

A National Cohesive Wildland Fire Strategy:

***Southeastern Regional
Assessment***

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Executive Summary

Wildfire presents a significant and growing threat to people and landscapes throughout the United States. The challenge posed by wildfire is particularly acute in the Southeast. More than five million acres of land in the Southeast are at very high risk of wildfire and approximately 58,000 communities in the Wildland Urban Interface (WUI) face the threat of wildfire damage (NASF Communities at Risk Report, 2010). Each year an **average** of 41,000 unplanned ignitions burn a total of 1.7 million acres in the Southeast (National Interagency Coordination Center). Forty-two percent of the significant wildfires as well as 52 percent of national ignitions in 2010 were located in the Southeast. Ninety-five percent of the wildfires in the Southeast potentially involve the WUI (ForestEncyclopedia.net). Population growth has recently outpaced other parts of the nation, leading to the development of dense human communities in extensive fire adapted landscapes that require frequent burning for hazardous fuel reduction and ecosystem maintenance. Fortunately, cultural and historical acceptance of prescribed fire has long facilitated implementation of appropriate management activities such as prescribed burning. The changing population and land fragmentation, however, is testing the ability of agencies, organizations, and landowners to deal appropriately and effectively with wildfire, while also safeguarding communities and protecting firefighters. Major factors influencing wildland fire management in the Southeast include:

- Year-round fire season: wildland fires burn 12 months a year in the Southeast, which stresses firefighting capacity and resources.
- Significant wildfire activity: between 2001 and 2010 nearly half of national ignitions and over 40 percent of the nation's large wildfires occurred in the Southeast, which requires significant resources and tremendous firefighting capacity (NICC).
- Large and rapidly expanding WUI. Driven by swiftly expanding population, as of 2000 more than half of WUI acres nationally were located within the Southeast (University of Wisconsin – Madison, Silvics Lab 2000), which makes fire response extremely complex.
- Smoke management poses a significant challenge for the wildland fire management community. Smoke can impact safety, health, and quality of life, which challenges the fire management community to safely implement management and response activities.
- There are over 420 million terrestrial acres protected from wildfire by federal and state agencies with just under half (200 million acres) being forested lands.

- Privately owned working forests: approximately 90 percent of forestland in the Southeast is owned by over 5 million private landowners and is becoming increasingly fragmented. This fragmentation significantly complicates wildland fire management due to inherent challenges working with numerous private landowners. Additionally, private landowners own land for a diversity of reasons, some of which may conflict with managing for wildfire protection or inhibit response.
- A significant amount of prescribed burning is done in the Southeast; fuel regrowth is rapid and the fire return interval short, which requires frequent retreatment of fuels. The culture of prescribed burning in the Southeast means that there are many prescribed burning practitioners around the region. Issues related to smoke and liability are significant obstacles to increasing prescribed burning.
- Working forests: traditional and new economically viable forest markets are important because the people who own and work in these forests are a significant resource for local knowledge and wildfire understanding. Viable markets also allow for the economical removal of vegetation that is often a financial benefit to the landowner and not a cost. Thus, working forests are an additional value that must be protected.
- Invasive species, some of which spread rapidly after wildfires, contributing to fuel loading and otherwise influence forest health.
- An extensive history of excellent cooperation and working relationships exists between wildland fire management organizations, which have been reinforced by the number of All Hazard Events that occur in the Southeast. These events require extensive interagency collaboration that results in safer, more effective response and more solid planning for future occurrences.

Though by no means the only factors related to wildland fire activity in the Southeast, these represent the ten most critical controlling factors driving wildland fire management and wildfire response in the region. With the majority of land in private ownership, wildland fire management is significantly more complicated than in other areas of the country. State forestry organizations guide wildfire response on private lands in the Southeast, often relying on a network of thousands of rural fire departments (RFD) for response and initial attack (IA). Though nearly half of the nation's wildfires occur in the Southeast, the vast majority of the ignitions are quickly extinguished

in spite of often-limited resources due to a focus on rapid response and aggressive IA. Because of this, a persistent focus on capacity building through training and equipment is necessary to maintain the region's effectiveness in wildfire response and wildland fire management. Additionally, as one of the fastest growing areas of the country, it is vital to continue and increase focus on education and outreach aimed at imbuing WUI residents with a sense of responsibility for working proactively to make their homes and communities more fire adapted.

The National Wildland Fire Management Cohesive Strategy (Cohesive Strategy) is a multilateral effort by federal, state, local, and tribal governments, NGOs and other partners, working to address wildfire challenges across all lands and jurisdictions in a collaborative manner. Developed in response to the 2009 Federal Land Assistance, Management and Enhancement (FLAME) Act, the Cohesive Strategy represents the first time all stakeholders involved in wildfire management have come together to create a truly shared national strategy. It also marks the first time individual parts of the country have had an opportunity to identify regional goals, objectives, and challenges to be incorporated into national strategy. The Southeast developed a Regional Strategy and Assessment representing the region's unique values, opportunities, and challenges. Working with partners and cooperators, and including input from wildland fire organizations, land managers, and policy-making officials representing all levels of governmental and non-governmental organizations, the Southern Regional Strategy Committee selected the three national goals as the regional goals. These goals recognize the most significant fire-related challenges and opportunities for positive change:

- Restore and Maintain Landscapes – Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives
- Fire Adapted Human Communities – Human populations and infrastructure can withstand wildfire without loss of life or property
- Response to Fire – All jurisdictions participate in developing and implementing safe, effective, and efficient risk-based wildfire management decisions

The Regional Strategy Committee agreed on several broad strategies for success in achieving the national goals considering a range of potential management scenarios. Many of the action items

identified under these scenarios can and should be explored and implemented by managers without the need for new or revised policies. It is recognized that in some instances, existing policies may require revision to eliminate barriers or new policies may be needed to facilitate greater collaboration and success. The following strategic opportunities identify areas where increased activity can contribute to critical needs to help lessen fire threat and impact:

- 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 wildfire and prescribed fire, and encourage WUI 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 where smoke can be effectively managed to allow for maintenance of ecosystem function and to reduce fire hazard.

Further expansion of these strategic opportunities does not come without inherent challenges unique to each one. For example, private land is often changing hands across the South thus outreach, education and prevention must be continuous, often for different owners of the same tract of land. Although collaboration is a strength in the South, we must continually strive to further our joint work to be as safe and effective as possible across multiple ownerships. Issues with smoke and the capacity to use prescribed fire in addition to the unknown future of our currently stable forest product markets, the ability to enjoy relatively straightforward fuels management in the future is uncertain. We look to further explore these challenges and potential trade-offs in our management scenarios.

Proactive wildland fire management is vital to protecting lives and other values at risk in the Southeast, ensuring effective wildfire response, and restoring and maintaining some of the most intact and extensive fire adapted landscapes in the United States. The Southeast Regional Strategy and Assessment represents a multilateral effort to craft a truly shared Cohesive Strategy, wherein all partners can work together to meet wildland fire management goals in a sustainable way.

Background

(questions 1 – 4)

Guidance: This section's content will be provided to for each region and will briefly summarize the Cohesive Strategy effort.

1. What is the National Wildland Fire Management Cohesive Strategy (Cohesive Strategy)?

The National Wildland Fire Management Cohesive Strategy is an effort on behalf of Federal, state, local and Tribal governments and non-governmental organizations to collaboratively address growing wildfire problems in the U.S. The Cohesive Strategy takes a national, collaborative approach to addressing wildland fire across all lands and jurisdictions. The Cohesive Strategy is being developed with input from wildland fire organizations, land managers and policy-making officials representing all levels of governmental and non-governmental organizations. All stakeholders involved with wildfire management have come together to develop a truly shared, national strategy. This holistic approach to wildland fire management will encourage further dialogue between local communities and national policymakers.

The strategy will provide clear guidance on roles and responsibilities for all wildland fire protection entities. It also emphasizes how effective partnerships, with shared responsibility among stakeholders in the wildland fire community, will help maintain and restore landscapes, promote fire-adapted communities, and improve fire response. The Cohesive Strategy is defined by three phases, allowing stakeholders to both systematically and thoroughly develop a dynamic approach to planning for, responding to, and recovering from a wildland fire incident.

