35
Barriers and Proposed Solutions.....	39
Management Scenarios and Areas to Explore for Reducing Risk.....	41
The Northeast’s <i>Areas to Explore for Reducing Risk</i>	42
The Southeast’s Management Scenarios.....	42
The West’s Management Scenarios.....	43
Regional Collaboration and Outreach.....	44
National Science and Analysis Team.....	45
NSAT Efforts during Phase II.....	45
NSAT Efforts during Phase III.....	46
Next Steps for Cohesive Strategy.....	48
Responsibilities and Timeline.....	48
Communication and Outreach.....	49
Conclusion.....	50
Appendix A: Glossary.....	51
Appendix B: Acronyms.....	53
Appendix C: References.....	56
National Cohesive Wildland Fire Management Strategy Foundational Documents.....	56
References and Documents.....	56

Appendix D: Membership Lists	60
Northeast Region	60
Southeast Region	62
West Region	63
Cohesive Strategy Subcommittee	65
National Science and Analysis Team	66
Cohesive Strategy Communication Work Group	67
Wildland Fire Executive Council.....	68
Wildland Fire Leadership Council.....	69
Appendix E: Questions from the Comparative Risk Assessment Framework and Tools (CRAFT)	70
Appendix F: Maps.....	71
Appendix G: Communications Framework.....	74



Confederated Salish and Kootenai Tribes fire crew conducting a “light burning” prescribed underburn in the 2008 Morigeau Gulch Project in the Western portion of the Flathead Indian Reservation. Credit: Tony Harwood

EXECUTIVE SUMMARY

The *National Cohesive Wildland Fire Management Strategy* (Cohesive Strategy) is a collaborative effort to identify, define, and address wildland fire management problems and opportunities for successful wildland fire management in the three regions of the United States: the Northeast, the Southeast, and the West. The Cohesive Strategy is being built both from the top down and from the bottom up. At the national level, the Wildland Fire Leadership Council (WFLC)—an intergovernmental council of Federal, state, tribal, county, and municipal government officials—is the executive leadership body that charts the path and direction for the Cohesive Strategy effort and ensures that the work and activities align with the spirit of the Federal Land Assistance and Enhancement Act (FLAME Act) and other key collaborative wildland fire management documents. The WFLC’s fundamental role is to provide strategic oversight to the regions through efficiency improvements, to fully utilize existing authorities to accomplish the three national goals, and to provide the necessary resources and investments to implement identified current successful regional actions.

Phase I of the Cohesive Strategy outlined a three-phase process to address the three primary factors presenting the greatest challenges and opportunities to make a positive difference to wildland fire management across America: restoring and maintaining resilient landscapes, creating fire-adapted communities, and improving wildfire response. As part of Phase I, the WFLC adopted the following vision for this century:

“To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a Nation, to live with wildland fire.”

In Phase II, Regional Strategy Committees (RSCs) were brought together using a holistic approach to create a unified regional strategy, not just for wildland fire suppression, but to explore issues of natural resource management and the social and economic implications of landscape and wildland fire management. It is a goal of this effort to develop the national strategy with regional alternatives. Therefore, RSCs were formed to identify regional challenges, improve communication among partners, and identify proposed strategies and opportunities for improvement. Regional and local stakeholders have been involved—they’ve had a seat at the table—and their valued perspectives brought the national wildland fire management decisionmaking process to a new level. Building partnerships and enhancing opportunities for organizations to organizations to collaborate are not only vital to the success of this vision and the



Wildfire at Lake Chelan, Washington. Credit: West Region

Cohesive Strategy, but they are critical to the overall success of wildland fire management across the United States.

Representatives of Federal, state, local, and tribal governments, non-governmental organizations and other interested parties were brought together to describe unique regional problems and to identify current and future steps that can be taken—together—to meet the goals of the three focus areas of the Cohesive Strategy:

- (1) **Restore and Maintain Landscapes:** Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
- (2) **Fire-adapted Communities:** Human populations and infrastructure can withstand a wildfire without loss of life and property.
- (3) **Wildfire Response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

As part of the assessments, the RSCs identified regional values and objectives. Some common objectives and actions were identified in Phase II and are discussed in detail in later sections of this report.

Values – Each RSC articulated many value statements, and a short overview of each appears in this document. Several values were common to all three regions, including safety of firefighters and the public, protection of private property, conservation of air and water quality, restoring healthy and resilient landscapes, aesthetics, honoring tribal heritage and land uses, and the maintenance and enhancement of strong economies. Regions also articulated values specific to their region, such as the Northeast assessment citing recreation as significant, the Southeast assessment noting industrial forestry infrastructure, and the West noting stewarding public lands and working forests. These, and the other values expressed, provide the basis for developing regional objectives, actions, performance measures, and areas to explore for reducing risk.



Wildfire near Lake City, Tennessee, threatening a residence.
Credit: Tennessee Division of Forestry

Objectives and Actions – The RSCs adopted the national goals as their own and crafted a suite of initial objectives and actions to support each. All three regions developed information that includes the following: identification of values, trends and uncertainties, and the delineation of initial actions and objectives. This information, as identified in the regional assessments, will be valuable in Phase III of the Cohesive Strategy.

Several cross-cutting objectives, so called because they will affect all three national goals simultaneously, were identified across the regions:

- (1) Collaboration and communication are the keys to success. Invest in, learn from, and build upon successful partnership and collaborative efforts, including land management plans, community wildfire protection plans (CWPPs) or their equivalent, and keep all parties informed and involved throughout the process.

- (2) Develop and conduct effective education and outreach to empower citizen engagement in, and support for, wildland fire management activities.
- (3) Proactively use a variety of active vegetation management tools and techniques, such as prescribed fire and management of wildfire for multiple objectives where authorities exist, to achieve local and large landscape objectives. Communicate the benefits of doing so.
- (4) Support working forests, wildlands, and local economies, and collaborate to create jobs and diverse products and markets. Communicate the need and the resultant benefits.

The RSCs will continue to coordinate with the National Science and Analysis Team (NSAT) to incorporate the best available science into the Cohesive Strategy. The NSAT supports the regions by using scientific information, data, and pre-existing models to develop a conceptual framework that describes the relative effectiveness of actions and activities for managing risks associated with wildland fire. All levels and committees—from the Wildland Fire Executive Council (WFEC) and RSCs to the Cohesive Strategy Subcommittee (CSSC), and the NSAT—will continue to work together in Phase III, as collectively, alternatives are explored and an analysis of alternatives is completed.

There are two keys to the Cohesive Strategy's success; the first is the commitment to collaborate. Working together will allow us to accomplish the goals of the *National Cohesive Wildland Fire Management Strategy*. The second is a requirement for a comprehensive communication and implementation strategy, which provides information and seeks feedback from all stakeholders throughout the process.

During Phases I and II, inclusiveness and the enhanced level of collaboration brought a renewed, strengthened approach to developing potential solutions for more efficient and effective wildland fire management across the United States in the future. This national report summarizes regional ideas to conclude Phase II and sets the stage for Phase III of the Cohesive Strategy.



Outreach and collaboration, June 2006. Credit: West Region

INTRODUCTION

Fire is a natural process and a mechanism for biological renewal across forest and rangeland ecosystems. During the 20th century, Federal, state, and local firefighters were successful at putting out most wildland fires in the early stages. An unintended consequence was the overstocking of the Nation's forests with trees and ladder fuels. These overstocked conditions combine with other stressors such as drought, insects and disease, invasive species, and longer, hotter summers to create uncharacteristically large wildfires that threaten homes, communities, and cultural and resource values, and can cause widespread property damage.

Large, destructive wildfires led to the drafting of the *1995 Federal Wildland Fire Policy and Program Review*. The Review looked at wildland management fire issues, focused mainly on the Federal ownership, and included fuels management, the role of fire in the environment, and wildland-urban interface issues. The 1995 Review was updated in 2001—the year Congress passed the National Fire Plan. The National Fire Plan brought together diverse stakeholders, including Federal and state land management agencies, tribes, private landowners, local governments, and firefighting agencies to reduce fuels, protect communities through education and homeowner assistance, and improve firefighting capacity and coordination.



Wildfire in the White Mountains of New Hampshire. Credit: Northeast Region

The *Quadrennial Fire and Fuels Review (QFFR)* in 2005 and the *Quadrennial Fire Review (QFR)* in 2009 were assessments intended to consider the present and look to the future, to advance a unified wildland fire management strategic vision for the five Federal resource management agencies under the Departments of the Interior (DOI) and Agriculture (USDA), in partnership with others in the wildland fire management community. The QFR anticipated future wildland fire management needs, risk to communities

and firefighters, as well as described core mission strategies and key capabilities that could be applied to wildland fire management challenges. The QFR was also the first in what would become a series of reviews, plans, and strategies to move the fire community and the nation forward safely and more effectively. None, however, completely solved the problems, as communities and the wildland fire environment are constantly changing, requiring the fire community to do the same.

Annual fire suppression costs are significant for Federal, state, and local governments and can cost in excess of \$2 billion in particularly severe fire seasons. In 2009, the escalating Federal fire suppression costs and adverse impacts to other Federal land management programs led Congress to pass the Federal Land Assistance and Enhancement Act (FLAME Act), which authorized an additional funding source for Federal emergency wildland fire suppression. In addition, the FLAME Act directs the USDA and DOI to develop a national cohesive wildland fire management strategy to comprehensively address wildland fire management in the United States.

The FLAME Act was the catalyst for developing a cohesive strategy for managing fire-prone landscapes and wildland fire across the Nation. Understanding the challenges presented required a holistic approach, unified thinking, and cooperation among the multitude of stakeholders who share concern for America's landscapes, and led to the creation of a *national* cohesive strategy, not a Federal cohesive strategy.

Within the fire community, a shared vision has taken shape: working together to prepare landscapes for natural fire occurrences, to prepare communities to face wildfire risks, and to coordinate effective wildland fire response. An example of this vision is the Greater Okefenokee Association of Landowners. This is an organization of over 70 landowners and agencies (private, state, and Federal) that work together and strategize for wildfires that occur in and near the fire-prone Okefenokee Swamp in southeast Georgia. Previous collaborative efforts, as identified in Phase I of the Cohesive Strategy, highlighted the need for shared responsibilities, effective partnerships, improved interagency coordination and response, and active land management. The Association created an imperative for a new direction in expectations for Federal, state, and local wildland fire protection agencies to address our nation's wildland fire problem at the most efficient cost.



**Wildlife in Okefenokee Refuge emerges after wildfire passes through.
Credit: Southeast Region**

A COLLABORATIVE APPROACH

The Cohesive Strategy is a national, collaborative approach to addressing wildland fire across all lands and jurisdictions. It is being developed with input from wildland fire management agencies and organizations, land managers, and policymaking officials representing all levels of governmental and non-governmental organizations. The Cohesive Strategy takes a holistic view of wildland fire and resource management, including natural wildland fire ignitions, prescribed fire for landscape management purposes, and pre and post wildfire management. The Cohesive Strategy presents a shared vision of the future of wildland fire and resource management.

The WFLC establishes Cohesive Strategy guidance, vision, and goals. Decisions related to reducing risk will be made at local, regional and national levels. All three levels will be coordinated through the structure of the Cohesive Strategy. The Cohesive Strategy is built on several principles and values including engaging stakeholders, managers, and scientists; using the best available science, knowledge, and experience; and emphasizing partnerships and collaboration.

Work from the *bottom-up* began in Phase II of the strategy with the creation of RSCs and the development of regional strategies. Those regional strategies will unite to form one national strategy. This Cohesive Strategy is different from all prior plans because of the collaborative process by which it was formulated. It is not merely a strategy for Federal agencies; it is a strategy for the many groups that have come together across the nation to combine their regional perspectives and create one shared vision of how all stakeholders can work together to reduce risks of wildland fire to landscapes, to communities, and to firefighters. The Cohesive Strategy is a collaborative effort to create and implement three regional strategies, tailored to meet regional needs and to work across land ownership boundaries.

Guiding Principles and Core Values

During Phase I, guiding principles and core values were crafted through discussions with Federal, state, tribal, local governmental, and non-governmental organizational representatives. They are overarching principles that apply to all stakeholders in the wildland fire management community—and reach across the different goals of the strategy, from resilient landscapes and fire-adapted communities to wildfire response. The three RSCs adopted these guiding principles and core values as regional guiding principles:

- Reducing risk to firefighters and the public is the first priority in every wildland fire management activity.
- Sound risk management is the foundation for all management activities.
- In accordance with management objectives, actively manage the land to make it more resilient to disturbance.
- Improve and sustain both community and individual responsibilities to prepare for, respond to, and recover from wildfire through capacity-building activities.
- Rigorous wildfire prevention programs are supported across all jurisdictions.
- Wildland fire, as an essential ecological process and natural change agent, may be incorporated into the planning process and wildfire response.
- Fire management decisions are based on the best available science, knowledge, and experience, and used to evaluate risk versus gain.

- Federal, local, state, and tribal governments support one another with wildfire response. They engage in collaborative planning and the decisionmaking processes that take into account all lands and recognize the interdependence and statutory responsibilities among jurisdictions.
- Where land and resource management objectives differ, prudent and safe actions must be taken through collaborative fire planning and suppression response to keep unwanted wildfires from spreading to adjacent jurisdictions.
- Safe, aggressive initial attack is often the best suppression strategy to keep unwanted wildfires small and costs down.
- Wildland fire management programs and activities are economically viable and commensurate with values to be protected, land and resource management objectives, and social and environmental quality considerations.

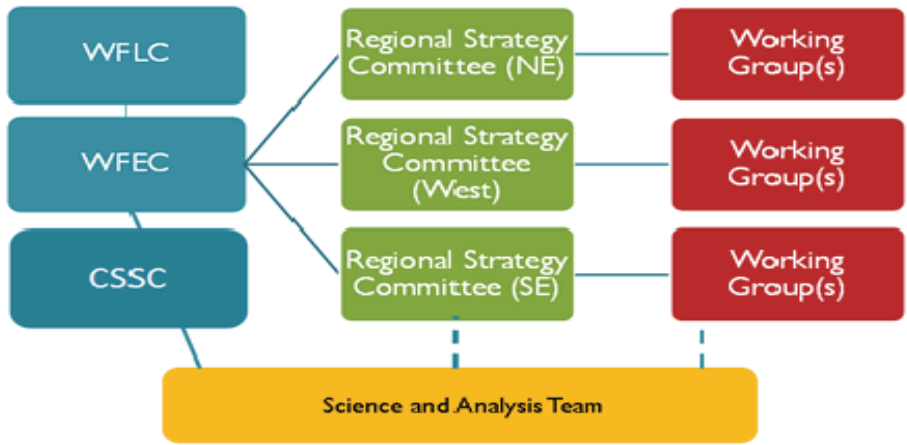
The Three National Goals

Flowing from the guiding principles and core values are the three national goals identified in the Cohesive Strategy. Each of the RSCs adopted these goals into their assessment and used them to further draft objectives, actions, and performance measures. The three national goals are:

- **Restore and Maintain Landscapes:** Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
- **Fire-adapted Communities:** Human populations and infrastructure can withstand a wildfire without loss of life and property.
- **Wildfire Response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

Governance

The WFLC oversees the Cohesive Strategy effort. In Phase II, the WFLC designated the Wildland Fire Executive Council (WFEC) to advise and make recommendations to the WFLC on the development and implementation of the *National Cohesive Wildland Fire Management Strategy*. The WFEC is composed of representatives of Federal and state agencies, firefighting organizations, tribes, counties, and cities (see Appendix D).



Organizational chart for Cohesive Strategy governance

The WFEC is supported by the Cohesive Strategy Subcommittee (CSSC), which was chartered by the WFEC at the beginning of Phase II to advise and make recommendations to WFLC on the development and execution of the proposed processes and tasks necessary to complete Phases II and III.

The RSCs and their working groups were also chartered by WFEC at the beginning of Phase II. The RSCs are responsible for completing the regional strategies and assessments in Phase II. The CSSC reviewed all regional assessments to ensure that the documents meet the requirements specified in Phase I and meet the needs to complete Phase III. The National Science and Analysis Team (NSAT), which reports to the CSSC, will support the WFEC, CSSC, and RSCs as the Phase III trade-off analyses are completed. These groups—the CSSC, RSCs and their working groups, and the NSAT—will continue to function through Phase III and beyond.

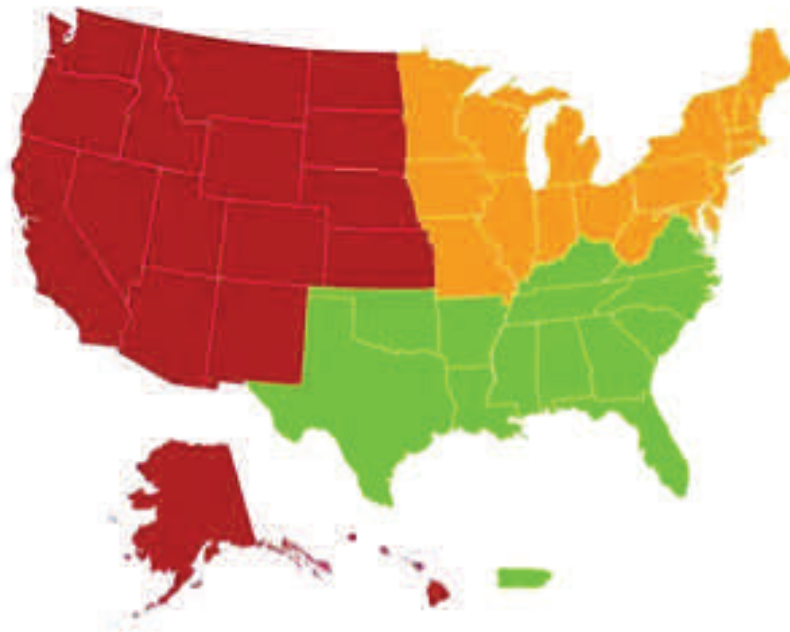
A Three-Phase Process

The Cohesive Strategy has been structured as a three-phase process. Phase I began in March 2010 and was finished in March 2011 with the publication of the *National Cohesive Wildland Fire Management Strategy* and *The Federal Land Assistance, Management and Enhancement Act of 2009: Report to Congress*. Both documents were approved by WFLC and signed by the Secretaries of Agriculture and the Interior.

The WFLC guided Phase I and created the Cohesive Strategy Oversight Committee (CSOC). The CSOC was the collaborative planning body that developed the blueprint for a national cohesive strategy through three regional strategies. The CSOC understood that different regions of the country had different needs and that a *one-size-fits-all* approach would not meet those needs. The CSOC provided a detailed foundation for the national framework for risk management and elaborated on the national guiding principles, challenges, goals, and governance.