The three phases include:

1. Phase I: National Cohesive Wildland Fire Management Strategy (near completion)
2. Phase II: Development of Regional Assessments and Strategies (in progress)
3. Phase III: National Trade-Off Analysis and Execution (future)

2. What are the primary overarching goals of the Cohesive Strategy?

The Cohesive Strategy will address the nation's wildfire problems by focusing on three key areas:

1. Restore and Maintain Landscapes – Landscapes across all jurisdictions are resilient to disturbances in accordance with management objectives.

2. Fire Adapted Communities – Human populations and infrastructure can survive a wildland fire. Communities can assess the level of wildfire risk to their communities and share responsibility for mitigating both the threat and the consequences.

3. Response to Fire – All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildland fire management decisions.

3. What is the specific role of regional efforts in the Cohesive Strategy?

The entire Cohesive Strategy effort builds on the successes of the National Fire Plan and other foundational documents, including the 10-Year Comprehensive Strategy and Implementation Plan, Quadrennial Fire Review 2009, A Call to Action, Wildland Fire Protection and Response in the United States, the Responsibilities, Authorities and Roles of Federal, State, Local and Tribal Government (Missions Report), and Mutual Expectations for Preparedness and Suppression in the Interface.

A core principle of the Cohesive Strategy is to rely on local and regional knowledge and insights throughout each Phase and process. Therefore, local and regional assessments, plans, policies, knowledge and insights are basic building blocks for completing Phase II: Regional Assessments and Strategies.

Context – The Southeast Region

(questions 5-6)

Guidance: Provide some context for the Region. You may want to summarize the discussion and responses to Guidelines (question 5) and conflicts in guidance (question 6). You should also provide some context and a general (brief) characterization of the region (i.e. what is the 'lay-of-the-land, what is fire management like in the region, what makes the region unique). Include a map of the region. You may also want to include references to any other maps that are included in the Appendix.

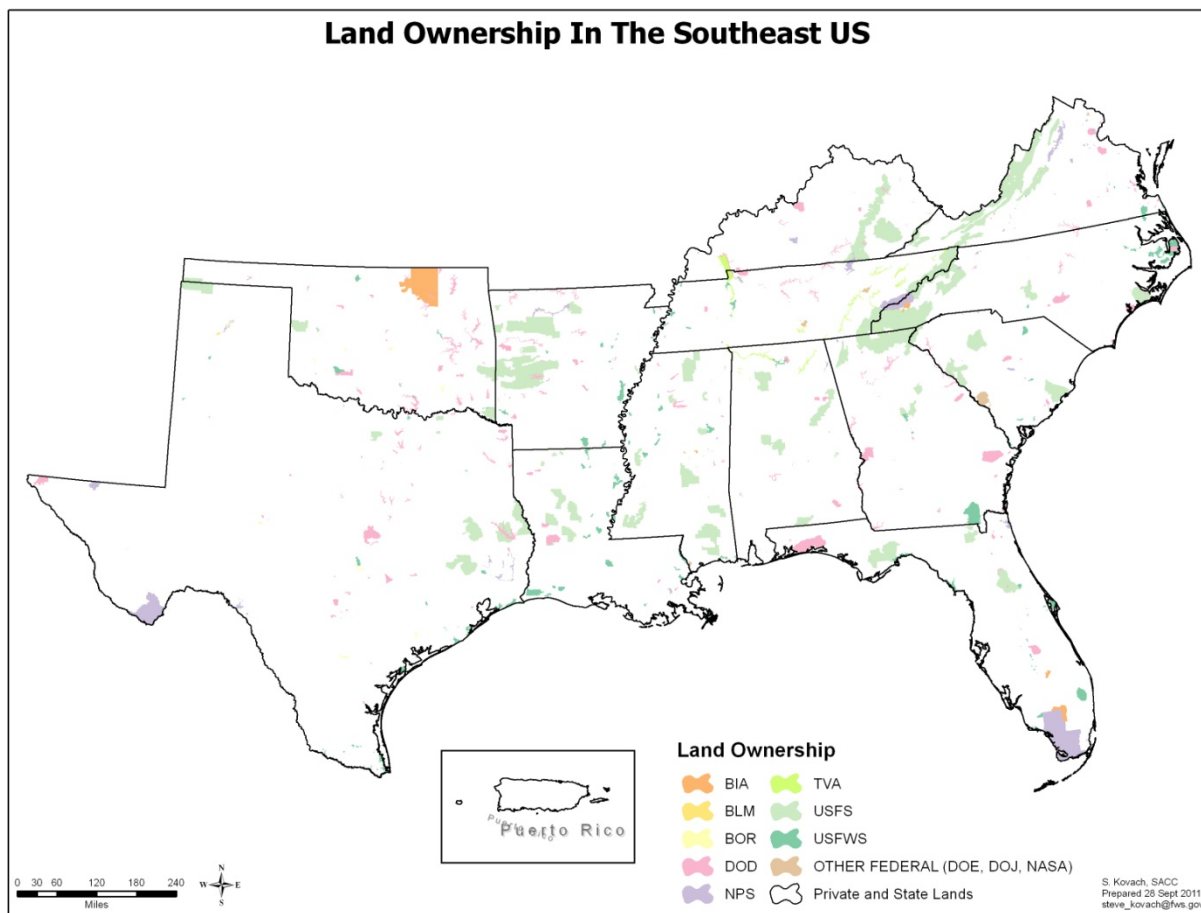


Figure 1. Map of the Southeast Region

5. What general policies, regulations or laws govern wildland fire management in your area, agency or organization?

Land ownership, fuel loading, high wildfire occurrence, extensive WUI, rapid regrowth of vegetation/fuel, invasives, and high level of collaboration are just seven factors that are significant in the Southeast. Most of the burnable acres in the Southeast are privately owned and under states' jurisdiction for wildfire suppression. The Southeastern states have strong forestry agencies that are legally mandated to suppress all wildfires within their jurisdiction. This mandate does not

allow fires to burn for the purpose of resource benefit, but it does not restrict the range of suppression tactics. These policies differ from federal wildland fire management policies. The forestry agencies in the Southeast work closely with RFDs and local emergency management officials through memorandums of understanding (MOU) and often serve as liaisons between the federal and local resources. These local resources assist in most initial attacks as they are often the closest resource. The states, with input from federal agencies and non-governmental organizations (NGO) provide much of the wildland fire training for RFDs and also work with the federal agencies to provide the departments with wildland fire equipment and personal protective equipment (PPE) (e.g., Ready Reserve Program). There are agreements between the states, NGOs, local industry, and the federal government that allow the exchange of resources. In times of increased wildfire activity, the Southeastern states can enact the Interstate Forest Fire Compacts to facilitate interstate collaboration to meet needs.

The Southeast implements more prescribed burns, with more acres treated than any other region of the country. The majority of the burning is implemented on private lands, and more private landowners implement prescribed burns in the Southeast than anywhere else in the United States. Because of the amount of wildland fire in the Southeast, there is a culture, particularly in rural areas, that supports the use of prescribed burning as a management tool. Factors that can constitute a barrier to the implementation of prescribed burns are air quality concerns, policy, practitioner concerns about smoke management, escape, and a lack of resources. Unlike the majority of the Western region, it is state forestry agencies rather than air quality agencies and entities that issue prescribed burning permits. This requires that forestry agencies work closely with their respective air quality agencies and entities to manage timing and quantity of emissions to be released. Federal agencies follow state policy concerning permitting and air quality.

Federal lands are scattered throughout the Southeast with concentrations in coastal and mountain areas. Most federal land managers (FLM) follow the *Interagency Standards for Fire and Fire Aviations Operations* manual and the policy documents referenced within. Specific landholdings (i.e. Forest, Park, and Refuge) will have Land Management or Fire Management Plans that guide response to wildland fire on that particular property. Most FLMs have agreements with the states and NGOs (e.g. TNC) so they can share resources during incidents. The Department of Defense has an active fire management program and plays a significant role in fire management in the

Southeast, but opportunities remain for enhanced future collaboration and coordination for mutual benefit.

Wildland fire is a key process in most Southeastern ecosystems to maintain resiliency, ecosystem health, wildlife habitat, and ecosystem services such as timber products and stable carbon storage. Southeastern ecosystems have a more frequent fire return interval than Western systems. Due to the climate, vegetation recovers quickly from fire or mechanical fuel reduction treatments. These factors translate into a heavier workload for wildland fire managers with a need for regularly recurring fuel treatments to manage fuel loads. Though most large wildfires occur in the spring or fall, wildfires occur 12 months out of the year in the Southeast. The majority of ignitions in the Southeast are caused by humans; however, lightning is a significant ignition source, particularly on large, continuous tracts of federal land. Prescribed burns and other fuels treatments occur throughout the year with the majority implemented during the cooler months. More emphasis is being focused on increasing the number of acres burned during the summer to more closely mimic natural fire regimes.

Smoke can become a problem anywhere in the country. Vehicle accidents associated with smoke and fog occur all too often. It is in the Southeastern states, from Virginia to Texas and from the Ohio River southward, where highway safety is most at risk from prescribed fire smoke. The increased risk is principally because of the considerable amount of burning that occurs annually in the South, highway density, and the proximity of wildland to population centers.

Land juxtaposition and usage are more complex in the Southeast than in other areas. Most of the land (89 percent) in the Southeast is in private ownership. This private ownership continues to change hands and is often fragmented in the process of changing ownership. This fragmentation has two major ramifications: smaller tract size makes prescribed burning and other forest management practices more expensive and difficult to carry out; and although the land often remains forested, the new owners have reasons for ownership other than timber production and silviculture-related activities, thus are reluctant to do any type of forest management. This lack of forest management leads to a buildup of forest fuels. Further, the challenge of restoring landscapes or managing for resilient landscapes is especially complex with private landowners.

We have multiple smaller wilderness areas in the Southeast; there are significant designated wilderness areas (Nantahala and Pisgah National Forests in North Carolina, Everglades National

Park in Florida, Okefenokee National Wildlife Refuge in Georgia) that can affect things like road access and the ability to respond to lightning strikes with heavy equipment. Even the larger tracts of non-wilderness wild lands are surrounded by WUI areas and other jurisdictions. Because of this complexity, all wildland fire management agencies are required to collaborate with each other in order to be successful. An example of this collaboration is the Greater Okefenokee Association of Landowners (GOAL). This is an organization of over 70 landowners/agencies (private, state, and federal) that work together on strategy for wildfires that occur in and near the Okefenokee National Wildlife Refuge. While GOAL is an example of a large collaboration effort, there are numerous interagency agreements that facilitate the different wildland fire management agencies working together on multi-jurisdiction fires or share resources when needed. Both formal and informal agreements are what help determine successful collaboration.

6. Which of these, if any, have created challenges among agencies and across lands?

Though every agency has a different set of policies guiding their response to wildland fire, there are few interagency conflicts. The differences require separate “paths” to reach the same “destination”. Outside of federal and state fire policies differing, the primary areas in which government agencies’ policy present challenges are mostly external to wildland fire agencies. They center on smoke management, WUI planning in response to population growth, and high land ownership turnover.

Land juxtaposition creates challenges for agencies responding to an incident. Tactical suppression options, cost share, and policy differences are just a few examples of what must be considered on every initial attack. The more jurisdictions and landowners involved, the greater the complexity. Federal fire policy allows for wildfire to be allowed to continue to burn when the fire is providing a resource benefit. This policy does not create an issue as long as the fire is contained to federal lands. However, occasionally these fires escape from federal lands onto adjacent private lands creating problems for the state wildland fire agencies. Additionally, cost apportionment and billing can create challenges between wildfire agencies when reconciling accounts after the fire is suppressed.

Smoke management is of primary importance throughout the Southeast, causing not only quality of life issues but also threatening health and safety of Southeastern residents. Agencies’ smoke management policies can come into conflict at times with air quality objectives (from EPA and state

air quality agencies). Smoke Management plans can also be restrictive to prescribed burning by limiting the number of acres that can be burned during one period in an individual air shed. These conflicts/challenges are usually amplified during the growing season because of the general decrease in air quality.

Another area in which agencies' policies can diverge centers on WUI planning and zoning. As a rapid influx of new residents continues to increase the Southeastern population, there is a need for local and state government to create effective development plans for WUI areas. The speed of population growth focuses attention on how that increased population load, many of which were formerly city dwellers, will be handled by planning agencies and organizations, and in what manner education and outreach will be conducted.

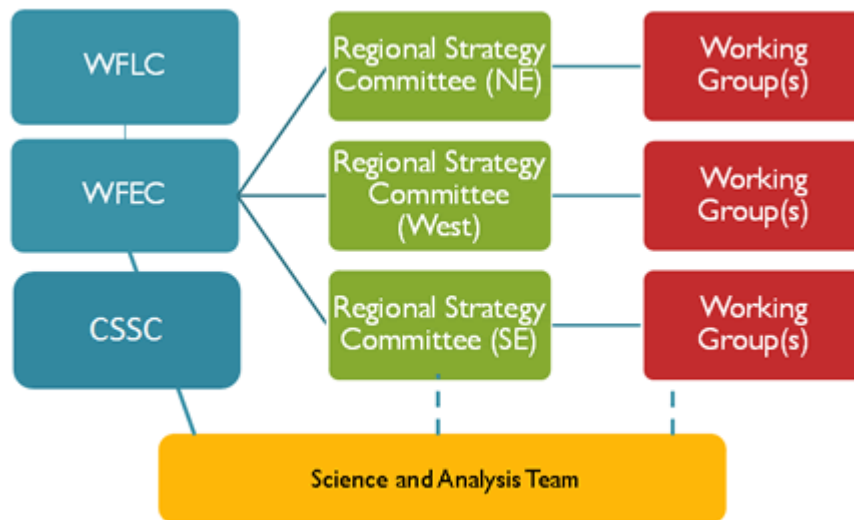
High landownership turnover requires continuous education to keep landowners knowledgeable about wildfire hazards and management opportunities to reduce risk. Without outreach, education and prevention occurring on an ongoing basis, new landowners may unknowingly contribute to increased fuel loading and risk on their property and surrounding land.

Understanding these challenges, wildland fire agencies have the opportunity to work together and with other government agencies to address the problems and continue to reduce risk.

Planning Process

Guidance: Provide a description of the process used to develop the assessment. Who was involved? How were meetings conducted? Was there outreach (how was that conducted)? How was stakeholder input received? How was input included? Etc.

The Southeast Regional Cohesive Strategy was developed through a multilateral effort with input and participation from a broad range of agencies, organizations, partners, and entities active in the wildland fire management community throughout the Southeast. In an effort to capture additional input, the Southeast went through a substantial effort to garner participation holding in-person and online Focus Groups, facilitated conference calls, and webinars. In addition to these forums, comments were received by email, phone, and through an online comment form. This broad effort to solicit participation and comments was undertaken in order to adequately represent the diverse values, objectives, concerns, and guiding strategies of the Southeast.



The Wildland Fire Leadership Council (WFLC) provides broad oversight for the Cohesive Strategy process. The Wildland Fire Executive Council (WFEC), a chartered committee of the WFLC, works with the Regional Strategy Committees (RSCs), the National Science and Analysis Team, and Working Groups to provide governance of the process. Guidance for the assessment process in the Southeast was provided by the Southeast Regional Strategy Committee (SE RSC). Chartered by the Wildland WFEC, the Southeast RSC has a diverse membership that mirrors that of WFEC, including executive representatives of participating agencies and organizations (Appendix 3). The SE RSC identified individuals to be included in the Southeast Regional Cohesive Strategy Working Group (Working Group; Appendix 3) representing diverse skills, experience, background, and organizations. The SE RSC then directed the Working Group to conduct an analysis of strategies for the Southeast and to capture information from previously completed analyses (i.e. Southern Wildfire Risk Assessment, Southern Forest Futures Report, and State Forest Assessments) as well as input from the wildland fire management community and all stakeholders to identify values, priorities, and regional objectives and strategies.

The Working Group conducted two Focus Groups in July 2011. One individual communication inviting stakeholders to participate in the Focus Groups reached more than 1400 stakeholders. The invitation was posted and shared widely, and as a result, virtual participation at the Focus Groups included representatives of nearly all Southern states and a broad cross-section of agencies, organizations, and other partners or stakeholders interested in wildland fire management in the Southeast. The first Focus Group was held in Columbia, South Carolina, on July 12th, and had 42 attendees, including four Working Group members. The second Focus Group was held on July 18th

in Pearl, Mississippi. Thirty-eight individuals participated in the meeting, including three Working Group members and one SE RSC member. Each of the two Focus Groups went through a facilitated input-gathering process in which values, objectives, and concerns unique to the Southeast were identified and clarified.