In Phase II, the CSOC transitioned into the CSSC. The WFEC and CSSC guided Phase II through completion of the regional assessments and drafting of the national report. Phase II was directed by the WFEC, through the CSSC, and developed by the RSCs, which are composed of representatives of Federal and state agencies, tribes, industry groups, counties, municipalities, and non-governmental organizations. An RSC was formed in each of the three regions—Northeast, Southeast, and West (see figure on page 9). Public outreach was conducted in each region, in the form of focus groups and forums, to increase awareness of the cohesive strategy process and to gather input regarding local and regional perceptions. Following the forums, the RSCs reviewed the public input and developed their objectives, with a catalog of potential actions and options for risk reduction.

Phase II of the Cohesive Strategy provided a unique opportunity to the three regions of the country to chart their own course in reducing the risks posed by wildfire to multiple values. The RSCs came together with the support of working groups and broadened engagement of regional stakeholders, managers and analysts, non-governmental organizations and universities, to identify the challenges, values, and opportunities for improved land and fire management in their regions. This regional approach to Phase II of the Cohesive Strategy will result in a national strategy that is supported by local, regional, and national information, engagement and action. Regional assessments include obstacles (real and perceived) that stakeholders experience and identification of strategies to address them.



Cohesive Strategy Regions: Northeast, Southeast, and West

In Phase III, options for future alternatives will be explored using the Comparative Risk Assessment Framework and Tools (CRAFT) process, which integrates geographic features and risk factors relating to wildland fire with expressed values in a proven scientific analysis process. Results of the scientific analysis will be used by the WFEC, CSSC, and the RSCs for evaluating and determining future risk reduction strategies.

The Cohesive Strategy is an iterative process that will be revisited approximately every 5 years. In addition, in 2012, the wildland firefighting agencies will begin working on the next QFR, which will be published in 2013. The QFR will be aligned with the Cohesive Strategy, and future Cohesive Strategies and QFRs will build on each other.

Comparative Risk Assessment within the Cohesive Strategy

A key difference between the Cohesive Strategy effort and other collaborative planning efforts is in the method employed for planning and analysis. A comparative risk assessment tool was selected for use in Phases II and III, because it allows the consequences of alternative wildland fire management strategies to be evaluated. The CRAFT planning and analysis process implemented in Phase II guided each region in identifying values, goals, objectives, actions, and activities. Using the CRAFT framework, each RSC developed multiple management scenarios and will develop alternatives for meeting the goals and objectives identified. Unlike some past efforts, this effort will result in the development of *multiple* alternative strategies, where stakeholders and managers will consider the risk trade-off of each alternative in Phase III.

The Phase I document characterized risk as “*an inescapable component of living with wildfire*” and offered common and scientific definitions of risk and risk management. Whether one uses risk in the conventional sense of *something bad may happen* or a more precise definition, such as the expected loss from an uncertain future event(s), the basic elements of uncertainty and loss are there. Following this reasoning, one can view the Cohesive Strategy as a problem of risk management. That is, effective management

requires understanding the nature of wildfire and its contributing factors, recognizing the consequences—good and bad—of fire, addressing uncertainty, and crafting plans that reduce the chances of catastrophic losses. Real-world constraints on available resources and administrative flexibility further require consideration of economic efficiency and practicality.

Given the premium placed on collaboration and engagement among all interested parties within the Cohesive Strategy, it is important that the quantitative aspects of risk assessment be embedded within a broader social discussion of values, options, potential consequences, and trade-offs inherent in any chosen strategy. The CRAFT is a structured process and set of tools designed to meet the needs of collaborative efforts to tackle complex resource management issues with conflicting values at stake and high levels of uncertainty.

In conjunction with the NSAT, the RSCs embarked on the Phase II process, which included proposing regional objectives and designing initial alternatives. Each participant contributed to each step, although the role played by analysts and scientists differed from that of managers and stakeholders. The CRAFT is being used to help ensure consistency among RSCs and provides the framework for the work of the NSAT.



**Wildfire burnout operations, Ding Darling National Wildlife Refuge in Florida, June 2004.
Credit: Florida Forest Service**

REGIONAL STRATEGY COMMITTEES

Phase II gave the RSCs an opportunity to take ownership of regional ideas and goals. It improved working relationships among stakeholders, increased awareness of the wildland fire problems, and outlined options to be considered for dealing with these challenges from a variety of perspectives. In addition, the RSC members interacted with each other and with national-level stakeholders and decision-makers to share perspectives on natural resource management and wildland fire management in a unified, national process to collaboratively and holistically address wildland fire management. A collaborative spirit was fostered within the regions; and as partners, the regions will continue to enhance existing relationships and build new partnerships into the future. The RSCs and these relationships are critical for Phase III, as regions work to chart a course of action to implement collaborative management strategies and to use shared resources to achieve their common goals.

The RSCs were supported in their efforts by the NSAT, which includes a range of individual scientists and analysts representing Federal and state agencies, tribes, universities, and non-governmental organizations. The NSAT created conceptual models to assist the RSCs in the Phase III assessment of the consequences of alternative wildland fire management strategies as a process for reducing risk. The RSCs sought input and engagement from additional stakeholders through forums and other means. Local input was solicited and provided to all the RSCs. The RSCs identified current successes, relationships, and opportunities for work that can be done before the completion of Phase III of the Cohesive Strategy. The CRAFT process will be carried through Phase III where it will provide input for analyzing the comparative risk of differing trade-offs for reducing risk. The RSCs developed regional assessments, which outlined their existing situation in qualitative terms, the values they hold in common, the trends they see occurring, and the objectives, actions, and activities they can undertake to achieve the national goals.

The three regions are all very large, spanning multiple states and composed of a variety of geographic areas and vegetation types. States and regions possess detailed information relating to wildland fire as it interfaces with broad land management objectives. This information is included in state and local assessments, management plans, and policies. Phase II incorporates local information, along with expertise and insights from the stakeholders who have been living and working in the region, dealing with wildland fire and natural resource problems. An example of the uniqueness of the regions and the challenges those differences present can be seen in a difference in land ownership patterns. The Northeast and the Southeast are characterized by private land with intense fragmentation of ownership, while the West is dominated by large blocks of public land. All states have Federal, state, local, and private land within them. Each unique ownership pattern presents challenges in wildland fire management, and Phase II allows the regions to articulate those challenges and collaboratively develop solutions within a national framework.

PHASE II – REGIONAL ASSESSMENTS AND STRATEGIES

The three regional assessments are separate documents reflecting the unique context in each of the regions. This document highlights the similarities and differences among the three regions and their strategies for reducing wildland fire risk, and includes section summaries with excerpts from the content of the regional assessments. The regional assessments have expanded discussion and also provide detail on the potential actions and activities identified by the regions for Phase III analysis.

The CRAFT framework provided a list of 26 questions for the regions to consider as they created their regional assessments (see Appendix E). The CRAFT questions were selected to identify regional challenges and opportunities and to guide the conversations during Phase II. These conversations included forums and comments by stakeholders and the deliberations of the RSCs. By focusing on a discrete set of questions, the regional assessments yielded consistent types of information and have created the building blocks for analysis in Phase III.

The regional assessments describe the overall conditions and context of wildland fire and wildfire response in each region. They describe the values—both ecological and social—within the regions and the trends and uncertainties relating to wildland fire and risks to landscapes and communities. The assessments identify the unique legal, regulatory, and jurisdictional environment in which wildland fire and resource management agencies operate nationally and regionally. Utilizing this framework of regional context, conditions, values, trends, uncertainties, and policies and regulations, the RSCs developed objectives and actions and activities in an initial objectives hierarchy for each region. The RSCs also began work on initial alternatives, or combinations of actions and activities under a defined future scenario, for reducing risk. The RSCs will continue this work to refine specific alternatives in Phase III with added support from the NSAT.



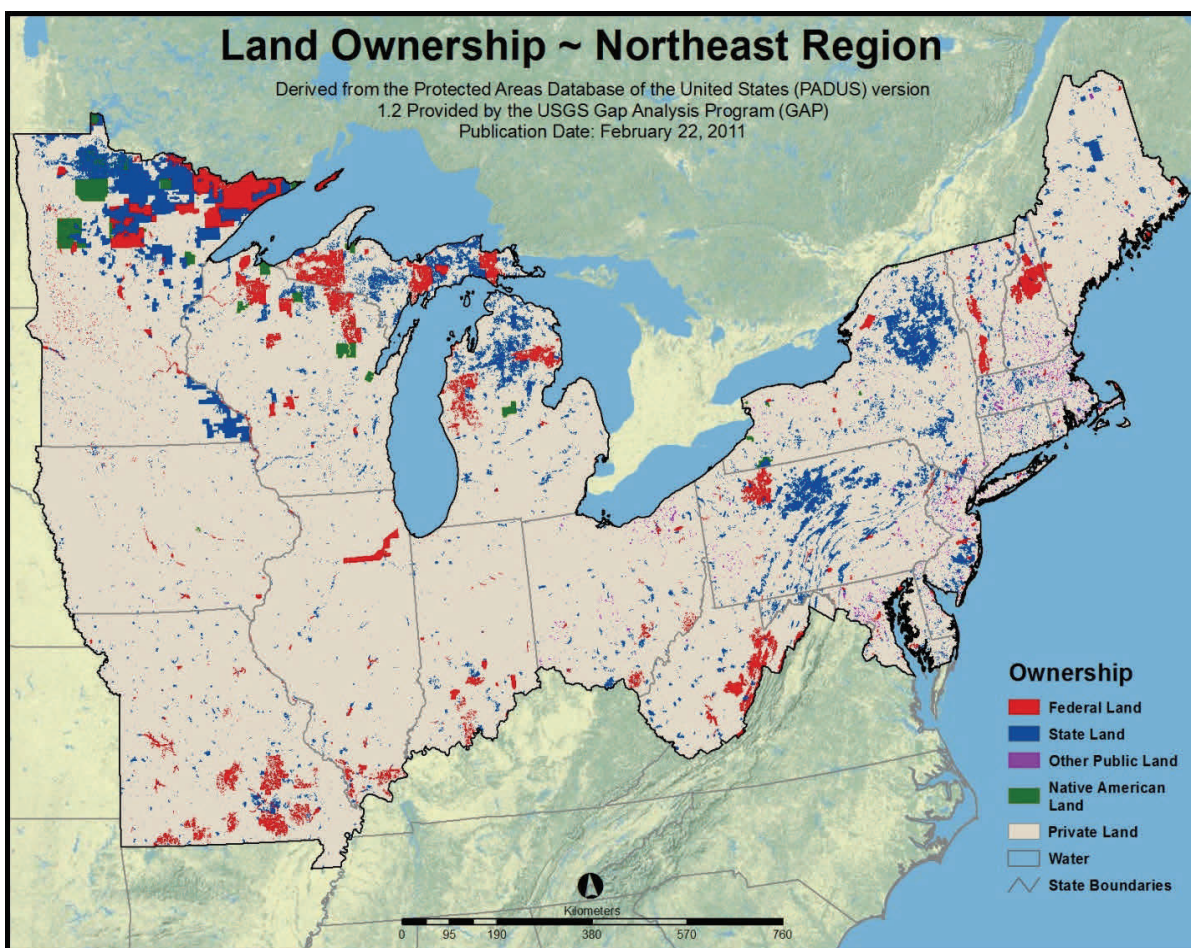
Aftermath of Hughes Lake Fire, Michigan. Credit: Northeast Region

Regional Conditions and Context

The following paragraphs demonstrate that although many conditions were common among the regions, the three regions also face differing wildland fire management problems due to their unique geography, climate, and land ownership patterns.

The conditions and context common to all regions include:

- Existing collaborative efforts to suppress wildfire.
- Population growth in the wildland-urban interface and in densely populated areas, which can contribute to increased wildfire suppression costs.
- Diverse land ownership and management.
- Seasonal and extended drought conditions, which can contribute to more severe wildfire behavior.

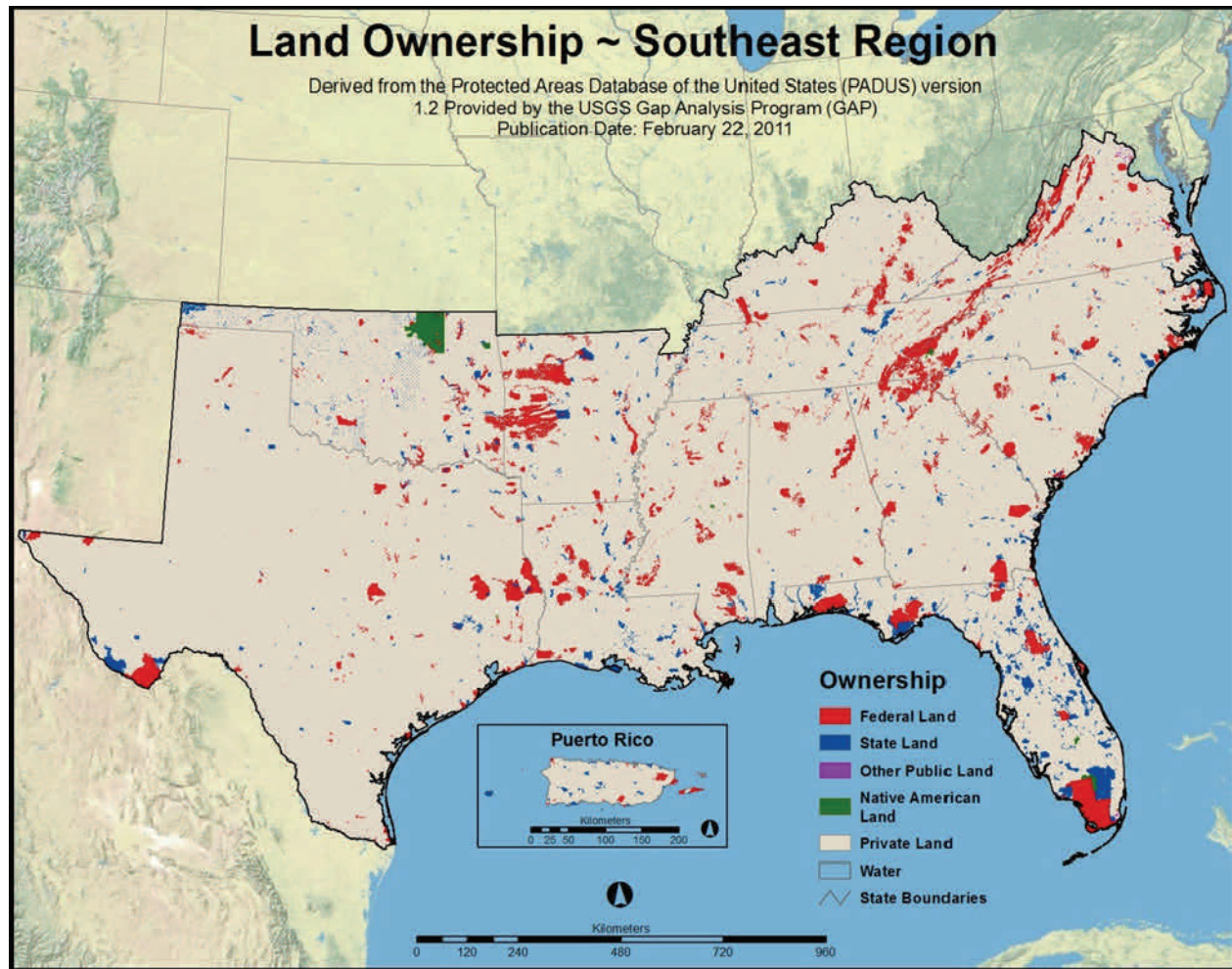


Northeast Region land ownership

Northeast Region

Twenty densely populated states comprise the Northeast Region, where the vast majority of the land is in private ownership, and wildfires occur primarily in the spring, fall, and summer. Local partnerships focus on initial attack and extinguishing fires quickly. In addition, fire suppression is enhanced through interstate compacts among the states and with Canada.

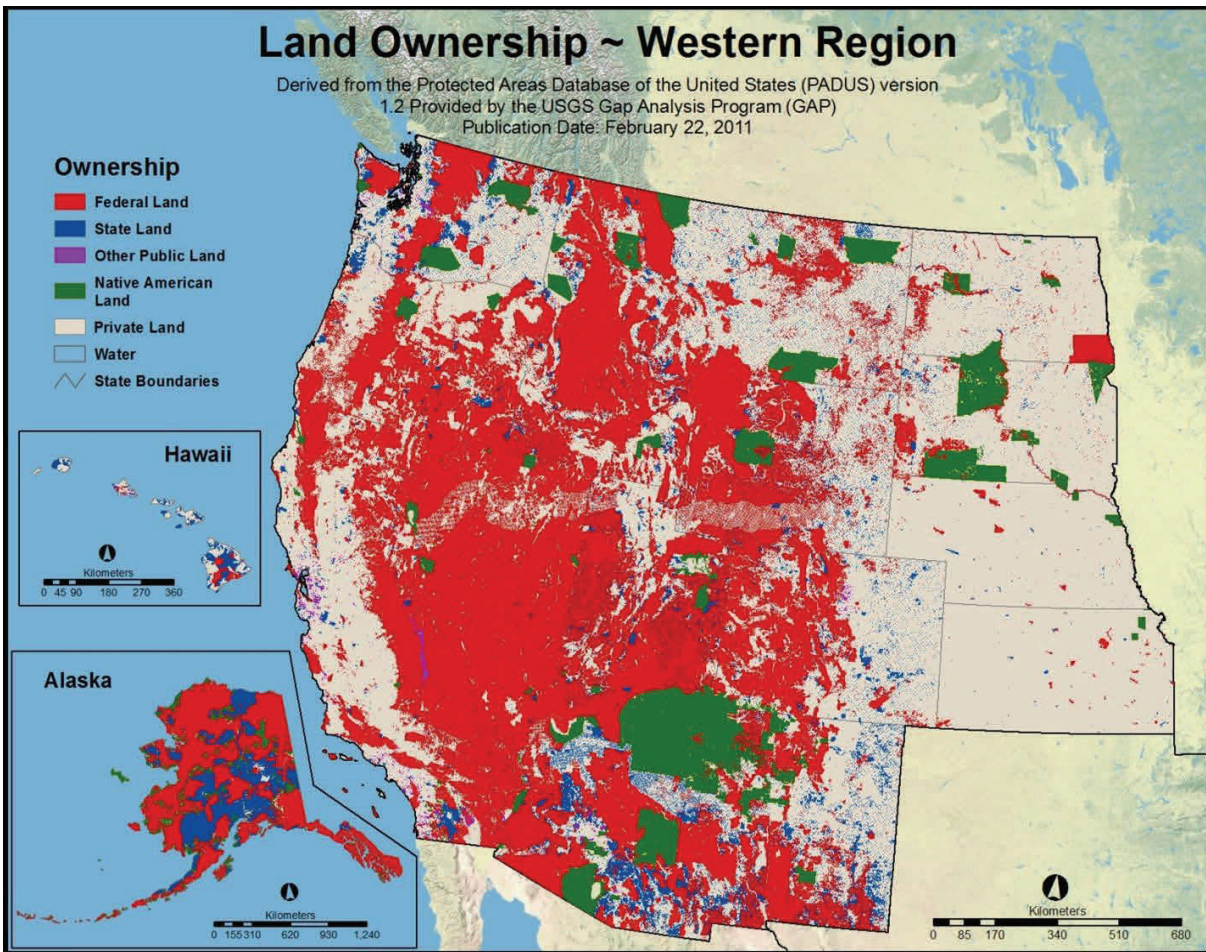
Lands are owned and held in stewardship by a diversity of individuals—tribes, industries, organizations, and local, state, and Federal agencies. Land uses and ownership patterns are complex, with many small in-holdings creating a diverse range of owner objectives. Public lands are often isolated among other land uses, including private and industrial forests and agricultural lands. Diverse land management and ownership patterns, hazardous fuels situations created by the occurrence of natural and weather or climate events, high wildfire occurrence, and an extensive wildland-urban interface characterize the Northeast Region.