In the weeks that followed, numerous conference calls and webinars were conducted with interested stakeholder groups ranging from the interest groups to prescribed fire councils throughout the region. The Southeast has active prescribed fire councils that are well-organized and collaborate as demonstrated in the outreach effort of the Cohesive Strategy in the Southeast.

The input gathered was analyzed and applied to the Working Group's efforts to craft an objectives hierarchy which captured the values and priorities unique to the Southeast and helped identify actions and strategies for implementing the goals and objectives. By the end of July, more than 400 distinct comments had been gathered from Southeastern stakeholders.

The success of this outreach effort is reflective not only of the vital nature of the Cohesive Strategy effort, but the interconnected, highly collaborative nature of the wildland fire management community in the Southeast. This is a positive indication for the future, as wildland fire management concerns become yet more interconnected.

Values

(questions 7-10)

Guidance: Identify common and dominant values shared by stakeholders in the region. If there are dominant or conflicting values, identify here and explain. Identify other broad societal and environmental values have been associated with fire in this region. This may be in bullet or list format. For some values, it may be helpful to briefly characterize how they relate to fire.

7. What broad societal and environmental values have been associated with fire in this region?

Diverse values are associated with wildland fire in the Southeast. They have been broadly categorized into five overarching categories of values: ecosystem, infrastructure, societal, economic, and fire management.

The **Ecosystem** includes values associated with air, water, and other ecosystem components. Southerners prize their healthy and resilient natural landscapes, many of which are fire adapted and require periodic burning to maintain characteristic ecosystem structure and diversity, as well as clean air and water, and healthy forests resilient to natural disturbance regimes (fire, flood, hurricanes, wind events, ice storms, etc.). Wildland fire is necessary to maintain wildlife habitat and plays a crucial role in maintaining threatened and endangered species in the region such as red-cockaded woodpecker, Florida panther, sandhill cranes, gopher tortoise, etc. The key values identified which are categorized under the Ecosystem include air quality, biodiversity, healthy forests, landscapes and ecosystems, water quality, and wildlife habitats.

The **Infrastructure System** contains values associated with human infrastructure, habitations, other structures, and property. This is a tremendous concern for Southerners given the significant number of communities considered at risk of wildfire-related losses in the Southeast. The key values identified that are categorized under the Infrastructure System include private property in the wildland-urban interface (WUI), structures and homes, and other infrastructure.

The **Societal System** encompasses human, social, and cultural values. Fire, both wildfire and prescribed burns, have a significant place in the history and culture of the Southeast. Individual landowners historically played a large role in prescribed burning, a tradition that has continued to this day. As prescribed fire was limited throughout the United States during the first half of the twentieth 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:

- Aesthetics - viewsheds, indirect community benefits, etc.
- Quality of life – human health and safety, providing clean water, disrupting public services, etc.
- Safety and Land Use – safety for wildfire response, traditional land uses (e.g., hunting, recreation, grazing, farming, silviculture, etc.), tribal issues, and community involvement, acceptance, and ownership at all levels (including tribal)

The **Economic System** includes values related to the direct and indirect costs of wildland fires. These are not limited to suppression expenditures, but also economies associated with silviculture and biomass, and include potential impacts to local economies based on short and long-term

tourism and recreation impacts. The Southeast is fortunate in that it enjoys a relatively healthy forest products industry. Wildfire can cause economic devastation in the region, however, by damaging or destroying marketable timber, biomass, and other forest products and also can create costs associated with restoration activities. By damaging viewsheds, air quality, and recreation, wildland fires can sharply curtail tourism, both during a wildland fire as well as in the months and years afterwards. Though they 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, or tourism. 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 wildfire response capacity and capability, interagency collaboration and coordination across jurisdictions, training and planning to ensure adequate resource availability, and succession planning.

8. Briefly characterize how each broad value relates to or is affected by fire.

Each of the five broad overarching themes identified: ecosystem, infrastructure, societal, economic, and fire management, are inextricably tied to wildland fire management issues in the Southeast. Though the values identified are diverse, all are characterized by the unique and closely interconnected relationship between natural and social values in the South, a result of the close proximity of people and communities to fire adapted landscapes and protected areas.

The broad theme of the **Ecosystem** is concerned with values related to ecosystems, air, and water quality. Regular application of fire, or fire surrogates, is necessary in many Southern landscapes in order to restore and maintain ecosystem function, yet wildland fire also can have a significant impact on water and air quality. A continued focus on broad efforts to implement landscape-level fuels reduction while maintaining awareness and sensitivity to threatened and endangered species that might be impacted, either positively or adversely, is necessary to maintain healthy ecosystems and minimize the threat of catastrophic wildfire. Fuel treatments that ensure the greatest return on investment should be identified and prioritized. Ensuring that entities such as small Native American tribes that have been less successful in competing for fuels funding have an opportunity to implement fuel reduction projects may provide a more comprehensive approach towards fuel

treatments. Supporting progress towards healthy fire adapted landscapes through ecosystem management is vital in the Southeast.

The Southeast has several fire adapted ecosystems that have a short fire return interval. This in turn means that wildland fire frequency must be one of the topics under consideration when developing priorities for fuels treatments due to rapid regrowth of vegetation. This return interval helps minimize wildfire impacts and protect and encourage the persistence of communities with rich biodiversity. The necessity of frequent burning for landscape maintenance and restoration results in a final concern which bridges natural and social values: air and water quality. Air quality has been a recurrent challenge in recent years due to wildfire activity as well as prescribed burning, and is repeatedly identified by stakeholders as a concern. This presents challenges with wildland fire management, particularly given the regulations surrounding the issue.

The **Infrastructure System** encompasses values related to human infrastructure and tangible assets that can be impacted by wildland fire. Communities located in the WUI, that is, the area in which human dwellings and undeveloped vegetation mingle, are at particular risk from wildfire. With more than 57,000 communities considered at risk of wildfire-related losses in the Southeast, these values are of prominent concern to wildland fire managers and all stakeholders. Creating a culture of individual and community responsibility in the Southeast is of foremost importance. Communities must be aware of and actively participate in preparing themselves, their families and communities for inevitable wildfires. Fire adapted communities have a better chance of withstanding a wildfire with no loss of life and limited damage to infrastructure, and are resilient (economically and personally) in recovering from a wildfire. The wildland fire management community must collaboratively support the development of fire adapted communities and help them gain a greater understanding of wildfire risk and personal responsibility. A final value for the wildland fire management community is in preventing human-ignited wildfires. Fire prevention education programs and fire-related law enforcement have been shown to have a substantial return on investment. In one instance in Florida, it has reduced suppression costs by fifty-five dollars for every one dollar invested. The impact of community education and prevention programs is substantial, yet because they often lack tangible metrics for impact or success, they are frequently selected for reductions or elimination in conditions of reduced resource availability. As populations in the Southeast continue to increase, particularly with new residents and non-traditional landowners (e.g., individuals with diverging land management objectives, or individuals

who have not historically been landowners), these education and prevention programs including law enforcement will only become more vital, and investing in them is key to the success of the effort to create fire adapted communities. A critical need is finding ways to tie these programs' success to quantitative and qualitative results, and to maintain support for these necessary initiatives regardless of resource availability.

Incorporating diverse human, social, and cultural values, the **Societal System** is most directly related to people and communities in the Southeast. Life safety is the most important value in all themes, including public and firefighter safety. As expansion of the WUI continues, more human habitations are being constructed in forested areas. These areas raise the level of wildland fire complexity, becoming more hazardous and challenging for wildland firefighters when wildfires occur. Agencies and organizations involved in wildfire response may be forced, due to increased risk, to provide less wildfire support to these communities. An equally important value is the safety of the public, which can only be ensured with persistent and consistent wildland fire education outreach, and suppression capability, over the course of decades. A need for wildland fire education exists in society at large as well as for policymakers and other leaders and decision-makers. This educational outreach should incorporate practical safety information as well as a more robust understanding of prescribed fire and fire ecology. Effective education and communication messages can be developed and implemented through fire and social science integration and collaboration in messaging. One example of this process includes wildland fire managers collaborating with community planners in advance of development.