Southeast Region land ownership

Southeast Region

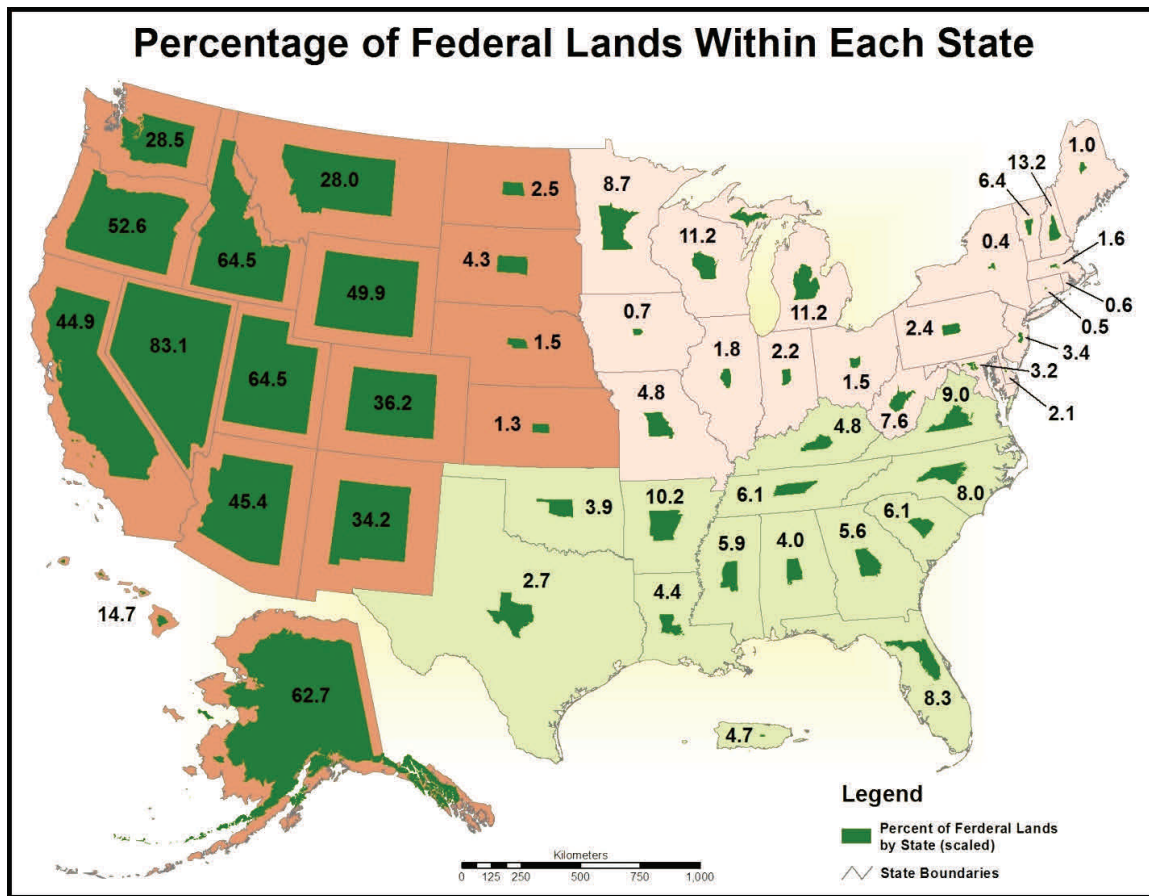
Stretching from the Atlantic seaboard through Texas, 13 states comprise the Southeast Region. High wildland fire occurrence, a year-round fire season, and rapid regrowth of vegetation/fuels characterize the wildland fire management problem in the Southeast. Land ownership is highly fragmented with the majority of forestlands in private ownership. Fragmentation poses a challenge to a coherent policy of landscape management and fuels reduction. A culture of prescribed burning exists in the Southeast and is essential to managing fuel loads. The Southeast implements more prescribed burns, with more acres treated, than any other region, mostly on private land.



West Region land ownership

West Region

Spanning nearly half of the continental United States, including Alaska, Hawaii, and the affiliated Pacific Islands, 17 states comprise the West Region. Wildland fire management in the West is challenging due to a variety of issues including the following: steepness of terrain, access limitations, changing climate, and invasive species. In areas managed for wilderness values, wildland fire management may focus on maintaining wilderness characteristics rather than a full suppression response. Many parts of the West are experiencing extended drought for more than a decade. Drought is one stressor that leads to increased wildfire threats. A stressed system or forest is more susceptible to infestations of insects, pathogens, and disease, which can kill vegetation, and, in some areas has left millions of acres of dead, standing trees (see Appendix F). The West has seen a rapid escalation of severe wildfire behavior over the past two decades, which among other factors has resulted in increased wildfire suppression costs, significant home and property losses, and increased threats to communities. Wildfires in the West result in complex, costly efforts for post-fire restoration due to steep topography, threats to a clean water supply, and highly erosive soils and flooding.



Percentage of Federal lands within each state (see O’Laughlin 2011)

Policies and Regulations

Wildland fire and resource management decisions are guided and informed by a suite of laws, regulations and administrative policies that exist at the Federal, state, tribal, and local levels. Interpretation of the laws, policies and regulations ultimately determines management activities. Each of the regions identified a suite of significant Federal, state, local and tribal laws, regulations, and policies, which guide management activities and impact the accomplishment of wildland fire and resource management goals, including but not limited to the following:

- National Environmental Policy Act;
- Endangered Species Act;
- National Forest Management Act;
- Clean Air Act; and
- USDA Forest Service’s National Forest System Land Management Planning Rule, among others.

State laws and policies also guide management activities and impact accomplishment of wildland fire and resource management goals, which include the following:

- Mandates to suppress wildland fire on state and private lands;
- Laws and policies that limit or prevent the use of prescribed fire and/or the use of fire for resource benefit;

- Water quality standards;
- Differing state laws governing jurisdictional responsibilities for wildfire suppression, prescribed fire operations, and open burning permits;
- State statutes governing wildfire and emergency management training requirements;
- Liability laws; and
- Air quality standards and policies pertaining to smoke management and emissions permitting .

Values

Values are characteristics or qualities of life considered significant with respect to personal or cultural importance, worth (whether intrinsic or monetary), usefulness, or excellence. Questions in the CRAFT framework guided the RSCs in delineating their primary values relating to wildland fire and resource management.

Stakeholder input, RSC and working group members' professional observations, peer-reviewed literature, and earlier analyses identified values through both Phase I and Phase II of the Cohesive Strategy. The following values are common to all regions:

- *Safety of firefighters and the public.* Public and firefighter safety was the value most consistently shared by stakeholders across the regions and is expressed as a national core value. Firefighter injuries and fatalities occur for a number of reasons including aircraft and vehicle accidents, heart attacks, smoke inhalation, and burns. Public safety concerns related to wildfires include evacuations, protecting home and property, and post-fire trauma or distress. Other issues that can affect the safety of firefighters and the public are the following: access issues in rural areas, visibility on roads during wildfire or prescribed fire events, water supplies for firefighting, predictive capabilities, and communications on the fire line, among others.
- *Protection of private property.* Landowners have diverse interests and objectives for their land including wildlife habitat, recreation, timber production, tax interests, and aesthetics. Many value their individual liberties and private property rights, admire self-reliance, a sense of community, and a strong sense of connection with the land.
- *Water conservation and quality.* There is near-universal agreement on the ecological and public value of the clean, generally abundant water supplies that sustain human and animal life, supply drinking water, support healthy fisheries, generate electric power for homes and industries, and irrigate crops.
- *Air quality.* Similar to water conservation, high air quality, good visibility, and low levels of smoke, smog, or other pollutants or respiratory health hazards also rank at or near the top of amenity values.



**Private home sprinkler in Minnesota.
Credit: Northeast Region**

- *Maintenance and enhancement of local economies.* Many stakeholders expressed the need to maximize return on investment and use economic principles to achieve environmental objectives. The forest products industry can play a crucial role in providing cost-effective and efficient landscape restoration that supports rural economies, and fuels the creation of temporary and long-term employment. Recreation and tourism are also key components of many rural economies.
- *Restoration of healthy and resilient landscapes.* Healthy ecosystems provide numerous ecological services, support a variety of land uses (hunting, fishing, recreation, farming, ranching, timber, mining, etc.), offer a desirable backdrop and physical setting for homes and communities, and support a plethora of historic, spiritual, and cultural resources. Fire-resilient landscapes are resilient to other disturbance processes that can degrade ecosystem services (pollination, carbon sequestration, ground water recharge, and harvestable populations of fish, game, plants, etc.), food and materials production, recreational value, scenic beauty, and sense of solitude.
- *Protection of scenic viewsheds (visible natural environment).* The aesthetic appearance of the landscape is important, and management activities that are perceived as having a negative impact on that appearance are often resisted even if the activities reduce risk posed by wildfire. Scenic areas contribute to viable recreation and tourism based local economies.
- *Honoring tribal heritages, traditional values, and land uses.* Preserving and respecting traditional uses and practices is vitally important. Wildland fire and resource management policies and practices need to take into account cultural values and beliefs, related historic and spiritual sites and resources, and the relevant lessons to be gleaned from traditional ecological knowledge. Timber resources are a valuable trust asset, and tribes accept and generally encourage timber management that results in healthy forests and local economic gains. Being a firefighter is a respected and desired profession, and firefighting is an economic benefit in tribal communities.



Florida Forest Service tractor plow units engaged in wildfire suppression.
Credit: Florida Forest Service

Although the three regions share many similar values, each region has specific values, and some examples from the three regional assessments are presented in the following paragraphs.

Specific Northeast Regional Values

The Northeast RSC identified a variety of specific values and grouped the values according to five themes: Land and Resources, Protection of Private Property and Investment, Willingness to Collaborate, Education and Awareness, and Create Partnerships across Jurisdictions:

Land and Resources

Recreation: The Northeast contains a large portion of the country’s population and wildland-urban interface areas. Many residents and visitors use wildlands for recreational activities such as hunting, fishing, camping, bird watching, mountain biking, hiking, and leaf-peeping. Wildfire and wildland fire management activities can impact trails, campgrounds, wildlife habitat, and cause temporary closures for public safety, potentially negatively affecting recreational opportunities in the short and/or long term.

Forest product markets are crucial to local and regional economies of many northeastern states. Protection of the forest resource to provide raw materials is essential, and a robust forest products industry provides a cost-effective means for reducing hazardous fuels and achieving resilient fire-dependent ecosystems.

Willingness to Collaborate and Create Partnerships Across Jurisdictions

Jurisdictions and ownership: The Northeast is a patchwork of jurisdictions and ownership; and often, more than one entity is involved in managing wildland fire. This strategy will include many stakeholders at various levels, and it will need buy-in by many parties to be successful.

Coordinated efforts to engage the public in issues and collaboration with all stakeholders will enable effective and efficient wildland fire management. As much as coordination and collaboration are considered important for the Cohesive Strategy to be successful, it must ensure that partners are able to maintain their unique missions and values. Because of the many geographic and cultural divisions of the Northeast, flexibility in implementing the strategy will be imperative.



**New Hampshire mutual aid equipment.
Credit: Northeast Region**

Education and Awareness

Continued engagement with the public on wildland fire management issues is crucial. Lack of action on the part of the public or landowner is not necessarily due to lack of knowledge and

understanding of the wildland fire risk. Trust in those conveying the information and the availability of personal resources to mitigate the wildland fire risk are also necessary. Educational programming should provide consistent messages, be realistic and related to local values and needs, and encourage personal responsibility. Prevention education can have a significant impact on reducing wildfires in this region where greater than 95 percent of the fires are human caused.

Specific Southeast Regional Values

Diverse values are associated with wildland fire and resource management in the Southeast. The Southeast RSC broadly categorized these values into five overarching categories of values: ecosystem, infrastructure, societal, economic, and wildland fire management.

The ***Ecosystem*** includes values associated with biodiversity, wildlife habitat, and healthy forest/landscapes, as well as the air and water quality components, many of which are fire-adapted and require periodic burning to maintain characteristic ecosystem structure and diversity.

The ***Infrastructure System*** contains values associated with human infrastructure, habitations, other structures, and private property.

The ***Societal System*** encompasses human, social, and cultural values. Fire (both wildland fire and prescribed burns) has a significant place in the history and culture of the Southeast. Historically, individual landowners played a large role in prescribed burning, and the tradition continues today. As fire was limited throughout the United States during the first half of the 20th century, Southerners continued to implement prescribed burns to support traditional land uses, for aesthetic purposes and for fuel reduction. The values gathered under the Societal System include:



**Wildfire in wildland-urban interface near Myrtle Beach, South Carolina.
Credit: South Carolina Forestry Commission**

- Aesthetics – viewsheds and indirect community benefits.
- Quality of life – human health and safety, clean water, public services, safety for wildland fire responders.
- Land use – traditional land uses (e.g., hunting, recreation, grazing, farming, and silviculture), tribal issues, community involvement in and acceptance of wildland fire management and prescribed fire.

The **Economic System** includes values related to direct and indirect costs of wildland fires (suppression expenditures as well as short and long term impacts to economies related to silviculture and biomass, tourism, and recreation). Though wildland fire response may create a small increase in short-term employment, wildfires may have a significant negative, long-term impact on local economies that rely on working forests, recreation and/or tourism. Wildfire can cause economic devastation in the region, damaging or destroying marketable timber, biomass and other forest products, and can also create costs associated with restoration activities. Failing to implement the full range of wildland fire management options can also have negative effects on local economies where natural systems rely on active land management practices such as prescribed fire to maintain landscape resiliency.

The **Fire Management System** includes values related to wildland fire response capacity and capability, interagency collaboration and coordination across jurisdictions, training and planning to ensure adequate resource availability, and succession planning.

Specific West Regional Values

The West RSC identifies many values similar to those of the other two regions; however, the following values are expressed specifically by the West:

Valuing people for who they are, not for what they have in the bank: Western communities and their individual residents differ widely in their technical, infrastructural, social, and economic capacity to locally address wildland fire management issues. Management strategies need to recognize those differences, so that future responsibilities and resources can be allocated appropriately.

Living and respecting the Western or frontier culture: Among the key (and sometimes contradictory) elements of the culture of the West are a spirit of adventure and curiosity, concern for preserving individual liberties and private property rights, admiration of self-reliance (but quick response to neighbors needing help), and a strong sense of connection with the land. Management strategies seen as directive or imposed from afar are almost certain to be less well received (and often prove less effective) than ones developed locally and collaboratively.

Enjoying vast, wild, open landscapes: The land provides numerous ecological services; supports a variety of land uses (hunting, fishing, recreation, farming, ranching, timber, mining, etc.); offers a desirable backdrop and physical setting for homes and communities; and supports a plethora of historic, spiritual, cultural resources, and dynamic and diverse habitats. The appearance of the landscape is important, and aesthetics vary by individual, and management activities that are perceived as having a negative impact on that appearance are usually resisted.

Using and stewarding public lands: Public lands comprise more than half the total land area of the West, and maintaining public access to the lands has long been a treasured—and zealously guarded—Western value. There is a clear need for improved communication and cooperation among all landowners, managers, and other concerned stakeholders in restoring and maintaining the on-the-ground conditions and practices necessary to preserve the watersheds, critical habitats, and other Western values to be protected from uncharacteristic wildfire. The growing numbers of large landscape-scale community wildland fire protection plans, multiple-ownership hazardous fuels reduction projects, and landscape restoration efforts will be significant elements of future wildland fire management strategies.

Trends and Uncertainties

Response, input, and observations also reveal trends or general directions of concern in wildland fire management and common uncertainties that must be considered in developing and implementing the Cohesive Strategy. As with the values, all regions identified the following trends and uncertainties:

- Population growth;
- Increasing wildland-urban interface;
- Changing climate;
- Invasive species spread;
- Changing public expectations with regard to wildland fire response;
- Economic fluctuations;
- Parcellation; and
- Increasing role of traditional wildland fire capability (equipment and personnel) in other disaster and all-hazard response.

Each region also had trends and uncertainties specific to their region, as identified below.

Northeast Region

Lack of Fire: Lack of fire has created two primary issues in the Northeast. First, fire-dependent ecosystems continue to change without fire on the landscape. Fire regimes have departed from historical conditions, and fire-dependent plants are being replaced by shade-tolerant, fire-sensitive vegetation. Although this vegetation change can benefit areas (such as the wildland-urban interface) where there are values to be protected, negative impacts to the function of and services from fire-dependent ecosystems can be severe. Shade tolerant forests are not excluded from wind, ice, and drought events, nor are they immune to insects and disease such as emerald ash borer, eastern hemlock woolly adelgid, or beech bark disease, all of which can increase fuel loading that may lead to more extreme fire behavior and negative impacts.

The second primary issue is complacency on several levels. The Northeast can be described in risk management terms as low occurrence but high risk. Unlike the West, which has large, significant fires on an annual basis, or the Southeast, which has a history and culture of fire (both wildfire and prescribed), the Northeast neither has large fires on a regular basis nor does prescribed fire play a significant role. Long intervals between large wildfire events create challenges in investment strategies in preparedness, whether by governments or homeowners. Wildfire preparedness at the local fire department level can be overshadowed or downplayed because of the responsibility for more frequent all-hazard and medical emergency response.

Fire-related Science: An abundance of fire-related science is pertinent to most areas in the Northeast. The challenge for fire managers as well as land managers will be synthesizing and applying the abundant science to their local conditions to plan and implement fire management objectives on small parcels and landscapes, and across ownerships.

Forest products industry: The forest products industry is integral to cost-effective landscape restoration, hazard mitigation, and fuels reduction. Industry infrastructure (skills and equipment) for using pulp, saw timber, and biomass is necessary for cost-effective treatments. Lack of a sustainable supply of wood has caused industry infrastructure to decline or disappear in some areas like Illinois and Indiana. In other areas with abundant supplies of wood, the recent decline in the forest products industry has forced many forest product companies to close. When infrastructure and skills are lost, costs for services increase. There is a reluctance to invest in high value equipment and facilities when uncertainties exist, such as sustainable supply or contracts for services. It is unclear how the demand for wood products, including biomass, will impact wildland fire management in the Northeast. Currently, where biomass markets are available, non-merchantable material can be treated and disposed of at a lower cost.

Prescribed burning is accomplished on a small but increasing percentage of the region; state and Federal agencies conduct most activities. Uncertainties exist related to how much should or could be burned given the capacity of agencies and organizations, budgets, air quality issues related to smoke, and other local concerns. More expertise with smoke modeling, particularly in the highly dissected landscapes, is needed to avoid putting too much smoke into communities.

Improved ability to identify and work with those households and individuals with smoke-related health concerns is also needed. Sharing and learning from successful projects can contribute to building capacity and responding to these issues.



Blowdown prescribed burn in Minnesota.
Credit: Northeast Region

Southeast Region

While changes in the southeastern United States are rapid, no single driver dominates; instead, a combination of processes will determine the future of the region's landscapes. Changes in demographics, land ownership patterns, socio-economic conditions, firefighting capacity, and Rural Fire Department (RFD) training and retention rates will also impact the occurrence of and ability to manage wildland fire.

Private land ownership: Changes in the patterns and trends in land ownership in the Southeast create challenges related to wildland fire management. The majority of forest land in the Southeast is privately owned and managed, and most of the holdings are relatively small. The divestiture of three quarters of the region's industrial timberlands since 1998 has contributed to ownership fragmentation, making landscape scale management more complex. The trend away from intensive forest management (also a result of divestiture) leads to increased fuel loads and the potential for more intense wildland fires. Traditionally, public and private land managers have relied on prescribed fire for fuels management. As surrounding lands are developed, the effective use of prescribed burning will be impacted, leading to more costly management techniques (e.g., mechanical clearing to avoid short term smoke impacts) or potentially increasing the risk of wildland fire.

Understanding of wildland fire: Demographic shifts are also expected to impact wildland fire management. Populations in the region are becoming increasingly diverse, with new residents representing a broad range of ages, ethnicities, backgrounds, and varying levels of understanding

of wildland fire. Some areas with high rates of citizen turnover make wildland fire education and the use of prescribed burning a challenge. In these areas, every new cohort of citizens has to be educated with respect to wildland fire, the use of prescribed burning, smoke management, and effective land management of their own property to reduce wildland fire risk. Each transfer of ownership has been shown to increase the potential for moving away from traditional management toward a less intensive approach (increasing fuels) and/or toward development (increasing wildland-urban interface).

Rural Fire Departments: The state forestry agencies rely heavily on RFDs to provide initial wildfire response and reporting. RFDs assist in suppressing many ignitions before they grow large enough to pose a threat to people and values to be protected. However, RFDs experience high turnover rates; training and retention are constant challenges for RFDs and the state forestry organizations that support them.

Economic trends: Increasing demand for softwood and bio-energy production is expected to impact some areas of the Southeast. The impact on wildland fire from this increase in demand is unclear.

West Region

In addition to the trends and uncertainties shared among the regions, the West RSC addresses additional issues including the following:

- Increased incidence and spread of uncharacteristically large wildfires.
Abnormally large fires and long-duration fires have been prevalent in the past 20 years in the West due to a variety of factors such as fuels accumulation and changing climatic conditions.
- Proposed listing of endangered species.
A number of species have been proposed for listing, and the potential exists for additional species to be listed, creating uncertainty and challenges for land and fire management planning and implementation.
- Degradation of drinking water and watersheds.
In steep terrain, sediment and debris and other materials are common and may have short term impacts on water quality and in many cases lead to a longer term impact on water quality and quantity.
- Spread of native and non-native insects and pathogens.
Broad areas of the West have been and continue to be susceptible to outbreaks of undesirable insects, pathogens, and disease. Activities to reduce the spread of insects and pathogens are often costly and in some cases ineffective.
- Need for improved succession planning to ensure adequate staffing and training of wildland fire responders.
Many long-tenured employees within the fire management community are eligible for retirement, which may create gaps in capabilities and institutional knowledge that are critical for fire management and response.
- Decline of the forest products industry (i.e., loss of infrastructure and skilled labor) and growth of a biomass industry and alternative markets have affected and will continue to affect local, rural economies.

The decline in the Western forest products industry may be a result of a variety of circumstances, such as high fuel prices, less expensive foreign subsidized wood product markets, and appeals and litigation.

The prevalence of collaboration and large scale collaborative planning is a significant positive trend in the West that the West RSC seeks to build upon in developing its assessment and strategy.

Objectives and Actions

The aim of the Cohesive Strategy is to produce a strategy for achieving the national goals and reducing risks posed by wildland fire that incorporates objectives and actions at the national, regional, and local level. While no two regions identify initial objectives and potential actions in exactly the same language, there are significant elements held in common among all three regions. There are also objectives and actions specific to each region. The following sections outline the initial objectives and a snapshot of potential actions developed by the RSCs. Initial objectives and potential actions are not presented in order of priority within this report.

Objectives Common to All Regions

Each of the RSCs identified broad and strategic objectives that will contribute toward success in each of the three national goals identified in the Cohesive Strategy. Cross-cutting objectives that relate to all three of the national goals are presented below, along with objectives common to all regions for each national goal.

Cross-Cutting Objectives to Meet Multiple Goals

- Invest in, learn from, and build upon successful partnerships and collaboration efforts.
- Develop and conduct effective education and outreach to empower citizen engagement in and support for wildland fire management activities.
- Proactively use a variety of active vegetation management tools and techniques such as prescribed fire and management of wildfire for multiple objectives where authorities exist to achieve local and large landscape objectives.
- Support working forests and wildlands, local economies and jobs, and diverse products and markets.



Maine wildland-urban interface fuel chipping.
Credit: Northeast Region

Restore and Maintain Resilient Landscapes

Despite the unique regional ecosystems and socio-economic contexts under which objectives and actions have been developed, a number of ideas emerge that can be considered common across two or more regions with regard to restoring and maintaining resilient landscapes.

- Address ongoing and episodic (e.g., invasive species, insects and disease, storms) non-fire threats that may increase susceptibility to wildland fire.
- Develop and sustain capacity (e.g., skills, resources, and infrastructure) to plan and carry out landscape treatments.
- Use existing authorities to collaboratively plan and implement landscape treatments in the most effective and cost-efficient means.
- Foster communication and promote strategic interagency policy development and planning across agencies, organizations, and the public.
- Increase public awareness to ensure acceptance and active participation in efforts to achieve landscape objectives.

Fire-adapted Communities

The three RSCs express their vision of creating fire-adapted communities quite differently, but these elements that contribute to creating fire-adapted communities are held in common:

- Reduce unwanted human-caused wildland fire ignitions in and near communities.
- Support community wildland fire protection planning.



Invasive grasses (light yellow in the foreground) are fuel for fires during drought years. The dark green patches in the background are native grasses which can "mine" stored water from rock layers under valley floors to better tolerate droughts. From Canyonlands National Park, Utah.

Wildland Fire Response

Given the very different wildland fire environments in the Northeast, Southeast, and West, approaches to improving wildland fire response differ. Three common, overarching elements are:

- Providing for firefighter and public safety;
- Ensuring appropriate capacity; and
- Improving effectiveness and efficiency of the wildland fire management organization.

Specific Regional Objectives – Cross-cutting

Based on specific regional conditions and stakeholder engagement, the Northeast, Southeast, and West identified, individually, the following concepts as cross-cutting, in that they affect all three of the national goals.

Northeast Region

Although not stated as cross-cutting actions, per se, these three items are the “three main recommendations that emerged from a collaborative effort to identify, define, and address wildland fire management problems and opportunities in the Northeast Region of the United States.”

- Invest in successful partnerships and collaboration.
- Invest in local resources for wildland fire response.
- Invest in joint management planning and implementation that achieves strategic objectives and reduces the effects of fragmentation of fire-dependent landscapes.

Southeast Region

The Southeast RSC identified several actions and activities common across the national goals and regional objectives. These actions should be considered part of each of the regional objectives. This concept is particularly important for the modeling work to be done in Phase III since it outlines how each action is related to the regional objectives and national goals.

- Conduct education and outreach to incorporate all Southeastern residents as active participants in fire-adapted communities and wildfire prevention, landscape restoration, including prescribed fire and fuels management.
- Encourage the standardization of a simplified fire reporting system so that all fires, regardless of jurisdiction, are captured.



Prescribed burn. Credit: Georgia Forestry Commission

- Support for maintaining working forest and viable forest products markets.
- Expand the use of prescribed burning.

The Southeast RSC also agreed on three *strategic opportunities* for reducing fire threat and impact. Similar to the *main recommendations* from the Northeast RSC, these concepts are critical to achieving success across the three national goals. They add detail and context to the cross-cutting actions listed above, as well as individual objectives under each goal.

- Expand outreach and education to landowners and residents, particularly those new to the region and/or with a non-traditional ownership background. The outreach and education should stress prevention, increase awareness and acceptance of wildland fire management activities across the landscape, explain smoke dynamics between wildland fire and prescribed fire, and encourage wildland-urban interface residents to take personal responsibility for making their home and communities more fire-adapted.
- Enhance collaboration, training, and capacity-building across agencies to increase firefighter safety, wildfire response, and management effectiveness.
- Continue proactive fuels mitigation through all management techniques including prescribed burning to allow for maintenance of ecosystem function and to reduce fire hazard.

West Region

The West RSC went through a process in developing the objectives hierarchy that initially included a great deal of repetition of ideas common across the national goals and regional objectives. The West RSC ultimately chose to highlight these actions as *Common Across the Three National Goals* to underscore their fundamental importance to being successful in implementing the Cohesive Strategy.

- Invest in efforts that have a track record of success in meeting community and landscape objectives through effective collaboration, including leveraging investment capability and implementing actions to mitigate barriers and improve success. Use the lessons learned from these efforts to inform and encourage the development of similar capacity in other communities. Provide collaboration training and assistance where needed to facilitate planning.
- Use a variety of active vegetation management tools and techniques, including planned and unplanned wildland fire, to achieve local and large landscape objectives. Emphasize the design and use of treatments that reduce hazardous fuels and contribute to resilient landscapes while meeting social and economic needs.



**Active vegetation management in Oregon.
Credit: West Region**

- Collaboratively identify post-fire hazards in advance of fire seasons to clarify roles and responsibilities, position for the best response to post-fire natural hazard impacts on landscapes and communities, and use the local workforce to perform work whenever possible.
- Support existing industries (e.g., forest products, grazing, fishing, hunting, tourism, recreation, and energy and minerals development) and encourage new markets (e.g., biomass) that facilitate implementation of landscape treatments where sustainable and economically feasible. Support employment conditions consistent with existing hiring practices and processes that lead to fair competition and the creation of family-wage jobs.
- Combine the best elements of existing education programs to create a West-wide wildland fire management education campaign with a strong, visible, and memorable message.

Specific Regional Objectives – Restore and Maintain Resilient Landscapes

The following objectives support the national goal related to *restoring and maintaining resilient landscapes*.

Northeast Region

Objectives and actions specific to challenges in the Northeast Region (e.g., fragmentation, hazardous fuels, episodic events, lack of active management in fire-dependent ecosystems) seek to restore landscapes that are resilient to fire, provide habitat to the organisms that depend on them, and present low risk to the human communities that border them and the firefighters who protect them. The RSC members and stakeholders who developed the *Northeast Regional Assessment* believe that the most resilient landscapes in the Northeast will be achieved by thoughtful planning and management. Restoring landscapes is a regional interest, and fire resiliency is one piece of this interest.

- Restore and maintain structure, composition, and function of fire-dependent communities (e.g., jack pine systems, oak woodlands, prairie and grasslands, barrens, and savannas).
- Treat (weather/pest/drought-related) event fuels expeditiously in fire-dependent and non-fire-dependent landscapes.
- Protect threatened, endangered, and sensitive animal and plant habitat.
- Prevent the spread of invasive plants.
- Maintain/increase skills and resource capacity to return fire to fire-dependent landscapes.
- Improve treatment effectiveness and wildland fire planning using the best available science.
- Identify and address barriers and conflicts that prevent full coordination and collaboration.
- Foster communication among stakeholders and build partnerships.
- Reduce landscape fragmentation by building shared objectives.
- Utilize existing Burned Area Emergency Rehabilitation (BAER) and Burned Area Rehabilitation (BAR) expertise to continue to identify and treat invasive organisms, water quality issues, and erosion.

Southeast Region

Response to this goal in the Southeast acknowledges the challenge of maintaining or restoring landscapes in a complex environment of many small landowners; the objectives focus on a need for locally calibrated, proactive treatment to restore and maintain landscapes. Resilient landscapes are resilient to fire and balance the need to reduce catastrophic wildfire risk to wildland-urban interface communities throughout the Southeast. Healthy working forests are a part of the Southeast's cultural heritage, as well as a critical part of the regional economy. The region's diversity and uniqueness means that restoring and maintaining landscapes is a critical goal. The wildland fire management community agrees that flexibility to select locally appropriate management techniques must be retained and encouraged so that prescribed burns can be implemented where appropriate and feasible, while in other areas mechanical treatments may be the only option. One key objective is identifying and focusing on the areas in which limited resources can be leveraged or combined to create the most significant impact on restoring landscapes and reducing the risk of catastrophic wildfires. However, rapid urbanization and soaring populations within the Southeast may necessitate a greater focus on communities and the wildland-urban interface rather than landscapes. Therefore, although *restore and maintain landscapes* is a priority goal in the Southeast, management directives must be written with the understanding that restoration efforts may not be feasible in certain areas of the Southeast where human structures mingle with fire adapted landscapes in the wildland-urban interface.

- Build and maintain resiliency in southeastern landscapes through strategic use of prescribed fire, mechanical treatments, grazing, etc., and manage wildfire where and when appropriate, based on ownership and landscape context.
- Promote strategic interagency policy development and planning across agencies, organizations, and the public to more effectively integrate wildland fire planning into land-use planning and economic development.
- Develop and sustain capability and capacity required to plan and carry out landscape treatments, including prescribed fire.
- Encourage increased public awareness to ensure public acceptance and active participation in achieving landscape objectives.
- Mitigate environmental threats other than wildland fire (i.e., storm damage, insects, ice storms, hurricanes, insects, and disease) that reduce ecosystem vitality and increase susceptibility to wildfire.

West Region

Sustaining landscape resiliency and the role of wildland fire as a critical ecological process in the West requires the following: a mix of actions that are consistent with management objectives; the use of all available methods and tools; the consideration and conservation of a diversity of ecological, social, and economic values; sincere coordination and integration with all partners; and support for market-based, flexible, proactive solutions that take advantage of economies of scale. All aspects of wildland fire will be used to restore and maintain resilient landscapes.

- Actively manage the land to achieve healthy forest and rangeland conditions.
- Protect landscapes and multiple values from the effects of unwanted fire.
- Improve interagency and stakeholder coordination and planning of actions that contribute to achieving landscape resiliency.

- Develop and maintain professional and industrial capacity to implement cost-effective and sustainable landscape treatments and support local economies.
- Fully use existing policies and procedures to provide the management flexibility needed to implement a mix of landscape treatments.
- Increase public awareness, acceptance, and active participation in achieving landscape objectives using all available tools.
- Identify and prepare for non-fire threats and disturbances that may increase susceptibility to wildland fire and/or impair ecosystem function.

Specific Regional Objectives – Fire-adapted Communities

The following objectives relate to the national goal of creating fire-adapted communities.

Northeast Region

A suite of issues including expanding human populations, increased human-caused wildfire ignitions, and fuel accumulation (from wind, ice, insect, and disease events, as well as vegetation growth in the absence of fire) continue to create complex challenges for communities across the Northeast. Community adaptability is at the center of coordinated cross-jurisdictional wildland fire management that addresses quality of life as a part of the larger environmental landscape. A fire-adapted community acknowledges the risks associated with its surroundings and, together with fire authorities including local fire departments, mitigates risks to safety and a sustainable quality of life.

- Fire authorities, local governments, and community members negotiate/accept risk and the range of actions taken to mitigate risk.
- Reduce wildland fire hazards.
- Reduce unwanted human ignitions in and near communities.
- Identify and address conflicts/barriers to fire adaptation in local land use planning, building ordinances, and building codes.
- Develop agreements and memoranda of understanding (MOUs) that ease jurisdictional barriers for efficient and effective treatment and maintenance of fuel-treated areas (for example, neighborhood agreements).

Southeast Region

The Southeast contains many communities that are adjacent to or located within wildland fire-prone landscapes. Communities can survive wildfire without loss of life or significant damage to infrastructure and recover and thrive economically. However, this requires human populations to directly engage in wildland fire planning to assess the level of wildfire risk to them and their communities, share responsibility, and participate in actively mitigating the threat. In order for this to be successful, communities must take responsibility for the consequence of their actions (or non-action). At the same time, the wildland fire management community must catalyze this process through education, engagement, outreach, and support to communities in preparation and planning. In addition to engaging with existing communities, a vital part of the engagement process must be raising awareness of incorporating wildfire risk into the design process for future homes and communities. In the Southeast, there may be as much potential for change through engaging in the process of creating fire-adapted human communities as through effective fuels management.

- Support development of partnerships, and maintain engagement with communities by leveraging partnerships through community wildfire planning for improved preparedness.
- Eliminate loss of life and minimize loss of structures.
- Coordinate public policy and land use planning to achieve shared responsibility across jurisdictions.

West Region

Preventing or minimizing the loss of life and property due to wildland fire in the West requires a combination of thorough pre-fire planning and action, followed by prudent and immediate response during an event. Post-fire activities can also speed community recovery efforts and help limit the long-term effects and costs of wildfire. Community wildfire protection plans (CWPPs) or their equivalents should identify high risk areas and community-specific requirements. Collaboration, self-sufficiency, individuals' and/or communities' acceptance of the risks and consequences of their actions (or non-action), treating homes and property equally regardless of appraised value (social justice), and facilitating culture and behavior changes are important concepts.

- Prevent unwanted human-caused wildland fire ignitions within or in close proximity to communities.
- Reduce hazardous fuels within the wildland-urban interface and nearby areas containing community values to be protected.
- Continue to develop, support, and maintain CWPPs as one of the primary tools to achieve the goals of the Cohesive Strategy.