The **Economic System** incorporates values that illustrate the direct and indirect costs of both unplanned events, such as wildfires, as well as the occurrence of active landscape and vegetation management activities, such as prescribed fires. These include indirect costs to local economies due to recreation or tourism wildfire-related impacts, direct costs for wildfire suppression, as well as loss or damage to silviculture-related economies. In areas that depend on recreation or tourism to sustain a thriving local economy, the impacts, both short- and long-term, from wildfires can be a source of serious concern. Conversely, the presence or absence of active landscape management practices such as the use of prescribed fire has both direct and indirect costs to the local economic system, as the resiliency and net value of properly managed ecological systems are enhanced by such practices.

Typically, reports of wildfires result in immediate decreases in tourism and recreation, regardless of whether the threat is real or perceived. A wildfire in these areas has the potential not only to cause damage to landscapes and communities but also to threaten the vitality of the local economy. In the short term, wildfires may create temporary employment, but due to the required training and qualifications, only rarely are these jobs created locally. Typically, a wildfire creates a brief injection of capital to the local economy due to firefighters staying in the area, which offsets short-term tourism-related losses. This is followed by a decline in the economy due to reductions in recreation and tourism because of concerns about viewsheds, safety, air quality, and recreation impacts. Wildfires may significantly impact working forests, biomass, or silviculture-related economies. In fact, wildfire may be the cause of land use conversion, either due to losses or landowner perception of increased chance of loss with traditional forest economies. We can overcome this with existing forest industries and practices such as biomass removal and prescribed burning, through which we can prevent damaging wildfires from occurring, thereby bringing to fruition other forest values and benefits to local economies through proper management of working forests. Additionally, creating incentives for communities and landowners to participate in the process of keeping working forests sustainable and viable in the long-term would be valuable in increasing resiliency and reducing the risk of wildfires.

The **Fire Management System** includes values that promote safe and effective management of fires. The Southeast contains a diversity of agencies, organizations, and dedicated individuals that are collectively involved in wildland fire management. Enhancing collaboration between organizations and increasing the amount of interagency training that occurs is a significant value. A vitally important wildfire suppression resource in the Southeast is RFDs. Increasing and maintaining their wildland fire response capability, particularly given retention and recruitment issues faced by RFDs, is critically important. Education and training must be continuous and continually revisited in order to ensure a safe and effective response to fires. Pre-planning to ensure adequate equipment availability is another value, particularly given that changes in industrial land ownership have reduced overall wildfire response capability. Finally, understanding that fire suppression and mitigation budgets have been severely reduced at the state level is critical. As resource availability is likely to continue to decrease across all organizations within the fire management community, organizations must consider trade-offs and alternatives that will allow them to leverage limited resources in order to maximize capability and safe outcomes.

9. What are the dominant common values or perspectives among agencies?

Agencies at the federal, state, and local level, along with non-governmental organizations and other partners and cooperators in the Southeast share many common values related to wildland fire management. This stems in part from a strong positive history of interagency cooperation in the Southeast as well as the prevalence throughout the region of smaller holdings over which multiple agencies or organizations often share responsibility. As a result, interagency wildland fire management, planning, and shared response are far more common than unilateral actions.

10. Which of these conflicts are exceptionally difficult to address and why?

Conflicts related to agency policy can be the most challenging to address. Though fire management organizations share many common values, each of the agencies and organizations in the wildland fire management community is guided by different policies, mission statements or legal mandates with sometimes diverging purposes. While their interests converge in many areas, at times these mission statements are in conflict with each other. These interagency conflicts may be more closely related to mandates and policy rather than values. For example, the majority of land managers, whether they be federal, state, local or private citizens, understand and value the benefits wildland fire can have in creating and maintaining healthy landscapes. However, given the widely varied ownership of land in the Southeast with differing management objectives, it is frequently necessary to suppress wildfires as quickly as possible to prevent damage and economic losses to private property.

Another particular challenge is that almost 90 percent of the acreage in the Southeast is privately held. State forestry organizations along with a diverse mix of landowners play a major role in wildland fire management and planning. This requires greater focus on collaboration between government and non-government agencies, individuals, and other interests. A second problem that is difficult to solve is balancing widespread expectations for wildfire protection with the safety of firefighters and the public with available resources. Due to extensive private property and communities located in fire adapted ecosystems, firefighters and members of the public can face a significant life safety threat during wildfire operations. As a result, firefighting resources are challenged to conduct a safe, effective, and efficient response to these complex wildfires. A majority of these wildfires not only impact multiple private landowners and communities, but cover multiple jurisdictions.

A final persistent challenge in the Southeast is continued landscape fragmentation as a result of rural development. This increases the challenge for wildland fire managers to implement prescribed fire on the landscape to maintain and restore ecosystems due to a multi-jurisdictional environment with frequently conflicting land-use objectives. Rather than deal with the larger landscapes and the issues presented therein, many agencies and organizations may be more likely to focus fuel treatment and planning efforts on WUI areas and communities. Continued fragmentation will require greater collaboration and coordination in the future.

Trends and Uncertainties

(questions 11-13)

Guidance: Identify societal or environmental changes or trends could affect wildland fire in the region. Identify challenges in wildland fire management are created or compounded by lack of knowledge or understanding?

11. Identify challenges in wildland fire management are created or compounded by lack of knowledge or understanding?

12. Identify societal or environmental changes or trends could affect wildland fire in the region.

13. Briefly describe the uncertainties associated with these changes or trends that make them difficult to predict.

While the changes in the Southeastern U.S. are rapid, no single driver dominates; instead a combination of processes will determine the future of regions landscapes. Wear and Greis (2011) identify four major factors, population growth, climate change, fiber markets, and invasive species. These four major factors will determine the extent, pattern, and condition of the regions forests. In the southeast changes in demographics, land ownership patterns, socio-economic conditions, firefighting capacity and Rural Fire Department (RFD) training/retention rates will also impact the occurrence of and ability to manage wildland fire.

The Southeast is experiencing rapid urbanization (Brown et al. 2005) and the expectation is that this trend will continue. As the extent of the WUI continues to increase so too will the potential for impacts from prescribed burning and wildfires. The mosaic of urban and wildland will compound issues related to smoke and emissions release making it increasingly difficult to use prescribed fire as an effective and efficient management tool. Finally, because a greater proportion of wildland fires in the Southeast are caused by humans (Stephens 2005), it is expected that as the population density increases, an increase in ignitions will follow.

Changes in the patterns and trends in land ownership demographics in the Southeast are increasing the 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 industrial timberlands since 1998 has increased fragmentation of the forest land ownership, making landscape scale management more complex especially relating to managed pine plantations (Butler and Wear 2011). Timber Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs) received the majority of those newly divested lands. The trend away from intensive forest management has led to a higher probability of increased fuel loads and the potential for more intense wildland fires in pine forests. Along with the divestiture of forest industry lands came a sharp reduction in fire suppression capacity and equipment. These industry lands and companies had their own fire suppression organization that included equipment and personnel that responded to local incidents and provided extensive assistance to State and local fire forces on both industry lands and adjacent lands. With the divestiture of their forestlands most of these forest industry firefighting resources no longer exist. A 2005 survey by the Southern Group of State Foresters showed between 1998 and 2004 there was a loss of 700 dozers, four fixed wing aircraft and three helicopters owned or contracted by forest industry for use in wildfire suppression. These fire suppression resources were not necessarily available full time for firefighting but were made available when needed. While the majority of lands in the Southeast are privately owned, there are concentrations of public lands, primarily in the coastal plain and mountain ecoregions. Traditionally in the fire adapted ecosystems of the Southeast, many public and private land managers have relied extensively on prescribed fire for fuels management. As the surrounding lands become increasingly developed, the effective use of prescribed burning will be impacted, leading to the necessity to implement more costly management techniques (e.g. mechanical clearing) or potentially increasing the risk of wildland fire (Stanturf and Goodrick 2011).

Demographic shifts are also expected to impact wildland fire management. Populations in the region are becoming increasingly diverse with new residents and landowners representing a broad range of ages, ethnicities, and backgrounds with a varying understanding of wildland fire as it related to prescribed fire and historical fire adaptations. Some areas have high rates of turn-over make wildfire 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, and effective land management of their own property to reduce wildland fire risk. Landowner demographics are changing, and values related to land management are as well. Each transfer of

ownership has been shown to increase the potential for moving away from traditional management toward a less intensive approach (increasing fuels) or toward development (increasing WUI).