**Fire-adapted community showing wildland-urban interface.
Credit: West Region**

- Build a culture of self-sufficiency to prepare for and protect life and property from wildland fire.
- Improve effectiveness and self-sufficiency of emergency response within each community.
- Improve post-fire recovery efforts that impact public health and safety, water sources, power transmission corridors, and other critical infrastructure.

Specific Regional Objectives – Wildfire Response

The following objectives relate to improving wildfire response.

Northeast Region

Throughout the Northeast, local fire departments, both career and volunteer, are key partners and are often the first and sole responders on wildfires. Support from Federal and state agencies is vital. Wildfires may be small in size, but numerous, and occur in bursts throughout the fire seasons. These factors, combined with the density of people and parcels of land under diverse ownership, create a complex wildfire response environment. A balanced wildfire response requires integrated pre-fire planning with effective, efficient, and coordinated emergency response.

- Provide for firefighter and public safety.
- Ensure that wildfire response reflects the broader wildland fire management strategy.
- Maintain the capacity to suppress unwanted fires.
- Improve organizational efficiencies and wildfire response effectiveness.
- Coordinate planning, training, detection, and response activities for efficiencies.
- Improve and maintain infrastructure (airports, roads, and bridges, etc.) that affect wildfire response.
- Address capacity issues related to all-hazard response.
- Provide access and reporting standards to all wildfire response agencies and organizations.

Southeast Region

The objectives and actions developed by the Southeast RSC address a number of challenges and opportunities including a year-round fire season, widespread wildland-urban interface, smoke management, policy conflicts across multiple jurisdictions, and other issues. Focusing on firefighter safety, wildland fire management, and flexibility for locally appropriate response to unplanned ignitions are included in the two main objectives identified below. Of particular concern in the Southeast is the need for specialized equipment such as tractor plows that are not in widespread use outside of the region. A second major concern is ensuring appropriate and consistent training for partners and cooperators, particularly RFDs, whose membership changes frequently. Finally, promoting indirect attack, where appropriate, has proven an effective way to minimize risk to firefighters and maximize resource benefit. The wildland fire management community agrees that a need exists for agencies and organizations to retain the ability to select and apply techniques and tactics based on local conditions and needs.

- Increase firefighter safety by managing risks.
- Increase and leverage resource capability and capacity. Streamline and support training across all areas to maximize effectiveness.

West Region

Balanced wildfire response in the West requires integrated pre-fire planning with effective, efficient, and coordinated emergency response. Pre-fire planning helps tailor responses to wildfires across jurisdictions and landscape units that have different uses and management objectives. Improved prediction and understanding of weather, burning conditions, and various contingencies during wildfire events can improve firefighting effectiveness, thereby reducing losses and minimizing risks to firefighters and public health and safety.

- Provide for safety of wildland fire responders and the public.
- Guide response using risk management principles and values to be protected, as determined by early and frequent involvement of all partners, before, during, and after a wildland fire event.
- Improve effectiveness and efficiency of the wildland fire management organization.
- Improve administration and maximize the coordination and effectiveness of wildland fire management resources.
- Develop community-based strategies to deal with post-fire hazards on natural and cultural resources, responders, communities, and planned activities.
- Collect and use accurate and consistent fire information from all wildland fire protection jurisdictions to improve understanding of the wildland fire and response workload and provide feedback to decision-support systems.



Idaho wildland fire management collaboration. Credit: BLM Public Domain

Actions and Activities

The intent of the following section is to illustrate the concept of an objectives hierarchy, where the RSCs developed objectives tied to the national goals and potential actions and activities, which support the objectives. In some cases, the RSCs discussed in detail the sub-objective and action level to the hierarchy of goals, objectives and actions. More than 300 actions are described in the three regional assessments; however, only a limited snapshot of potential actions is synthesized within this report, with none taking precedence over other actions found within the regional assessments.

As the three goals of the Cohesive Strategy are interdependent, investment in actions tied to one goal can and should lead to success in all three national goals. The assessment process and the resulting collaboration and identification of regional actions and activities will continue as we move into Phase III and beyond. The RSCs noted in their assessments that some actions can be embarked on immediately at little to no cost, such as enhancing opportunities for homeowners to proactively reduce hazards around their homes and property, increasing collaboration across agencies, and thinking beyond the wildland-urban interface.

The following are example actions as excerpted from the regional assessments, and their potential to reduce risk will be evaluated in Phase III as part of the refinement of regional alternatives (i.e., portfolios of actions and activities).

◆ **Goal: Restoring and Maintaining Resilient Landscapes**

Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.

Northeast Regional Objective: Restore and maintain structure, composition, and function of fire-dependent communities (e.g., jack pine systems, oak woodlands, prairie and grasslands, barrens, and savannas).

Potential Action: Use prescribed fire strategically in fire-dependent ecosystems.

Example Activity: Support existing prescribed fire councils and the development of prescribed fire councils in states that don't have them.

Southeast Regional Objective: Develop and sustain required capability and capacity to plan and carry out landscape treatments, including prescribed fire.

Potential Action: Sustain and further develop a network of trained practitioners capable of utilizing applied fire science (smoke management, appropriate burn season, technology, etc.) to plan and implement a comprehensive prescribed fire program.

Example Activity: Prescribed burning is critically important in the South for landscape restoration, hazardous fuels reduction, and a myriad of other reasons. Private landowners or their contractors do most of the burning in the South. Several states in the South have Prescribed Burner Certification programs which provide some protection from liability if the certified burner is trained and meets certain other requirements, such as having a written prescribed burn plan, etc. The state forestry agencies are usually responsible for managing the Prescribed Burner Certification programs and providing the training required by the program.

Southeast Regional Objective: Build and maintain resiliency in Southeastern landscapes through strategic use of prescribed fire, mechanical treatments, grazing, etc., and manage wildfire where and when appropriate, based on ownership and landscape context.

Potential Action: Promote and use fire to emulate natural disturbance patterns to maintain and improve ecological systems, and balance social, cultural, and economic needs, especially over large contiguous landscapes.

Potential Action: Use prescribed fire to reduce fuel loads where feasible, prioritizing burning to maintain fuel loading in previously treated areas.

Potential Action: Use education and incentive programs to encourage new and nontraditional private landowners to manage their lands to contribute to resiliency while providing forest products and expanding ecosystem markets (*working forests*).

Example Activity: Support the *One Message, Many Voices* campaign and development of other unified prescribed fire education programs. Prescribed burning education in the South is provided through several venues including the *One Message Many Voices* (OMMV) program. The idea of OMMV is that the public will receive the same message on prescribed burning from many communicators. OMMV is a joint program of the Southern Group of State Foresters, Tall Timbers Research Station, and prescribed fire councils. Advertisements encourage viewers to participate in outdoor recreational activities and are directed to www.visitmyforest.org for local outdoor recreational opportunities. In the process of viewing the recreational opportunities, the viewer is exposed to prescribed burning messages and to the Web site <http://www.goodfires.org>.

West Regional Objective: Develop and maintain professional and industrial capacity to implement cost-effective and sustainable landscape treatments and support local economies.

Potential Action: Support traditional (e.g., timber, grazing, fishing, hunting, tourism, recreation, and energy and minerals development) uses and industries that contribute to land management objectives and support local economies.

Potential Action: Support development of new technologies and local infrastructure for biomass removal and utilization through multiple means including legislation such as the Farm/Energy Bill incentives that address emerging industry needs.

◆ **Goal: Creating Fire-adapted Communities**

Human populations and infrastructure can withstand a wildfire without loss of life and property.

Northeast Regional Objective: Reduce wildfire hazards on public lands that border communities to create fuel transition zones.

Potential Action: Coordinate fuels reduction and maintenance of desired conditions across jurisdictions.

Example Activity: Throughout the Northeast, there exists a mosaic of Federal, state, and local public lands that border wildland-urban interface communities. Working together, the land management agencies can utilize the most appropriate funding authorities to complete priority projects on the landscape.

Southeast Regional Objective: Coordinate public policy and shared responsibility across jurisdictions.

Potential Action: Develop new, and enhance existing, agreements to allow fuels mitigation work to be conducted in the wildland-urban interface across jurisdictions.

Example Activity: Greater Okefenokee Association of Landowners (GOAL) - The Okefenokee National Wildlife Refuge is adjacent to high-value private timberlands (working forest), state forest, national forest, and towns and communities in southeastern Georgia and northwestern Florida. Heavy fuel, difficult terrain, and wildland-urban interface make fire response in this area difficult, complex, and dangerous. The GOAL was formed to allow concerned private landowners, homeowners, and state and Federal agencies to better communicate and coordinate pre-suppression and suppression activities. Some of GOAL's accomplishments include construction and maintenance of the *swamp edge break*, which is a fire break constructed around the Refuge, fuel mitigation work adjacent to the swamp edge break, and coordinated response to wildfire. During the Honey Prairie Fire, which started in April 2011, and continues to burn as a ground fire, the U.S. Fish and Wildlife Service, U.S. Forest Service, Georgia Forest Commission, and Florida Forest Service established a unified command. In this area, private landowners (GOAL members) have resources that can be used in wildland fire suppression and actively engage in wildland fire response in coordination with state and Federal partners.

West Regional Objective: Reduce hazardous fuels within the wildland-urban interface and nearby areas containing community values to be protected.

Potential Action: Encourage proactive vegetation management on public and private forests, woodlots, rangeland, fields, wildland-urban interface home sites, and around infrastructure.

Example Activity: Develop a long-term coordinated program of planned and scheduled on-the-ground projects that would achieve fuels reduction and land management objectives, provide year-round employment, and sustain a reliable flow of raw and value-added wood products.

◆ **Goal: Responding to Wildfires**

All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

Northeast Regional Objective: Maintain a shared capacity to suppress unwanted fires.

Potential Action: Support local fire departments as integral to the suppression of wildfires across the Northeast.

Example Activity: Increase and improve wildland fire suppression training adequate to respond to local conditions.

Southeast Regional Objective: Increase and leverage resource capability and capacity. Streamline and support training across all areas to maximize effectiveness.

Potential Action: Utilize relationships to increase interagency cooperation during wildland fire suppression. Develop and encourage the implementation of statewide mutual aid agreements and cross-jurisdiction MOUs, including Cooperative Fire Agreement billing. Support development of interagency all-hazard Type 3 incident management teams (IMTs).

Example Activity: The Department of Homeland Security presented an award to the unified command partners of the Bastrop County, Texas, Fire Complex on November 14, 2011, in Washington, D.C. This award recognized the outstanding coordination and cooperation in responding to the Bastrop County Complex, which burned over 34,000 acres and more than 1,500 homes. Partners involved in the unified command include: the city of Bastrop, Bastrop County, Texas Division of Emergency Management, Texas Department of Public Safety, Texas Forest Service, the Atlanta-based National Incident Management Organization, and the Southern Area type 1 IMT (Red Team).

Example Activity: Texas developed the Texas Intrastate Fire Mutual Aid System (TIFMAS) and a network of interagency Type 3 all-hazard IMTs. The TIFMAS is made up of structural fire departments from across Texas that can respond to structural or wildland fire incidents when needed. Funding for the responding fire departments is provided through the Texas Division of Emergency Management. The Texas Forest Service was very involved in developing interagency Type 3 IMTs in Texas. Type 3 IMTs are composed primarily of city and county personnel. When Type 3 IMTs are deployed, they are assigned a Texas Forest Service liaison to assist with coordination. The Texas Forest Service uses these organizations in concert. When the Texas Forest Service requests TIFMAS resources on a wildfire, they also request a Type 3 IMT to provide coordination and assistance for TIFMAS responders. The TIFMAS provided 700 pieces of firefighting equipment and over 3,000 firefighters to support wildfire response in Texas in 2011.

West Regional Objective: Improve effectiveness and efficiency of the wildland fire management organization.

Potential Action: Seek opportunities to make strategic investments that will improve organizational effectiveness.

Example Activity: All jurisdictions (Federal, state, local, and tribal) evaluate protection responsibilities to ensure that the organizations are prepared to provide wildfire protection cost-effectively, while retaining jurisdictional authorities (e.g., block protection areas, offset protection agreements, protection contracts).

Barriers and Proposed Solutions

Through regional objectives and actions tied to the three national goals, the RSCs proposed constructive resolutions to ongoing policy conflicts and suggested ways to take advantage of the opportunities they present. Some viable opportunities to address policy barriers and gaps that prevent full coordination and collaboration and/or the most flexible use of existing authorities to plan and implement landscape-scale treatments have been examined in the regional assessment reports.

Regions proposed the following actions to address barriers to success in their regions.

Barrier: Landscape scale restoration is often difficult to achieve due to complex process requirements of Federal laws, rules, and policies. New interpretation and engagement with key partners can take advantage of flexibility that currently exists, but may not be exercised for fear of litigation.

Potential action: Encourage Federal agencies to use existing authorities to expedite the planning/collaboration process used to treat large landscapes.

Potential action: Work with the Environmental Protection Agency (EPA) and the Council of Environmental Quality (CEQ) to maximize flexibility for implementing actions following uncharacteristic wildland fire events.

Barrier: Responding to wildland fire events is a complex, interagency task. Many resources that would otherwise be available for mobilization are unavailable because of cumbersome qualification standards and procedures.

Potential action: Build on existing success (e.g., Incident Qualification and Certification System (IQCS), Recognition of Prior Learning (RPL), and Service First) to develop a national qualifications system to track Federal, tribal, local, state, and private community responders.

Barrier: Many states have laws that require all wildfires to be suppressed. Alternative wildfire management strategies such as managing lightning caused fires are not universally available to all wildland fire management agencies, especially state agencies, which have responsibility for managing wildfires on private lands.

Potential actions: Manage wildfire strategically to restore and maintain landscape resilience by addressing state specific regulations on [managing] lightning ignitions. Further exploration may identify areas where compatible management objectives exist. Implementation strategies should be developed for when and where natural ignitions could be managed for landscape resilience and resource benefits.

Barrier: In many fire-prone landscapes, there is a need to include a broader range of groups who embrace, adopt, and implement fire-adapted community principles at local planning and zoning scales for, at a minimum, new construction and development.

Potential actions: Identify and address conflicts or barriers to fire adaptation in local land use planning, building ordinances, and building codes. Work with local planners to include fire-safe features in new development (e.g., building codes, landscaping, and evacuation routes) and specific restrictions when building in dangerous topography or conditions. Engage insurers to educate homeowners and developers about using fire-resistant building

materials, designing appropriate access roads to homes and developments, and using Firewise principles.

Barrier: A number of policy barriers and process complexities affect the ability to effectively and efficiently share resources, not only for wildfire, but for fuels and prescribed fire work. As skill gaps grow, reliance on a mobile skilled workforce is one option, while local expertise is developed. One example is the new national template for cooperative fire agreements, which is designed so cooperators are responsible to bill the end user. A state will directly bill another state for fire personnel versus the billing managed at the Federal level. Processes for updating and revising agreements are slow and cumbersome. Qualification standards pose barriers to sharing resources when the USDA Forest Service follows one set of rules, while others may follow the Wildland Fire Qualification System Guide, PMS 310-1.

Potential Actions: Improve organizational efficiencies and wildfire response effectiveness. Address preparedness strategically for greater efficiency and cost effectiveness. Develop a flexible and mobile response capacity, given changing fire seasons and fuel events.



Revegetation after a wildfire. Credit: Southeast Region

MANAGEMENT SCENARIOS AND AREAS TO EXPLORE FOR REDUCING RISK

Phase II of the Cohesive Strategy had two main components: (1) to bring together stakeholders and communities to look for synergies and ways to work together to improve land management, reduce wildfire risk, and improve suppression capability; and (2) to gather information describing conditions in the three regions pertaining to the threat of wildfire, values at risk, trends, and uncertainties. The next step is to define initial alternatives. Initial alternatives are built on an understanding of the national goals and regional needs and constraints. The RSCs began exploring alternatives through the development of management scenarios (as described in the Southeast and the West) and areas to explore for reducing risk (as described in the Northeast). The ideas expressed by the RSCs set the stage for the analysis to take place in Phase III, but they are not alternatives for implementation.

According to the Phase I report, “effective management requires understanding the nature of wildfire and its contributing factors, recognizing the consequences—good and bad—of fire, addressing uncertainty, and crafting plans that reduce the chance of catastrophic losses. Real world constraints on funding, available resources, and administrative flexibility further require consideration of economic efficiency and practicality.”

Together, stakeholders and the NSAT defined management constraints for reducing risk in each region. Alternatives presented in the three regional assessments are not plans or decisions; they are articulations of options and possible areas of program emphasis to reduce the risk of wildland fire. Analytical methods will be used to test initial alternatives developed by the RSCs. The initial alternatives are preliminary and will be refined in Phase III.

Using the CRAFT process, the NSAT will explore the likely outcomes of the scenarios presented and additional scenarios, yet to be developed. They will use wildfire risk maps and fire behavior models to determine the relative effectiveness of different approaches across the landscape. Management options to be considered will be evaluated not only for potential cost effectiveness, but also from a perspective of risk, social acceptability, and consistency with prevailing policies. After processing the scenarios in light of the best scientific data and risk assessment models available, NSAT will come back to the RSCs with options and recommendations.

It is difficult to judge the effectiveness of one alternative action or activity against another. Since effectiveness is the ability to get a desired change in real world conditions, it will vary according to the conditions. There is no one correct strategy for reducing risk and protecting communities and firefighters. While reducing fuels through prescribed burning or mechanical treatment might be most effective in some areas of the country, in others it may be more effective to focus on educating landowners, preventing ignitions, and preparing communities for wildfire. And, it makes sense to use local information and science to help locate the most effective programs for different areas of the country.

The CRAFT process guided the RSCs to list possible broad objectives, actions, and activities. Phase III will continue the CRAFT process as RSCs identify the combination of actions and activities that best reflects the continuation of current policies and practices, and other reasonable combinations of actions and activities that collectively could contribute to long and short term goals.

The Northeast's Areas to Explore for Reducing Risk

To develop *alternative management scenarios*, the Northeast RSC spent much time identifying objectives and activities that would significantly increase, decrease, or change their ability to meet the national goals. They developed a list of activities for the NSAT to explore and determine how much change would occur if the activity is increased, decreased, or eliminated. The activities listed are not proposed *alternatives*—they are simply areas to explore to determine if efficiencies can be gained by reallocating resources. The Northeast RSC indicated that they need more data to develop alternative management scenarios. The Northeast articulates four investment options:

- Preventing human-caused ignitions.
- Fuels treatments.
- Building capacity in wildfire response.
- Protecting values at risk.

Within those categories, specific actions are listed. For example, *invest in preventing human-caused ignitions* sets out three levels of funding for prevention activities and the option of investing in local ordinances that reduce unwanted ignitions from debris burning and other sources.

Under *invest in fuels treatments*, three levels of funding for fuels treatments will be explored, and the option of treating only around communities in fire-risk landscapes, or in landscapes affected by wind, storm, pest, drought, or other events.

For *invest in building capacity for wildfire response*, options range from increased staffing, training, and detection, to investing in water scooping aircraft, to eliminating barriers to cost sharing and cross billing, or appointing a fire warden in each town.

And, some options for *invest in protecting values at risk* include the following: treating fire-dependent ecosystems with prescribed fire, investing in fire-proofing homes, and modifying codes for new development and structure construction.

It is anticipated that the analyses will show that a mix of investments in some, if not all, of these areas will be recommended. These alternatives are set out so that the NSAT can test each action separately and then inform the RSC as to which actions are most likely to be effective, and where they are likely to be effective.

The Southeast's Management Scenarios

The Southeast sees the development of alternatives as a way to weigh various national and regional values and goals to strategically use available resources for the greatest effect. They set out four potential management scenarios:

- Present management situation.
- Increased personal responsibility through outreach and education.
- Increased firefighter safety and wildfire response through enhanced collaboration, training, and capacity.
- Increased proactive fuels mitigation through all management techniques including prescribed burning.

These management scenarios are described along with anticipated consequences. The intent is to see what an increase in certain areas of management emphasis might accomplish. Running these changes in program emphasis through the scientific analysis will allow managers to compare trade-offs to make better management decisions.

The West's Management Scenarios

The West also developed management scenarios to explore different levels of emphasis on a suite of actions for implementation, focusing on the national goals. Each scenario emphasizes a subset of the regional objectives and actions. While each scenario emphasizes actions to focus on one of the goals, efforts toward the other goals are assumed to continue.

- Scenario One – Emphasize landscape resiliency. This scenario places greater emphasis on restoring the landscape with fuels treatments through prescribed fire, wildland fire, and mechanical treatments, including active forest management with harvest of commercial products in those landscapes where appropriate and using suppression where appropriate, to enhance landscape resiliency.
- Scenario Two – Emphasize fuels treatments to create fire-adapted communities. This scenario places greater emphasis on fuels treatments, including active forest management, within the wildland-urban interface and areas identified in CWPPs and similar plans.
- Scenario Three – Emphasize the creation of fire-adapted communities through collaboration and self-sufficiency. This scenario places greater emphasis on assisting private citizens, landowners, and land managers to increase collaborative efforts and take action to protect their values at risk.
- Scenario Four – Emphasize effectiveness in wildfire response. This scenario places greater emphasis on increasing the effectiveness and efficiency of firefighting organizations across all jurisdictions.

The West assumes that emphasis on specific objectives and actions within a scenario will result in synergies from the alignment of energy by those involved in implementation of the emphasized objectives. This synergy would lead to implementation levels that exceed the current level.



Team analyzing wildland fire management options. Credit: West Region

REGIONAL COLLABORATION AND OUTREACH

The RSCs are collaborative teams representing wildland fire agencies, tribes, industry, and non-governmental organizations. The RSCs undertook extensive outreach to contact stakeholders for input relating to challenges, values, trends, and objectives. However, the compressed timeframe prevented them from reaching everyone who wished to be involved. The RSCs recognize that a strong outreach strategy is key to building a successful national strategy for wildland fire management, and they will continue outreach efforts in Phase III.

Phase II of the National Cohesive Wildland Fire Management Strategy continued the development of the existing national strategy by engaging people affected by, and essential to, implementation at a regional scale. The goals of Phase II were twofold: (1) to solicit input and build collaborative relationships between wildland fire management organizations and stakeholders affected by the strategy, and (2) to better represent the unique resources and values associated with distinct geographic regions of the United States. Collaboration and communication will continue beyond Phase II as integral components of the Cohesive Strategy.

The Cohesive Strategy effort is the first time all wildland fire organizations, land managers, and policymaking officials representing all levels of governmental and non-governmental organizations, have come together to create a shared national strategy. It is also the first time individual regions of the country have had the opportunity to identify regional goals, objectives, and challenges to be incorporated in the national strategy. In preparing their assessments and strategies, the Northeast, Southeast, and West RSCs reached out to the following groups to gather input and concerns:

- Federal, state, tribal, and local agencies and organizations;
- Local natural resource and fire service agencies;
- Industry groups;
- Private landowners; and
- Community members.

Each RSC held meetings to familiarize members with the Cohesive Strategy and to develop the process for obtaining input from stakeholder groups. Each RSC identified individuals representing diverse skills, experience, backgrounds, and organizations to create a working group to gather input, build relationships, and support the work of the RSC during the effort. (See Appendix D for RSC and working group members.)

The RSCs contacted over 4,500 stakeholders by telephone and email, through posts to outreach Web sites, and in person at meetings. Stakeholders provided input through an online form, written comments, and/or in focus groups and forums. Participation and response varied among the regions and stakeholder groups.

Engagement with diverse stakeholders during outreach efforts provided valuable information to help identify common societal and environmental values and concerns, in addition to trends and uncertainties for each region. The three regional assessment reports provide expanded discussions of the collaboration and outreach efforts and the resulting values, trends, and uncertainties identified during Phase II.

NATIONAL SCIENCE AND ANALYSIS TEAM

The NSAT was created to do the following: (1) provide analytical support to the RSCs and CSSC, and (2) support the development and implementation of the Cohesive Strategy through the application of proven scientific processes and analysis. To achieve this goal, the NSAT is charged with three primary tasks during Phase II and Phase III:

- (1) Assemble credible scientific information, data, and pre-existing models that can be used by all teams working on the Cohesive Strategy.
- (2) Develop a conceptual framework that describes the relative effectiveness of proposed actions and activities on managing risks associated with wildland fire.
- (3) Construct an analytical system using the products developed in tasks 1 and 2 to quantitatively analyze regional and national alternatives identified by the RSCs and CSSC.

Tasks 1 and 2 were addressed within Phase II and will continue. Task 3 is exclusively a Phase III effort.

NSAT Efforts during Phase II

A wide range of individual scientists and analysts was invited to participate in the NSAT. These individuals represent Federal, state, and tribal agencies; universities; and various non-governmental organizations, as well as a variety of topic areas spanning the complex issue of wildland fire management. Sub-teams active during Phase II include the following:

- Fuels management, wildfire extent and intensity;
- Wildfire ignitions and preventions;
- Smoke management impacts;
- Landscape resilience;
- Firefighter safety;
- Fire-adapted human communities;
- Wildfire response and suppression effectiveness; and
- Public acceptance and policy effectiveness.

Due to the complexity of wildland fire management, many of the identified topics necessarily overlap or intersect. This is especially true for issues such as landscape resilience, fire-adapted human communities, and public acceptance and policy effectiveness. As the conceptual models developed during Phase II are translated into more quantitative models for use in Phase III, the various components and relationships among them will become more explicit. Additional detail regarding sub-team reports, expectations for Phase III, and conclusions are provided in the full NSAT report.

The NSAT sub-team efforts built upon and expanded each of these major processes. For example, the wildfire ignitions sub-team considered a broad range of factors that affect where, when, and how wildfires start, and how various combinations of engineering, enforcement, and education can influence human caused ignitions. Similarly, the fuels management sub-team examined how various combinations of

prescribed fire and other fuel treatments affect vegetation structure and composition, which in turn influence (and are influenced by) wildfire extent and intensity. Such interactions play out differently across diverse ecological biomes and at various spatial and temporal scales.

In many ways, the products from the sub-team efforts reflect the state of knowledge about various aspects of wildland fire and the availability of existing models and data. This process has highlighted the importance of data standards and data accessibility across Federal, state, tribal, local, and non-governmental organizations.

Fine-scale processes tend to be better understood than broad-scale processes or strategic issues. For example, there is extensive literature on fire behavior and combustible properties of fuels; less is understood about the large scale effectiveness of strategic fuel treatments.

Considerably more research has focused on the biophysical aspects of wildland fire than has been directed at equally important socio-political issues. Thus, we can assuredly state that fire-wise landscaping and construction materials will help reduce the incidence of homes lost to wildfire; we are less confident as to how to ensure that such practices are implemented. Smoke is an archetypal issue—technically well understood, but socio-politically complex and difficult.

Each sub-team produced one or more conceptual models of the processes operating within their area of interest. Collectively, these conceptual models create a rich tapestry that illustrates the extensiveness, complexity, and interconnectedness of wildland fire. Along with the information summarized on existing analytical models and data sources, the conceptual models provide a strong foundation for building more rigorous models in Phase III that can be used to compare and contrast alternative strategies for reducing risk. It is recognized that the model development process and model analysis in Phase III must be conducted in a collaborative and fully transparent manner to meet a level of trust and acceptance by the agencies and the public.

NSAT Efforts during Phase III

The NSAT will develop analytical models and interact with the RSCs and work groups to explore alternative management strategies (alternatives) for each region, based on application and utility of the models. To complete these analyses, the WFEC, CSSC, and RSCs will engage with the NSAT to do the following:

1. **Translate the conceptual models developed in Phase II into quantitative and qualitative models, as appropriate.** Create a nationally consistent set of analytical models that can operate at regional scales using regionally specific data, relationships, and assumptions. Retain the individuality of the regions, recognizing regional differences, while employing a consistent analysis across the Nation.
2. **Compile and integrate appropriate data to quantify and validate the relationships presented in the models, using both Federal and state data sources.** Specific data, relationships, and information needed to run the analytical models will be brought together for initial tests.
3. **Identify performance measures that can be used across all regions and within a given region.**
4. **Identify geographic variations in the models to reflect appropriate differences across the regions.** Variations in wildland fire and wildland fire management are apparent across the major regions. It is important that analytical models reflect appropriate variations.
5. **Interact with the RSCs to validate that the modeled relationships are reasonable.** Validation of the models and the data will be conducted with the RSCs and the working groups.

- 6. Explore specific alternatives developed by the RSCs through regional analysis.** Alternatives are strategic management options that reflect the decision space available for broad national and regional choices related to wildland fire management and policies. Initial regional alternatives, coupled with additional alternatives developed nationally, will be analyzed to explore the potential outcomes and associated trade-offs of different choices, using the models to predict outcomes.
- 7. Interact with the RSCs to revalidate analysis models and iteratively refine regional alternatives to be included in the comparative risk analyses—national trade-off analysis.** Study analysis models via beta testing before refining alternatives. Refine alternatives to include in the comparative risk analyses—national trade-off analysis. Illustrate the trade-offs—benefits and consequences with regard to modeled performance outcomes—associated with each alternative to inform policy managers and decisionmakers.
- 8. Conduct and document the comparative risk analyses—national trade-off analysis.** Coordinate efforts with other committees to report on results of the national trade-off analysis. Utilize models to project how risk varies under each alternative. The risk trade-off analysis will allow for a comparison of the performance outcomes of each alternative, based on a modeling projection. The trade-offs—benefits and consequences—of each alternative are intended to be useful for further deliberations among stakeholders, partners, agencies, and policymakers, as decision processes move forward. A report will document the processes, analyses, and results of the regional and national science-based risk analyses.

The NSAT will communicate regular progress reports to the WFEC through the CSSC.



Monitoring a prescribed burn in Wisconsin. Credit: Northeast Region

NEXT STEPS FOR COHESIVE STRATEGY

It is important to understand that the completion of each phase of the Cohesive Strategy is a separate milestone; however, the Cohesive Strategy is a national, iterative process that will continue into the future. This section includes many of the next steps planned for the Cohesive Strategy effort, each of which positions our Nation one step closer to achieving the vision of *safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a Nation, to live with wildland fire*. Much was accomplished in Phase II, all of which will be built upon as the effort moves forward.

The existing governance structure—WFLC, WFEC, CSSC, NSAT, and RSCs—will continue to focus on supporting the Cohesive Strategy. In addition to those currently involved, outreach to and engagement with additional stakeholders, managers, scientists, and analysts is a critical component of each next step. It is the responsibility of each member of each committee and team to conduct outreach and garner engagement with the many voices nationwide. Collaboration and communication among existing and new contacts will continue to be key to the success of this effort.

America's wildland fire problems are complex and difficult to solve independently. To improve our collective understanding, we will gain more knowledge and context through the risk assessment and analysis process. Risk assessment and analysis provides scalable information for reducing risk at the local, regional, and national levels. The intent of the risk assessment and analysis is not to make a final decision as to which alternative management options will be selected. Rather, the intent is to derive information useful for further deliberations among stakeholders, partners, agencies, and policymakers at multiple scales as decision processes move forward within and beyond Phase III. Refer to the *Phase II Report of the National Science and Analysis Team: Scientific Basis for Modeling Wildland Fire Management* for additional detail on the risk assessment and analysis process.

The work that began in Phases I and II will continue in Phase III. This next phase of the Cohesive Strategy involves the following:

- (1) Identify specific regional alternatives,
- (2) Continue and expand outreach within and among the regions utilizing the communications framework,
- (3) Continue to identify immediate opportunities,
- (4) Complete Regional and National Science-based Risk Analysis Reports, and
- (5) Complete regional action plans and a national action plan.

Responsibilities and Timeline

The WFEC and CSSC are responsible for providing guidance and oversight to the RSCs and NSAT throughout Phase III. The WFLC, WFEC, and CSSC will support completion of each objective, provide necessary guidance to complete analyses, and ultimately provide a report recommendation to the Secretaries of the Interior and Agriculture, as a result of Phase III, by early 2013. A Regional Action Plan for each of the three regions will be completed in 2013, as well as a National Action Plan.

COMMUNICATION AND OUTREACH

Communication throughout the Cohesive Strategy supports stakeholder efforts to rapidly disseminate information about progress, and systematically acquire and use feedback and input to improve the potential for highly effective collaboration.

The WFEC created the Cohesive Strategy Communication Work Group on September 2, 2011. The WFLC and the WFEC recognized the importance of communication during the Cohesive Strategy process and committed resources and support to ensure that all interested stakeholders are able to access timely information, engage in the process, and affect the final outcome.

Overarching communication outcomes were agreed upon: information dissemination, organizational communication and collaboration, and implementation. This is to ensure that stakeholders, interested parties, and the public are informed of progress in the development of the Cohesive Strategy; that communication processes are used to enhance and sustain collaboration among stakeholders toward development and implementation of the Cohesive Strategy; and that management and oversight options are available to move forward on the Cohesive Strategy in a collaborative manner.

At the November 2011 WFLC meeting, WFLC members concurred with the November 2011 version of the Communications Framework presented (refer to Appendix G). Recognizing the need for a Communications Steering Group, WFLC directed the WFEC to develop an implementation scenario for communication efforts. The Communications Steering Group will be defined, developed, and implemented in the first half of the 2012 calendar year. Since communications is a dynamic process, the strategy and tactics will evolve and be evaluated for their effectiveness on a routine basis.



Southwest riparian forest. Credit: Dana Coelho

CONCLUSION

The completion of Phase II is a significant milestone in the National Cohesive Wildland Fire Management Strategy effort. The synthesis of regional assessments and strategies meets the Phase II goals WFLC laid out and supplies an initial set of alternatives to add to and analyze during the national trade-off analysis in Phase III. A multitude of stakeholders within each region came together to discuss their goals for landscape management within the context of the inevitability of wildland fire. They found many commonalities among their concerns and a starting place to move forward to restore landscapes, protect communities from wildfire, and improve suppression response. The three goals of the Cohesive Strategy are not mutually exclusive, and the stakeholders realized that working toward one goal would enhance opportunities to work toward the other goals.

Phase II has resulted in the development of robust regional assessments and strategies that are supported by numerous stakeholders and, in many cases, ready for action. Focusing on engaging regional and local stakeholders in the development of objectives and actions gives the Cohesive Strategy a measure of local support not present in previous efforts to improve wildland fire management. Ownership of, and investment in, regional strategies by those who developed them is a remarkable and early sign of success. Successful implementation of the Cohesive Strategy requires a collaborative process among multiple levels of government and a range of interests, resulting in healthier landscapes, enhanced community protection, and diminished risk and consequences of severe wildland fire. This collaborative process is ongoing and will continue into Phase III and beyond.

Phase II has shown the value of a decisionmaking structure that operates from the top-down and from the bottom-up. All voices must be at the table to truly take an all-lands and landscape scale approach to land and wildland fire management. The multi-stakeholder representation on the committees, from the WFLC to the WFEC, CSSC, the RSCs, and the NSAT has resulted in shared support for the Cohesive Strategy.

This early success positions all stakeholders to move forward into Phase III and develop a full range of alternatives to be analyzed for their ability to achieve a shared vision for the future, as articulated in the FLAME Act. Phase III will incorporate scientific modeling of landscapes and wildfire behavior to ascertain the most strategic methods for reducing wildfire impacts to forests and communities.

Wildfire will always remain a natural force that brings benefits as well as unwanted destruction to landscapes, beyond the control of humans. We can do our best to safeguard those things we value—life, property, and healthy functioning ecosystems—by applying our knowledge in ways that can effectively reduce the unwanted impacts of wildfire. The community of land management professionals, the firefighting community, and residents of wildland-urban interface communities are working together to make this vision a reality. Developing the National Cohesive Wildland Fire Management Strategy is an important step in the process of learning to live with fire by focusing on collaborative efforts to minimize wildfire's unwanted impacts.

This Cohesive Strategy is not a report for the shelf; rather, it is one piece of a living, ongoing process that requires continued engagement. The Cohesive Strategy builds on existing collaborative efforts in the wildland fire management community with the expected outcome of building a holistic, national wildland fire management framework—one that links healthy and resilient landscapes to fire-adapted communities and wildfire response, rather than considering them separately. We are committed to implementing, effectively communicating, and regularly revisiting the Cohesive Strategy in the context of adaptive management; we believe all of these are critical elements for continued success.

APPENDIX A: GLOSSARY

The National Wildfire Coordinating Group (NWCG) maintains an extensive glossary of fire management terminology and acronyms (found at www.nwcg.gov/pms//pubs/glossary/index.htm). Some terms used in this document that have specific meaning in the context of wildland fire management, but are not found in the NWCG glossary are defined below.