Uncertainties related to budgets impact the ability of the region's wildland fire management community to ensure continuity of well-trained and well-equipped personnel. The occurrence of wildland fire in the Southeast is related to highly variable regional weather patterns. During the six year study period (1997-2002) of the Southern Wildfire Risk Assessment, the Southeast averaged over 68,000 wildfires per year (Southern Group of State Foresters 2007). The Southeast normally has roughly 50 percent of the wildfires in the nation on an annual basis. However, uncertainties exist with these figures due to a lack of consistent reporting of wildfire incidence and extent. A high level of fire incidence variability makes it a challenge to effectively prepare and budget from year to year and the dispersed pattern of risk makes it difficult to educate land owners with respect to their responsibility related to reducing that risk. Currently, there are no insurance industry incentives for homeowners to participate in reducing the risk of wildland fire on their property. Outreach to all who could be impacted by wildland fire in a given year is a challenge (Southern Group of State Foresters 2007).

State forestry agencies rely heavily on RFDs to provide initial response for wildfires in the Southeast. RFDs assist in suppressing the many ignitions before they grow large enough to pose a threat to people and values at risk. However, due to their nature RFDs experience very high turnover. Training and retention is a constant challenge for RFDs as well as the state forestry organizations that work to support them. For many ignitions, RFDs are the only potential sources of wildfire reporting. However, due to the complexity of the system and other challenges, many wildfires are believed to go unreported.

Two economic trends forecasted to impact certain areas of the Southeast are the increasing demand for softwood and bioenergy production in certain areas of the Southeast (Wear and Greis 2011). The impact on wildfire by this increase in demand is unclear.

Over the longer-term climate change is expected to impact landscape processes that will change wildland fire dynamics. Both spring and fall wildfire seasons are expected to be extended under the climate change projections (Stanturf and Goodrick 2011). The changes in climate can be expected to change fuel accumulation and wildland fire behavior in the fire adapted systems of the

Southeast. The same climate changes that may increase potential for wildfire may also hamper the ability to effectively use prescribed burning due to increased risk of escapes, or fewer burnable days.

Invasive species are expected to continue to increase in number and extent, leading to changes in ecosystems throughout the region (Miller et al. 2011). The changes in species composition and dominance can lead to a change in the fire, fuel, and hydrologic dynamics of the systems. Already in the Southeast, invasive vegetation species (e.g., Cogon grass, Mesquite, red cedar, Ashe Juniper) and invasive or native insects (Hemlock Woolly Adelgid, Emerald Ash Borer, Southern Pine Beetle) are creating problems for wildland fire managers (Lippincott 2000). At the same time, fire adapted systems throughout the Southeast are being degraded by the lack of ability to use prescribed fire (e.g. Longleaf pine, Oak savannas; Nowacki and Abrams 2008, Smiens and Merrill 1998).

National Goals Regional Objectives

(questions 14 – 19)

Guidance: Identify Regional Goal(s) for the National Goal and Objective(s).

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?

Though the goal of this process has been to determine how the Southeast's regional goals mesh with the larger national objectives, several key management priorities related to wildland fire management have been collectively identified by agencies, organizations, partners and stakeholders in the Southeast. These include key objectives related to the national goal of **Restore and Maintain Landscapes**. Response to this goal acknowledges the challenge of maintaining or restoring landscapes is especially complex with the wealth of small landowners in the Southeast, and the objectives focus on a need for locally-calibrated, proactive treatment to restore and maintain landscapes with the goal of achieving healthy forests resilient to fire, while balancing the need to reduce catastrophic wildfire risk to WUI communities throughout the Southeast. Healthy working forests are part of Southerner's cultural heritage, as well as a critical part of the present economy and maintaining large expanses of fire adapted landscapes.

The region's diversity and uniqueness means that restoring and maintaining landscapes is a critical goal. The wildland fire management community agreed 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 population within the Southeast may necessitate a greater focus on communities and the WUI 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 WUI.

The Southeast region identified several key priorities and objectives focused around the national goal **Fire Adapted Communities**. This goal is of key importance in the South, where human communities are adjacent to and even 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 directly engage in wildland fire planning to assess the level of wildfire risk to themselves and their communities, sharing responsibility and participating in actively mitigating the threat. In order for this to be successful, communities must take responsibility for the consequence of their actions. At the same time, the wildland fire management community must catalyze this process through education, engagement, and outreach, and participate and support 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 awareness as part of the design process for future homes or communities. In the Southeast, there may be as much potential for change through engaging in the process of creating fire adapted human communities than through fuels management.

Key objectives for the Southeast within the national goal of **Response to Fire** were focused on firefighter safety, wildland fire management, and flexibility for locally appropriate response to unplanned ignitions. Ensuring firefighter safety through appropriate risk management was a key objective identified. A second objective identified as critical in the Southeast was ensuring adequate equipment and personnel to safely and effectively respond to fires. 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, promote indirect attack where appropriate and effective to minimize risk to firefighters and maximize resource benefit. The wildland fire management community agrees a need exists for agencies and organizations to retain the ability to select and apply techniques and tactics based on local conditions and needs.

16. How do your goals as stated above relate to the National goals of the Cohesive Strategy?

The goals and priorities identified in the Southeast were found to closely mesh with the broad national Cohesive Strategy goals. The process of value identification and determination of objectives and regional strategies created a more detailed articulation of the national goals, yet all parallel the broad focus of the national strategy. The Southeast Regional Strategy Committee made the determination to retain the three primary national goals, opting to not select different regional goals.

17. Which of the above are the highest priorities for completing this analysis? (for the scale of this decision)

18. For each priority goal, identify contributing objectives, and a range of actions and activities that could meet each objective.

19.1 How do you or can you quantify management success in meeting the goals and objectives?

19.2 What is the level of acceptability of these endpoints given the range of perspectives and values? *Questions 17-19.2: Refer to Southeastern Objectives Hierarchy.*

Objectives Hierarchy

Guidance: Identify the actions and activities for each objective (i.e. Full Objectives Hierarchy). When possible, identify who will do what, when and where for each action.

Cross-Cutting Actions and Activities

Some actions and activities were found to be common to all of the Southeastern objectives. These Actions and Activities are listed at here, and should be considered to be part of each of the individual objectives, as they benefit all of the objectives and 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
- Support for maintaining working forest and viable forest products markets
- Expand the use of prescribed burning

Restore and Maintain Landscapes

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

National Outcome-based Performance Measures:

- Risk to Landscapes is diminished

Regional Goal 1: Restore and Maintain Landscapes - Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives

Objective 1.1: 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

Objective 1.2: 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

Objective 1.3: Develop and sustain capability and capacity required to plan and carry out landscape treatments, including prescribed fire

Objective 1.4: Encourage increased public awareness to ensure public acceptance and active participation in achieving landscape objectives

Objective 1.5: Mitigate environmental threats other than wildfire (i.e. storm damage, insects, ice storms, hurricanes, insects and disease) that reduce ecosystem vitality and increase susceptibility to wildfire

Regional Goal 1: Restore and Maintain Landscapes - Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives

Objective 1.1: 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

Performance Measures:

- Acres burned or otherwise treated
- Acres under stewardship programs or equivalent certifications

Action/Activity 1.1.1: Promote and use fire to emulate natural disturbance patterns to maintain and improve ecological systems, balancing social, cultural, and economic needs, especially over large contiguous landscapes

Action/Activity 1.1.2: Use prescribed fire to reduce fuel loads where feasible, prioritizing burning to maintain fuel loading in previously treated areas

Action/Activity 1.1.3: Manage wildfire for beneficial effects where it meets resource objectives and suppress them where they don't meet the resource objectives.

Action/Activity 1.1.4: Encourage the use of alternative management techniques (mechanical, grazing, etc.) to restore and maintain fire dependent ecosystems where fire is not feasible or desirable

Action/Activity 1.1.5: 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")

- Support the "One Message, Many Voices" campaign and development of other unified prescribed fire education programs

Action/Activity 1.1.6: Plan and implement post-fire stabilization and rehabilitation in order to reduce site degradation and potential impact from hydrological events, invasive plant infestations, and other events which follow severe fires

Action/Activity 1.1.7: Support SERPPAS effort to increase prescribed burning for Longleaf Pine restoration

Objective 1.2: Promote strategic interagency planning and policy development across agencies, organizations, and the public to more effectively integrate wildland fire planning into land-use planning and economic development

Performance Measures:

- Number of agreements to allow for shared resource use to conduct fuel treatments
- Number of integrated land-use and fire management plans in place
- Number of multi jurisdictional treatments planned and implemented

Action/Activity 1.2.1: Encourage planning efforts across landscapes between practitioners and land managers to address wildland fire and landscape resiliency and community safety balancing other concerns, emphasizing plan development in high risk areas

Action/Activity 1.2.2: Utilize prioritization in SWRA and other efforts to identify and treat wildland fuels in areas that will facilitate tactical defense of human communities or ecological values and services from wildfire (tactical fuel breaks)

Action/Activity 1.2.3: Work with air quality agencies and entities to ensure that prescribed fire remains a viable management tool and maximize flexibility for its use

Action/Activity 1.2.4: Encourage traditional and developing economic markets, such as biomass, to enhance economic viability of timber harvesting and mechanical fuel treatments

Action/Activity 1.2.5: Encourage landowners, particularly new and non-traditional landowners to deliberately actively manage land regardless of ownership objectives, including fuels management

Objective 1.3: Develop and sustain capability and capacity required to plan and carry out landscape treatments, including prescribed fire

Performance Measures:

- Number of practitioners trained to plan and conduct prescribed burning

Action/Activity 1.3.1: 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

Action/Activity 1.3.2: Enhance prescribed burning coordination amongst practitioners in order to increase safety and prescribed burning intelligence/opportunity while reducing smoke impacts through use of Smoke Management Guidelines, on-site weather, fuels, air quality monitoring equipment, and smoke modeling tools (BlueSky and Hysplit)

Action/Activity 1.3.3: Promote and encourage coordination between agencies, organizations, and practitioners of prescribed burning activities for air quality

Objective 1.4: Encourage increased public awareness to ensure public acceptance and active participation in achieving landscape objectives

Performance Measures:

- Number of active fire councils

Action/Activity 1.4.1: Work collaboratively with Prescribed Fire Councils and other NGOs to develop and deliver a positive national prescribed fire message to community members and landowners

Action/Activity 1.4.2: Encourage greater public smoke tolerance through outreach and understanding

Action/Activity 1.4.3: Where possible, create landowner incentives for fuels management on private lands

Objective 1.5: Mitigate environmental threats other than wildfire that reduce ecosystem vitality and increase its susceptibility to wildfire

Performance Measures:

- Number of acres treated

Action/Activity 1.5.1: Aggressively treat or restore areas affected by disturbances, identifying and prioritizing high risk areas (such as severe weather events, insects, disease, etc.) to reduce catastrophic fire risk

Action/Activity 1.5.2: Control invasive species that alter fire regimes and ecosystem function

Fire Adapted Communities

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

National Outcome-based Performance Measures:

- Risk of wildfire impacts to communities is diminished
- Individuals and communities accept and act upon their responsibility to prepare their properties for wildfire.
- Jurisdictions assess level of risk and establish roles and responsibilities for mitigating both the threat and the consequences of wildfire.
- Effectiveness of mitigation activities is monitored, collected and shared.

Regional Goal 2: Fire Adapted Human Communities – Human populations and infrastructure can withstand wildfire without loss of life or property

Objective 2.1: Support development of, and maintain engagement with communities by developing and leveraging partnerships through community wildfire planning for improved preparedness

Objective 2.2: Eliminate loss of life and minimize loss of structures

Objective 2.3: Coordinate public policy and shared responsibility across jurisdictions

Regional Goal 2: Fire Adapted Human Communities – Human populations and infrastructure can withstand wildfire without loss of life or property

Objective 2.1: Support development of, and maintain engagement with communities by developing and leveraging partnerships through community wildfire planning for improved preparedness

Performance Measures:

- Number of communities-at-risk (CAR) covered by a Community Wildfire Protection Plan (CWPP) or equivalent that are improving their wildland fire preparedness.

Evidence that a community is improving its wildland fire preparedness can be represented by any of the following:

- a) Adoption of “Firewise” or equivalent principles to safeguard homes
- b) Adoption of “Ready, Set, Go!” or equivalent principles to prepare for fire and evacuation
- c) Enacting mitigation / fire prevention ordinances
- d) High priority hazardous fuels identified in a CWPP or equivalent are reduced or appropriate fuel levels on such lands are maintained in accordance with a plan

Action/Activity 2.1.1: Utilize Southern Interagency Fire Prevention and WUI Strategies to guide fire prevention and community protection

Action/Activity 2.1.2: Provide Firewise or equivalent presentations and conduct education/outreach to local communities to raise awareness of wildland fire hazards and promote community action to reduce risk

Action/Activity 2.1.3: Promote establishment of insurance incentives, building and landscape ordinances, and fire resistant construction techniques through communication and collective action with planners and insurers, emphasizing Firewise or equivalent concepts when planning communities and building homes to reduce wildfire impacts

Action/Activity 2.1.4: Increase awareness of community and homeowner responsibility for fire preparedness and prevention

Action/Activity 2.1.5: Encourage development and implementation of CWPP and Firewise or equivalent concepts, prioritizing CARs in greatest need of CWPPs

Objective 2.2: Eliminate loss of life and minimize loss of structures

Performance Measures:

- Number of communities-at-risk that have reported an increase in local wildfire suppression capacity. This can be evidenced by any of the following:
 - a. An increasing number of trained and /or certified wildland fire fighters and crews
 - b. Upgraded or new fire suppression equipment obtained,
 - c. Formation of new or expansion of existing fire department involved in wildland fire fighting

Action/Activity 2.2.1: Develop community support for fire prevention and mitigation actions, partnering with rural fire departments to increase understanding of wildland fire and associated smoke impacts through education, planning, use of technology, etc.

Action/Activity 2.2.2: Educate the public on WUI, fuels, and wildland fire challenges, implement I&E programs in high hazard communities to raise awareness of WUI fuels and wildland fire challenges to support mobilization and evacuation efforts

Action/Activity 2.2.3: Increase community preparedness and mobilization abilities (e.g., evacuation) and increase coordination and planning between local, state, and federal responders prior to wildfire ignition

Objective 2.3: Coordinate public policy and shared responsibility across jurisdictions

Performance Measures:

- Number of fire prevention programs and Firewise communities in place
- Number of Communities-at-risk (CAR) that have increased their preparedness and capacity through shared responsibility. This can be evidenced by the following:
 - a. Enacting mutual aid agreements
 - b. Forming or joining fire protection associations
 - c. Number of enhanced and/or improved agreements

Action/Activity 2.3.1: Increase prescribed fire/Firewise knowledge and participation in community planning efforts

Action/Activity 2.3.2: Appropriately use cost-effective technology (social media, SWRA, etc.) and systems to ensure decision makers (county commissioners, urban planners, town councils, etc.) have access to information in a timely manner

Action/Activity 2.3.3: Increase community capacity and sense of personal homeowner/community responsibility by engaging with developers, urban planners, and homeowners

Action/Activity 2.3.4: Find synergies between existing education programs to ensure consistent educational messages are provided to the public. Ensure fire prevention includes education, enforcement, and engineering

Action/Activity 2.3.5: Develop new, and enhance existing agreements to allow fuels mitigation work to be conducted in the wildland urban interface (WUI) across jurisdictions

Wildfire Response

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

National Outcome-based Performance Measures:

- Injuries and loss of life to the public and firefighters are diminished
- Response to shared-jurisdiction wildfire is efficient and effective.
- Pre-fire multi-jurisdictional planning occurs

Regional Goal 3: Response to Fire - All jurisdictions participate in developing and implementing safe, effective, and efficient risk-based wildfire management decisions

Objective 3.1: Increase firefighter safety by using risk management

Objective 3.2: Increase and leverage resource capability and capacity. Streamline and support training across all areas to maximize effectiveness

Regional Goal 3: Response to Fire - All jurisdictions participate in developing and implementing safe, effective, and efficient risk-based wildfire management decisions

Objective 3.1: Increase firefighter safety by using risk management

Performance Measures:

- Trend change in number of firefighter injuries and firefighter fatalities during wildfire suppression activities compared to previous years

Action/Activity 3.1.1: Train, develop, and increase state, federal, and local agencies and cooperating entities capacity for wildland fire management to ensure staffing levels meet operational needs. Utilize training academies and improved MOUs to increase response capacity, including awareness of risk management techniques

Action/Activity 3.1.2: Utilize tools to analyze, mitigate, and establish strategies each year prior to the fire season with cooperators and communities, increasing distribution, use, and understanding of predictive service tools across all jurisdictions

Action/Activity 3.1.3 Utilize spatial analysis tools to evaluate strategies for response

Objective 3.2: Increase and leverage resource capability and capacity. Streamline and support training across all areas to maximize effectiveness

Performance Measures:

- Percent increase in the number of firefighters receiving wildland fire training compared to previous years
- Percent change in homes, improved property, and forests lost and saved over time
- Percent increase in the number of states with statewide mutual aid agreements compared to prior years

Action/Activity 3.2.1: Provide appropriate training by utilizing the NWCG crosswalk program, increased ICS training, and encouraging the adoption of one training and qualification standard.