Affected party	A person or group of people who are affected by the outcome of a decision or action.
Biomass	Any organic matter that is available on a renewable or recurring basis. Under the Farm Security and Rural Investment Act of 2002 (Title IX, Sec. 9001), biomass includes agricultural crops, trees grown for energy production, wood waste and wood residues, plants (including aquatic plants and grasses), residues, fibers, animals wastes and other waste materials, and fats, oils, and greases (including recycled fats, oils, and greases), but not recycled paper or unsegregated solid waste. (From Farm Bill Glossary on the National Agricultural Law Center Web site http://nationalaglawcenter.org/# .)
Fire-adapted community	Human communities consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire.
Fire-adapted ecosystem	An ecosystem is “ <i>an interacting, natural system, including all the component organisms, together with the abiotic environment and processes affecting them</i> ” (NWCG Glossary). A fire-adapted ecosystem is one that collectively has the ability to survive or regenerate (including natural successional processes) in an environment in which fire is a natural process.
Fire community	Collectively refers to all those who are engaged in any aspect of wildland fire-related activities.
Fire exclusion	Land management activity of keeping vegetation or ecosystems from burning in a wildland fire.
Fire management community	A subset of the fire community that has a role and responsibility for managing wildland fires and their effects on the environment [according to the Phase I report glossary].
Fire science community	Subset of the fire community consisting of those who study, analyze, communicate, or educate others on the components of fire management that can be measured, such as fire behavior, fire effects, fire economics, and other related fire science disciplines.

Fragmentation	Physical process whereby large, uniform areas are progressively divided into smaller fragments that are physically or ecologically dissimilar. Fragmentation can occur through natural disturbances such as wildfire, or more commonly, through land use conversion by humans (e.g., urbanization).
Landscape resilience	The ability of a landscape to absorb the effects of fire by regaining or maintaining its characteristic structural, compositional and functional attributes. The amount of resilience a landscape possesses is proportional to the magnitude of fire effects required to fundamentally change the system.
Parcellation	Process of subdividing a large, intact area under single ownership into smaller parcels with multiple owners. The term can also apply to an administrative process of dividing a landscape into multiple management units with different management objectives. Parcellation is often a precursor of fragmentation because of differences in management priorities among property owners.
Silviculture	<i>“The art and science of controlling the establishment, growth, composition, health, and quality of forests and woodlands to meet the diverse needs and values of landowners and society on a sustainable basis”</i> - definition from John A. Helms, ed., 1998. <i>The Dictionary of Forestry</i> . The Society of American Foresters, Bethesda, Maryland.
Stakeholder	A person or group of people who has an interest and involvement in the process and outcome of a land management, fire management, or policy decision.
Viewshed	An area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point.

APPENDIX B: ACRONYMS

AD	Administratively Determined
BAER	Burned Area Emergency Rehabilitation
BAR	Burned Area Rehabilitation
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CAR	Community at Risk
CE	Categorical Exclusion
CEQ	Council of Environmental Quality
CRAFT	Comparative Risk Assessment Framework and Tools
CS	Cohesive Strategy
CSKT	Consolidated Salish and Kootenai Tribes
CSOC	Cohesive Strategy Oversight Committee
CSSC	Cohesive Strategy Subcommittee
CWPP	Community Wildfire Protection Plan
CWSF	Council of Western State Foresters
DHS	Department of Homeland Security
DOD	Department of Defense
DOI	Department of the Interior
EACG	Eastern Area Coordinating Group
EAJA	Equal Access to Justice Act
EMAC	Emergency Management Assistance Compact
EMDS	Ecosystem Management Decision Support system
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FACA	Federal Advisory Committee Act
FEMA	Federal Emergency Management Agency
FEPP	Federal Excess Property Program
FFT2	Firefighter 2
FLAME Act	Federal Land Assistance, Management, and Enhancement Act
FLN	Fire Learning Network
4FRI	Four Forest Restoration Initiative (in Arizona)
FPA	Fire Program Analysis
FPU	Fire Planning Unit
FWS	U.S. Fish and Wildlife Service
GACC	Geographic Area Coordinating Center

GAO	General Accounting Office
GOAL	Greater Okefenokee Association of Landowners
HB	House Bill
HFI	Healthy Forests Initiative
HFRA	Healthy Forest Restoration Act
HVR	Highly Valued Resource
IAFC	International Association of Fire Chiefs
ICS	Incident Command System
ID	Idaho
IMT	Incident Management Team
IQCS	Incident Qualification and Certification System
ITC	Intertribal Timber Council
JFSP	Joint Fire Science Project
LMPs	Land Management Plans
LRMPs	Land and Resource Management Plans
MAC	Multi-Agency Coordination
METI	Management and Engineering Technologies International, Inc
MNICS	Minnesota Incident Command System
MOU	Memorandum of Understanding
MT	Montana
NACo	National Association of Counties
NASA	National Aeronautics and Space Administration
NASF	National Association of State Foresters
NEMAC	National Environmental Modeling and Analysis Center (UNC Asheville)
NEPA	National Environmental Protection Act
NFPA	National Fire Protection Association
NGA	National Governors' Association
NGO	Non-Governmental Organization (e.g., nonprofit)
NICC	National Interagency Coordination Center
NIFC	National Interagency Fire Center
NLC	National League of Cities
NMAC	National Multi-Agency Coordinating Group
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NSAT	National Science and Analysis Team
NWCG	National Wildfire Coordinating Group
OMB	Office of Management and Budget
OR	Oregon

OWFC	Office of Wildland Fire Coordination
PDSI	Palmer Drought Severity Index
PPE	Personal Protective Equipment
QFR	Quadrennial Fire Review
RFA	Rural Fire Assistance
RFD	Rural Fire Department
ROSS	Resource Ordering and Status System
RPL	Recognition of Prior Learning
RSC	Regional Strategy Committee
SAF	Society of American Foresters
SERPPAS	Southern Regional Partnership for Planning and Sustainability
SFA	State Fire Assistance
SGA	Southern Governors' Association
SGSF	Southern Group of State Foresters
SWRA	Southern Wildfire Risk Assessment
TFS	Texas Forest Service
TIFMAS	Texas Intrastate Fire Mutual Aid System
TNC	The Nature Conservancy
USDA	U.S. Department of Agriculture
USFA	U.S. Fire Administration
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFA	Volunteer Fire Assistance
VFD	Volunteer Fire Department
WFDSS	Wildfire Decision Support System
WFEC	Wildland Fire Executive Council
WFLC	Wildland Fire Leadership Council
WG	Working Group
WGA	Western Governors' Association
WRSC	Western Regional Strategy Committee
WUI	Wildland-Urban Interface

APPENDIX C: REFERENCES

National Cohesive Wildland Fire Management Strategy Foundational Documents

2009 Quadrennial Fire Review (QFR), http://www.iafc.org/files/wild_QFR2009Report.pdf

National Policy Framework Documents including:

- *A Call to Action*, 2009, http://forestsandrangelands.gov/strategy/documents/call_to_action_01232009.pdf
- Artley, Donald, *Wildland Fire Protection and Response in the United States The Responsibilities, Authorities, and Roles of Federal, State, Local, and Tribal Government*. International Association of Fire Chiefs, 2009 (Missions Report). <http://forestsandrangelands.gov/strategy/documents/wildlandfireprotectionandresponseusaug09.pdf>
- *Mutual Expectations for Preparedness and Suppression in the Interface*, http://forestsandrangelands.gov/strategy/documents/mutual_expectations_2010.pdf
- *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Strategy Implementation Plan*. Western Governors Association, 2006, http://forestsandrangelands.gov/resources/plan/documents/10-yearstrategyfinal_dec2006.pdf

References and Documents

A National Cohesive Wildland Fire Management Strategy, 2010. http://forestsandrangelands.gov/strategy/documents/reports/1_CohesiveStrategy03172011.pdf

Federal Land Assistance, Management and Enhancement Act of 2009 Report to Congress, 2010. http://forestsandrangelands.gov/strategy/documents/reports/2_ReportToCongress03172011.pdf

Jakes, P. et al. Improving Wildfire Preparedness: Lessons from Communities Across the U.S., *Human Ecology Review*, Vol 14, No 2, 2007, Society of Human Ecology. <http://www.sfrc.ufl.edu/faculty/monroe/jakesetal.pdf>

Northeastern Regional Strategy Committee. 2011. *A National Cohesive Wildland Fire Strategy: Northeastern Regional Assessment*. September 30, 2011. 56 p

O’Laughlin, Jay. 2011. “Federal Land as a Percentage of Total State Land Area,” Fact Sheet #8, Policy Analysis Group, College of Natural Resources, University of Idaho, Moscow. Available online at <http://www.cnrhome.uidaho.edu/default.aspx?pid=120573>

Southeastern Regional Strategy Committee. 2011. *A National Cohesive Wildland Fire Strategy: Southeastern Regional Assessment*. September 30, 2011. 79 p.

Western Regional Strategy Committee. 2011. *A National Cohesive Wildland Fire Strategy: Western Regional Assessment*. September 30, 2011. 61 p.

References from A National Cohesive Wildland Fire Strategy: Northeastern Regional Assessment. September 30, 2011.

- Cardille, Jeffrey A., S. J. Ventura, and M. G. Turner. 2001. Environmental and Social Factors Influencing Wildfires in the Upper Midwest, United States. *Ecological Applications* 11:111–127.
- McCaffrey, Sarah. Personal communication.
- Mangan, Richard. 2007. Wildland firefighter fatalities in the United States: 1990–2006. Boise, ID: National Wildfire Coordinating Group, Safety and Health Working Team, National Interagency Fire Center 841: 28.
- Noss, Reed F., E. T LaRoe III, and J. M. Scott, 1995. Endangered Ecosystems of the United States: A Preliminary Assessment of Loss and Degradation. U.S Dept. of the Interior, National Biological Service, Washington D.C. <http://biology.usgs.gov/pubs/ecosys.htm>
- Nowacki, Gregory J., and M. D. Abrams. 2008. The demise of fire and “mesophication” of forests in the eastern United States. *BioScience* 58:123–138.
- Nowak, D., and J. Walton. 2005. Projected urban growth (2000–2050) and its estimated impact on the U.S. forest resource. *Journal of Forestry* 103(8): 383–389.
- Nowak, D., J. Walton, J. Dwyer, L. Kaya, and S. Myeong. 2005. The increasing influence of urban environments on U.S. forest management. *Journal of Forestry* 103(8): 377–382.
- Radeloff, V. C., R. B. Hammer, S. I. Stewart, J. S. Fried, S. S. Holcomb, and J. F. McKeefry. 2005. The Wildland-Urban Interface in the United States. *Ecological Applications* 15:799–805.
- Smith, B., P. Miles, C. Perry, and S. Pugh. 2009. Forest resources of the United States, 2007. Gen. Tech. Rep. Washington, D.C: U.S. Department of Agriculture, Forest Service, Washington Office: 336.
- Stein, S., R. McRoberts, R. Alig, M. Nelson, D. Theobald, M. Eley, M. Dechter, and M. Carr. 2005. Forests on the edge: housing development on America’s private forests. Gen. Tech. Rep. PNW-GTR-636. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 16.
- Swanston, C., M. Janowiak, L. Iverson, L. Parker, D. Mladenoff, L. Brandt, P. Butler, M. St. Pierre, A. Prasad, S. Matthews, M. Peters, D. Higgins, and A. Dorland. 2011. Ecosystem vulnerability assessment and synthesis: a report from the Climate Change Response Framework Project in Northern Wisconsin. Gen. Tech. Rep. NRS-82. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station: 142.
- USDA Forest Service, Fire and Aviation Management. 2006. Annual Wildland Fire Summary Report. [Online database]. <http://famweb.nwcg.gov>. [Date accessed unknown].
- USDA Forest Service, Northeastern Area. 2007. Northeastern Area State and Private Forestry Strategic Plan Update for Fiscal Years 2008–2012. Newtown Square, PA. http://na.fs.fed.us/pubs/strat_plan/na_strategic_plan_2008-2012_lr.pdf
- USDA Forest Service, Northeastern Area State and Private Forestry, Cooperative Fire Management. 2007. Combined Summaries of Community Wildfire Protection Data, March. Newtown Square, PA.

References from A National Cohesive Wildland Fire Strategy: Southeastern Regional Assessment. September 30, 2011.

A Cohesive Strategy the Forest Service Management Response to the General Accounting Office Report, GAO/RCED-99-65, April 13, 2000.

Andreu, A., and L. A. Hermansen-Baez. 2008. Southern Group of State Foresters. Fire in the South 2. The Southern Wildfire Risk Assessment.

Briefing paper: Identifying Communities at Risk and Prioritizing Risk-Reduction Projects. July 2010. <http://www.stateforesters.org/files/201007-NASF-CAR-Briefing-Paper.pdf>

Briefing paper: State Forestry Agency Perspectives Regarding 2009 Federal Wildfire Policy Implementation, July 2010. <http://www.stateforesters.org/files/201007-NASF-FedFirePolicy-BriefingPaper.pdf>

Brown, D.G., K. M. Johnson, T. R. Loveland, and D. M. Theobald. 2005. Rural Land-Use Trends in the Conterminous United States, 1950–2000. *Ecological Applications* 15(6) 2005:1851–1863.

Buckley, D., D. Carlton, D. Krieter, and K. Sabourin. 2006. Southern Wildfire Risk Assessment Final Report. <http://www.southernwildfirerisk.com/reports/projectreports.html>

Butler, B. J., and D. N. Wear. 2011. Chapter 5. Forest Ownership Dynamics of Southern Forests. In: *Forest Futures Technical Report*. Wear, D. N., and J. G. Greis (eds.). <http://www.srs.fs.fed.usda.gov/futures/>

Hermansen-Baez, L. A., J. P. Prestemon, D. T. Butry, K. L. Abt, R. Sutphen. *The Economic Benefits of Wildfire Prevention Education*. 2011. http://www.interfaceSoutheast.org/products/fact_sheets_the-economic-benefits-of-wildfire-prevention-education/ or www.srs.fs.usda.gov/pubs/ja/ja_hermansenoo2.pdf

Lippincott, C. L. 2000. Effects of *Imperata cylindrica* (L.) Beauv. Cogon grass invasion on fire regime in Florida sandhill (USA). *Natural Areas Journal* 20:140–149.

Managing the Impacts of Wildfire on Communities and the Environment – A Report to the President in Response to the Wildfires of 2000. Fire and Aviation Management, USDA Forest Service.

Miller, J. H. D. and J. Coulson Lemke. Chapter 15. The Invasion of Southern Forests by Nonnative Plants: Current and Future Occupation with Impacts, Management Strategies, and Mitigation Approaches. In: *Forest Futures Technical Report*. Wear, D. N., and J. G. Greis. <http://www.srs.fs.fed.usda.gov/futures/>

Mutual Expectations for Preparedness and Suppression in the Interface, http://www.forestsandrangelands.gov/strategy/documents/mutual_expectations_2010.pdf

Nowacki, G.J., and M. D. Abrams. 2008. The demise of fire and “mesophication” of the eastern United States. *BioScience*, 58: 123–128.

Poulter, B., R. L. Feldman, M. M. Brinson, B. P. Horton, M. K. Orbach, S. H. Pearsall, E. Reyes, S. R. Riggs, and J. C. Whitehead. 2009. Sea-level rise research and dialogue in North Carolina: Creating windows for policy change. *Ocean and Coastal Management*. 52(3-4):147–153.

Prestemon, J. P., D. T. Butry, K. L. Abt, and R. Sutphen. 2010. Net benefits of wildfire prevention education efforts. *Forest Science* 56 (2): 181–192.

Smeins, F. E. and L. B. Merrill. 1988. Long-term Change in a Semi-arid Grassland. In: *Edwards Plateau Vegetation – Plant Ecological Studies in Central Texas*. Edited by Amos B.B. and F.R. Gehlbach. Baylor Univ. Press, Waco, Texas. 144 p.

Southern Group of State Foresters 2007. Issue Paper Wildland Fire and Forest Fuels on Private and State Lands. http://www.forestry.ok.gov/websites/forestry/images/3.5_3000_CF_Wildland%20Fire%20And%20Fuels%20Priority%20Issue%20Paper.pdf

Stanturf, J. A., and S. L. Goodrick. 2011. Chapter 17: Fire. In: *Forest Futures Technical Report*. Wear, D. N., and J. G. Greis. <http://www.srs.fs.fed.usda.gov/futures/>

Stephens, S.L. 2005. Forest fire causes and extent on United States Forest Service lands. *International Journal of Wildland Fire*. 2005. 14, 213–222.

U.S. Forest Service. United States Global Change Research Program. 2011. Southeast Region. In. *USGCRP Global Climate Change Impacts in the U.S.* Accessed July 30, 2011. <http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/full-report/regional-climate-change-impacts/southeast>

Wear, D. N., and J. G. Greis. 2011. *The Southern Forest Futures Project Summary Report (Draft)*. U.S. Forest Service.

Western National Forests: A Cohesive Strategy is needed to address Catastrophic Wildland Fire Threats. 1999. U.S. General Accounting Office.

Wildland Fire Management: Important Progress Has Been Made, but Challenges Remain to Completing a Cohesive Strategy. U.S. Government Accountability Office, January 2005.

Wildland Fire Management: Federal Agencies Have Taken Important Steps Forward, but Additional Strategic Action is Needed to Capitalize on those Steps. U.S. Government Accountability Office, September 2009.

Wildland Fire Management: Update on Federal Agency Efforts to Develop a Cohesive Strategy to Address Threats. U.S. Government Accountability Office, May 2006.

References from A National Cohesive Wildland Fire Strategy: Western Regional Assessment. September 30, 2011.

Public Land Ownership by States. <http://www.nrcm.org/documents/publiclandownership.pdf>

National Fire Protection Association (NFPA) Third Needs Assessment of the U.S. Fire Service; Conducted in 2010 and Including Comparisons to the 2001 and 2005 Needs Assessment Surveys.

APPENDIX D: MEMBERSHIP LISTS

Northeast Region

Northeast Regional Strategy Committee

Name	Agency / Organization
George Baker (Co-Chair)	IAFC
Doreen Blaker	Keweenaw Bay Indian Community
Steve Jakala, retired	FWS
Tim Hepola	FWS
Jim Johnson	County Commissioner, Minnesota - NACo
Jim Loach	NPS
Logan Lee	USFS Northern Region
Tom Remus	BIA
Matt Rollins (Co-Chair)	USGS
Tom Schuler	USFS, Northern Research Station
Brad Simpkins	New Hampshire State Forester - NASF
Dan Yaussy	USFS, Northern Research Station
Billy Terry	USFS (Alternate)
Paul Charland	FWS (Alternate)
Dan Dearborn	FWS (Alternate)

Northeast RSC Working Group

Name	Agency / Organization
Maureen Brooks, Working Group Lead	USFS
Terry Gallagher, Working Group Lead	USFS
Steve Olsen	Fond du Lac Band of Lake Superior Chippewa
Jack McGowan-Stinski	TNC
Scott Bearer	TNC
Drew Daily	Big Rivers Compact
Ron Stoffel	Great Lakes Compact
Randy White	Mid-Atlantic Compact
Tom Parent	Northeast Compact
Marty Cassellius	BIA
Dave Pergolski	BIA
Jeremy Bennett	BIA
Jeffrey (Zeke) Seabright	NPS
Cody Wienk	NPS
Allen Carter	FWS

Northeast RSC Support Staff

Name	Agency / Organization
Jenna Sloan, Coordination Lead/CSSC Liaison	DOI
Gus Smith, Coordination Lead/CSSC Liaison	DOI
Tom Harbour (WFEC Liaison)	USFS
Danny Lee (NSAT Liaison)	USFS, National Science Team
Maureen Brooks	USFS
Terry Gallagher	USFS
Christie Wiley	DOI

Southeast Region

Southeast Regional Strategy Committee

Name	Agency / Organization
Mike Zupko (Chair)	SGA / SGSF
Kevin Fitzgerald (Vice Chair)	NPS
Liz Agpaoa	USFS Southern Region
Tom Boggus	Texas State Forester - NASF
Ed Brunson	BIA
Rob Doudrick	USFS Southern Research Station
Bob Eaton	FWS
Jim Ham	County Commissioner, Georgia
Tom Lowry	Choctaw Nation
Alexa McKerrow	USGS
Bruce Woods	Texas Forest Service / IAFC
Kier Klepzig	SRS
Dan Olsen	USFS (Alternate)
Liz Struhar	NPS (Alternate)
Larry Mahler	BIA (Alternate)

Southeast RSC Working Group

Name	Agency / Organization
David Frederick (Chair)	SGSF
Darryl Jones (Vice Chair)	South Carolina Forestry Commission
Tom Spencer (Vice Chair)	Texas Forest Service
Forrest Blackbear	BIA
Vince Carver	FWS
Margit Bucher	The Nature Conservancy
Alexa McKerrow	USGS
Shardul Raval	USFS Southern Region
Rachel Smith	USFS Southern Region
Liz Struhar	NPS

Southeast RSC Support Staff

Name	Agency / Organization
Sandy Cantler (Coordination Lead/CSSC Liaison)	USFS
Jim Karels (WFEC Liaison)	Florida Forest Service
Danny Lee (NSAT Liaison)	USFS / NSAT
Carol Deering	USGS
Jim Fox	UNC Asheville
Jeff Hicks	UNC Asheville
Matthew Hutchins	UNC Asheville
Karin Lichtenstein – Project Manager/Research Scientist, NEMAC	UNC Asheville
Tom Quigley	NSAT

West Region

West Regional Strategy Committee

Name	Agency / Organization
Aden Seidlitz	BLM
Ann Walker	WGA
Bob Harrington	Montana State Forester - NASF
Corbin Newman (Co-Chair)	USFS Southwest Region
Joe Stutler (Co-Chair; WWG Liaison)	Deschutes County, Oregon - IAFC
John Philbin	BIA
Karen Taylor-Goodrich	NPS
Pam Ensley	FWS
Robert Cope	Lemhi County, Idaho - NACo
Sam Foster	USFS Rocky Mountain Research Station
Tony Harwood	Confederated Salish and Kootenai Tribes
Warren Day	USGS

West RSC Working Group

Name	Agency / Organization
Bill Avey	USFS
Bill Tripp	Karuk Tribe
Carol Daly	Flathead Economic Policy - WGA
Craig Glazier	Idaho Department of Lands
David Seesholtz	USFS
Eric Knapp	USFS
Gene Lonning	BIA
Jesse Duhnkrack	NPS
Joe Freeland (Team Lead)	BLM
Kevin Ryan	USFS Rocky Mountain Experimental Station
Laura McCarthy	TNC
Sue Stewart	USFS
Travis Medema	Oregon Department of Forestry

West RSC Support Staff

Name	Agency / Organization
Alan Quan (Coordination Lead/CSSC Liaison)	USFS
Dana Coelho (Writer/Editor)	Western Forestry Leadership Coalition / USFS
Douglas MacDonald (WFEC Liaison)	IAFC

Cohesive Strategy Subcommittee

Name	Agency / Organization
Vicki Christiansen/Lew Southard	USFS
Jenna Sloan/Gus Smith	DOI
Dan Smith	NASF
Caitlyn Pollihan	NASF / CWSF
Bob Roper/Douglas MacDonald	IAFC
Ann Walker	WGA
Ryan Yates	NACo
Patti Blankenship	DHS / USFA
Jim Erickson	ITC
Kirk Rowdabaugh (WFEC Liaison)	DOI

Cohesive Strategy Subcommittee Support Staff

Name	Agency / Organization
Alan Quan	USFS
Sandra Cantler	USFS
Dana Coelho (Writer/Editor)	Western Forestry Leadership Coalition / USFS
Pat Goude (Writer/Editor)	USFS
Cheryl Renner (Writer/Editor)	Contractor

National Science and Analysis Team

Name	Agency / Organization
Danny Lee (Co-Lead)	USFS
Tom Quigley (Co-Lead)	Contractor, METI
John Freemuth Topical Subteam Lead - Policy Effectiveness	Boise State University
Scott Goodrick Topical Subteam Lead - Smoke Management	USFS
Andy Kirsch Topical Subteam Lead - Landscape Resiliency	NPS
Jason Kreitler Topical Subteam Lead - Fire-Adapted Human Communities	USGS
Darek Nalle Topical Subteam Lead - Wildfire Response	USFS
Steve Norman Topical Subteam Lead - Firefighter Safety	USFS
Jeff Prestemon Topical Subteam Lead - Ignitions and Prevention	USFS
Matthew Thompson Topical Subteam Lead - Fuels Management	USFS

Numerous other individuals contributed to one or more of the sub-teams within the Phase II effort. Refer to Appendix A of the NSAT Report for a full listing of contributors.

Cohesive Strategy Communication Work Group

Name	Agency / Organization
Mary Jacobs (WFEC Liaison)	NLC Assistant City Manager, Sierra Vista, AZ
Roberta D'Amico (Lead Coordinator)	DOI / NPS
Judith Downing	USFS
Sarah McCreary	NASF
Shawn Stokes	IAFC

Wildland Fire Executive Council

Name	Agency / Organization
Bill Kaage	NWCG
Douglas MacDonald	IAFC
Elizabeth Strobridge	NGA
Glenn Gaines	DHS / USFA
Jim Erickson	ITC
Jim Karels	NASF
Kirk Rowdabaugh	DOI
Mary Jacobs	NLC
Ryan Yates	NACo
Tom Harbour	USFS
Support Staff	
Roy Johnson, DFO	OWFC
Shari Shetler, Exec. Sec.	OWFC

Wildland Fire Leadership Council

Name	Agency / Organization
Rhea Suh, Assistant Secretary for Policy, Management and Budget, WFLC Chair	DOI
Butch Blazer, USDA Deputy Undersecretary for Natural Resources and the Environment	USDA
Tom Tidwell, Chief	USFS
Jonathan Jarvis, Director	NPS
Rowan Gould, Acting Director	USFWS
Bob Abbey, Director	BLM
Mike Black, Director	BIA
Marcia McNutt, Director	USGS
Glenn Gaines Deputy United States Fire Administrator	DHS / USFA
John Kitzhaber, Governor, State of Oregon	Governor, Western States Representative
Bev Perdue, Governor, State of North Carolina	Governor, National Governors' Association
Dan Shoun, County Commissioner, Lake County, State of Oregon	NACo
Joe Durglo, President, Confederated Salish and Kootenai Tribes	President, ITC
Mary Hamann-Roland, Mayor, City of Apple Valley	NLC
Jeff Jahnke, State Forester, State of Colorado	NASF
Robert Roper, Chief, Ventura County (California) Fire Department	IAFC

APPENDIX E: QUESTIONS FROM THE COMPARATIVE RISK ASSESSMENT FRAMEWORK AND TOOLS (CRAFT)

OBJECTIVES

Situation and Context

1. What is the National Wildland Fire Management Cohesive Strategy (Cohesive Strategy)?
2. What are the primary overarching goals of the Cohesive Strategy?
3. What is the specific role of regional efforts in the Cohesive Strategy?
4. What do you hope to accomplish with this specific workshop?

Guidelines

5. What general policies, regulations or laws govern wildland fire management in your area, agency or organization?
6. Which of these, if any, have created conflicts among agencies and across lands? Which of these have helped create effective collaboration across different agencies? Explain briefly.

Values

7. What broad societal and environmental values have been associated with fire in this region?
8. Briefly characterize how each broad value relates to or is affected by fire.
9. What are the dominant common values or perspectives among agencies? What are the dominant conflicts among values or perspectives?
10. Which of these conflicts are exceptionally difficult to address and why?

Uncertainties

11. What challenges in wildland fire management are created or compounded by lack of knowledge or understanding?
12. What societal or environmental changes or trends could affect wildland fire?
13. Briefly describe the uncertainties associated with these changes or trends that make them difficult to predict.

Goals and Objectives

14. What broad management goals or priorities exist for this area that relate to wildland fire?
15. Are there more specific goals which are not explicit to wildland fire but may be related (i.e., an historic site with preservation goals for a particular landscape, or a natural area managed for ecosystem process)?
16. How do your goals as stated above relate to the national goals of the Cohesive Strategy? Are there additional goals that contribute to the broader national goals?
 1. Restoring and maintaining resilient landscapes
 - 1.1
 - 1.2
 2. Creating fire-adapted communities
 - 2.1
 - 2.2
 3. Wildfire Response
17. Which of the above are the highest priorities for completing this assessment and analysis?
18. For each priority goal, identify contributing objectives, and a range of actions and activities that could meet each objective.
19. Now finalize into an objectives hierarchy.

Measures for Success (Endpoints)

20. How do you or can you quantify management success in meeting the goals and objectives? Identify endpoints or performance measures that could be used to illustrate outcomes. For each endpoint, identify the spatial and temporal resolution and units of measure (e.g., dollars, acres, etc).
21. What is the level of acceptability of these endpoints given the range of perspectives and values?

ALTERNATIVES

Actions

22. List the possible broad actions and activities from the objectives section (#).

Alternatives

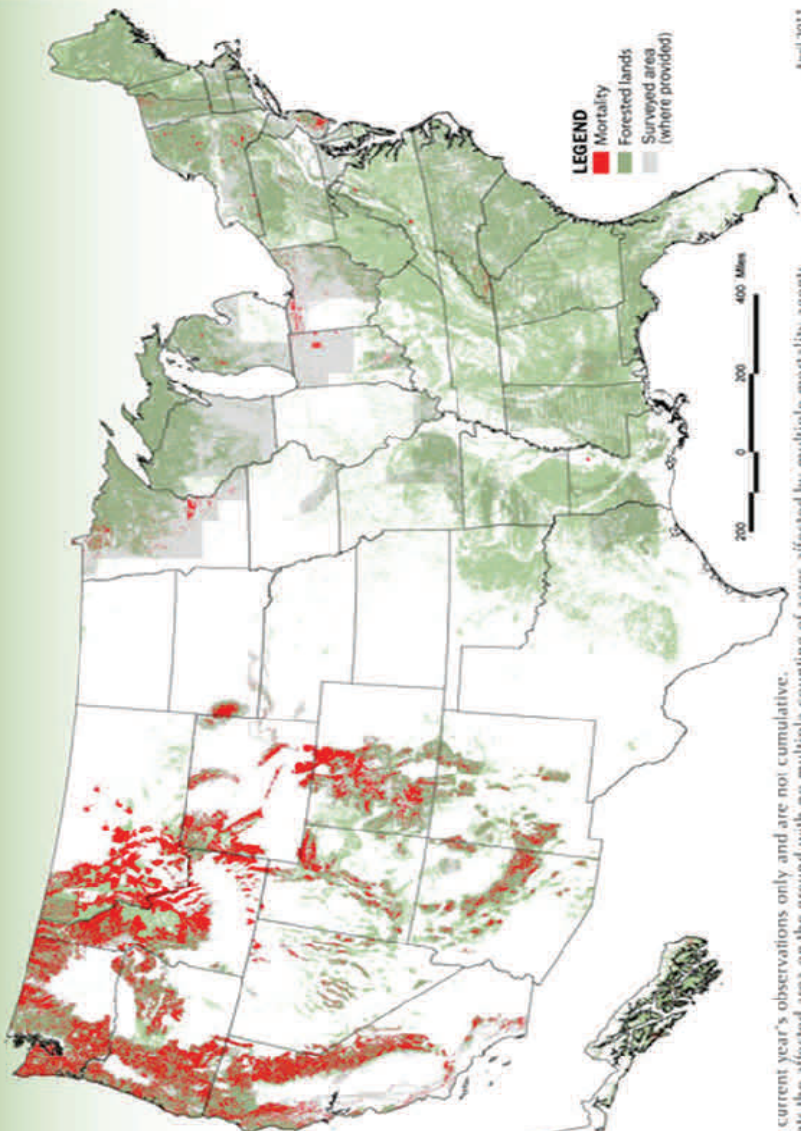
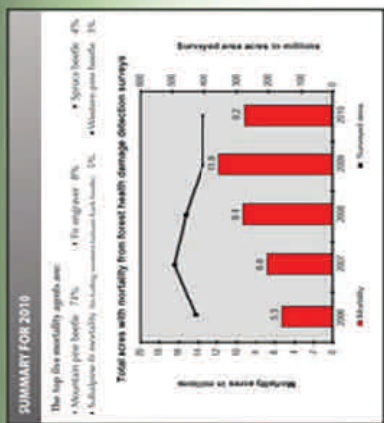
23. Identify the combination of actions and activities that best reflects the continuation of current policies and practices.
24. Identify other reasonable combinations of actions and activities (alternatives) that collectively could contribute to long and short-term goals. Consider how actions might affect each other with possible cumulative or interactive effects.
25. Are there technical or financial constraints that limit the range of actions and activities that might be pursued? Consider how overcoming these barriers might create opportunities for greater success.
26. Consider how issues vary across the region and where some actions might be more successful than elsewhere. If necessary, refine the alternatives to recognize and incorporate spatial variability.

FOREST HEALTH PROTECTION



2010 Acres with Tree Mortality

Approximate Footprint Acres with Mortality: 9.2 million*

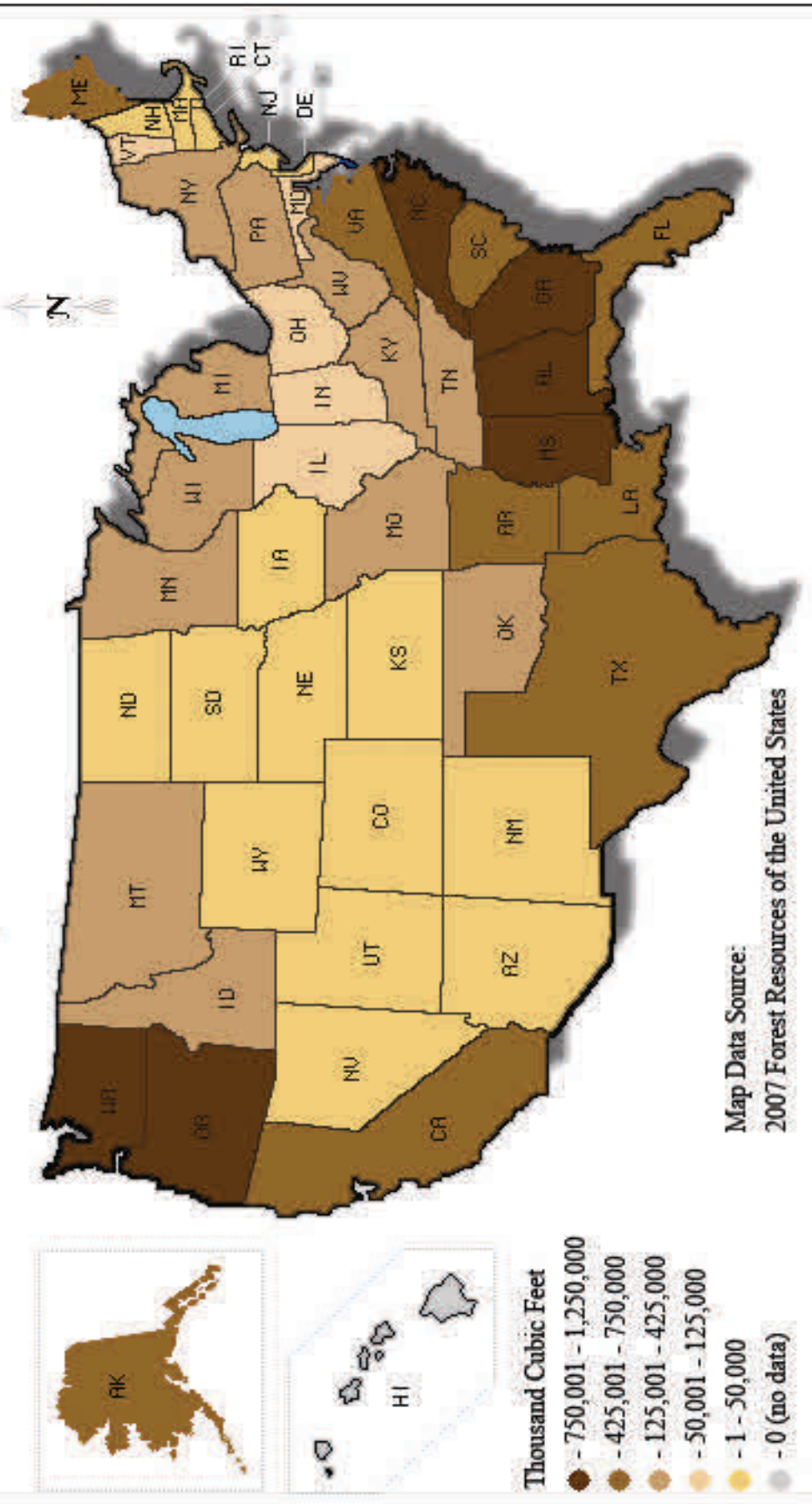


*Acres are summarized from current year's observations only and are not cumulative. The "footprint" total represents the affected area on the ground with no multiple counting of acres affected by multiple mortality agents.

April 2011

Tree mortality in the United States in 2010

TOTAL U.S. ROUNDWOOD HARVEST VOLUME



Source: Smith, W. Brad, tech. coord.; Miles, Patrick D., data coord.; Perry, Charles H., map coord.; Pugh, Scott A., Data CD coord. 2009. Forest Resources of the United States, 2007. Gen. Tech. Rep. WO-78. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office.

United States total roundwood harvest volume, 2007.

APPENDIX G: COMMUNICATIONS FRAMEWORK

At the November 2011 Wildland Fire Leadership Council (WFLC) meeting, WFLC members concurred with the November version of the Communications Framework presented. Recognizing the need for a Communications Steering Group, WFLC directed the Wildland Fire Executive Council to develop an implementation scenario for the communication efforts. The Communications Steering Group will be defined, developed, and implemented in the first half of the 2012 calendar year. Since communications is a dynamic process, the strategy and tactics will evolve and be evaluated for their effectiveness on a routine basis.