Action/Activity 3.2.2: Investigate and invest in the development and deployment of specialized fire suppression equipment to increase the efficiency and effectiveness of wildland fire suppression activities. Ensure that specialized equipment is available to all entities that have a role in wildland fire suppression

Action/Activity 3.2.3: Garner policymakers' support and educate leadership in order to maintain adequate capacity for firefighter and public safety, including support for local, state, and federal agencies with wildland fire suppression responsibilities

Action/Activity 3.2.4: Utilize relationships to increase interagency cooperation during wildland fire suppression. Develop/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 IMTs

Management Scenarios

(questions 23-26)

Guidance: Identify Potential Alternatives that Maximize Achievement of Regional Objectives and National Goals

The goal of the Cohesive Strategy is to better address the growing wildland fire management challenges throughout the nation through collective action. In order to effectively and realistically plan for the future, the fire management community recognizes a need to anticipate and prepare for a variety of management scenarios. This may result in weighing various national and regional values and goals to strategically use available resources to greatest effect. The Southeast considered four potential Management Scenarios: **Present Management Situation; Increased Personal Responsibility and Action Through Outreach and Education; Increased Firefighter Safety and Wildfire Response Through Enhanced Collaboration, Training and Capacity; and Increased Proactive Fuels Mitigation Through all Management Techniques Including Prescribed Burning.** These management scenarios are described along with their potential consequences. Through the development of the four management scenarios, we started with describing the present situation broken down by each of our strategic opportunities. In Management Scenario A, we described nothing different than present day activity. In the following three scenarios, we increased one at a time each of our three strategic opportunities while leaving the other two static (or as described in the Present Management Situation – Scenario A). Thus, we did not rewrite the present management situations that remained static in management scenarios B, C, and D. The reader can refer back to the Present Management Situation as described in Management Scenario A for further explanation.

Our intent is to give managers within the fire management community across the Southeast an opportunity to compare what an increase in a certain area (as defined by each strategic opportunity) might look like. We also understand and do not intend to prescribe or even suggest simply increasing only one opportunity is the best method. This is a simple design to allow managers to compare trade-offs, using their local knowledge and awareness of challenges in making appropriate management decisions. We do not believe that management could or should be determined at the national or regional level and we recognize each landscape encounters different environmental and societal pressures that must be appropriately addressed.

Management Scenario A: Present Management Situation

The first identified Management Scenario is one in which nothing is changed from the current situation. This includes the current level of **Personal Responsibility and Action Through Outreach and Education**. Some, but not all, landowners deliberately manage their lands (regardless of ownership objectives) and take action to mitigate fuels due to natural disturbances (i.e. storm damage, insect, and disease), but results are sporadic. Southerners participate in a variety of successful fuel management activities to effect fuel management on the landscape included but not limited to prescribed burning. A tremendous amount of prescribed burning is done in the Southeast. Some of it is done specifically for fuel reduction but much of it is done primarily for other reasons such as wildlife habitat improvement. Any prescribed burning has the effect of reducing wildland fuels but burning done for other purposes are not prioritized in the areas needed most for fuels mitigation. Landowners are encouraged to use prescribed burning and alternative fuels management techniques where prescribed burning is not appropriate or is limited by concerns about smoke and other liability issues. Removing barriers related to liability and smoke would likely significantly increase the amount of prescribed burning accomplished in the Southeast. Burning activities are not well coordinated with adjacent landowners, and alternative fuel mitigation options are limited due to cost. Not all homeowners in WUI areas are willing to tolerate smoke in order to reduce wildfire risk.

Communities and homeowners are encouraged to institute Firewise or equivalent practices. Under this scenario, some communities initiate and participate in Firewise activities, but large inputs of long-term agency assistance is required, limiting accomplishments. Fast growth in the WUI continues to strain agency resources available to work with communities. Developers and land planners are reluctant to include Firewise practices in the design of new communities due to concerns about increased cost.

Rural fire departments continue to play a vital role in wildfire suppression, but are less involved in wildfire prevention and mitigation due to continued budget and capacity limitations. Since people are the leading cause of wildfires in the Southeast, this highlights continued challenges with regard to wildfire prevention education and wildfire law enforcement. Wildland fire management agencies need additional agreements that allow for coordination and assisting each other in fuel mitigation activities.

In addition, Firefighter Safety and Wildfire Response Through Collaboration, Training and Capacity remains at current levels.

Planning efforts between wildland fire managers are not always well coordinated which could lead to confusion on the fire ground and compromise safety. The resulting outreach and work with communities forms a mosaic across the landscape rather than being prioritized in commonly defined high priority areas, which may not increase firefighter safety as much as it could. Fuel mitigation work takes place in locations where landowners are willing to participate and not necessarily prioritized in highest risk areas. The lack of local markets sometimes limits removal of small diameter trees for fuel reduction. Prescribed burners continue to be trained, but many burn only on their own lands, limiting the number of acres burned. Prescribed Fire Councils and other NGOs have only limited success reaching large audiences with the message that prescribed burning is necessary and beneficial.

Fire resistant construction techniques, Community Wildfire Protection Plans, and Firewise principles are not in widespread use as rapid WUI development continues, which can create hazardous situations for firefighters. Decision makers such as county commissioners, community planners, and town councils need additional tools to assist in Firewise and similar planning programs. Additional coordination and planning between federal, state, and local wildland fire managers is needed annually prior to the fire season in order to ensure safe, effective multi-agency wildfire response.

Additional training and capacity is needed by federal, state, local and cooperating entities to ensure staffing levels meet operational needs, adequate training, resources and capacity are needed to ensure firefighter safety. Increased use of predicative services and spatial analysis tools are needed to mitigate risk to firefighters and evaluate strategies for response. Consistent training that meets NWCG standards is needed for all wildland fire responders. Training is currently limited due to cost and availability, particularly with rural fire departments. Additional specialized firefighting equipment is needed but is limited to budget constraints. Wildfires are usually contained quickly and efficiently, but in some cases lack of sufficient equipment, manpower, or inaccessible terrain allows large fires to develop. Statewide mutual aid agreements are needed among rural fire departments for wildland fire response, in order to provide adequate structure protection allowing wildland firefighters to concentrate on the wildland fire. Other capacity related issues that need additional support include Type 3 Incident Management Team development for additional capacity

and resolution of Cooperative Fire Agreement billing issues in order to provide seamless ordering and movement of wildland fire resources.

Finally, Fuels Mitigation Through all Management Techniques Including Prescribed Burning remains at current levels.

In this management scenario, fragmentation of ownership and lack of coordination makes it difficult to implement landscape scale fuels treatments. Southeast Regional Partnership for Planning and Sustainability (SERPPAS) efforts to increase prescribed burning for Longleaf Pine restoration leads to some increased burning, but financial incentives are needed to encourage more landowners to participate.

The use of prescribed fire is promoted by state and federal forestry agency personnel. Many landowners utilize prescribed burning, but it is often for reasons other than fuel reduction, such as wildlife management, which still provides fuel reduction benefits but does not necessarily occur in prioritized high risk areas. State and federal forestry agencies continue to work with EPA and state air quality agencies/entities to ensure that prescribed burning remains a viable fuels management tool. State and federal air quality agencies/entities agree that prescribed burning is more desirable than wildfires given that prescribed burning allows smoke reduction techniques to be utilized, and management actions to take place to direct smoke away from smoke sensitive areas. EPA is mandated to improve air quality based on research on air quality and human health. As a result, air quality regulations are likely to continue to become more restrictive. Prescribed burners continue to be trained in prescribed burning techniques and smoke management, but many burn only on their own lands. Concerns about liability and restrictions on burning in certain weather conditions may result in landowners not burning as much as they planned. Some landowners choose not to burn due to concerns about invasive species, some of which become more prolific following activities which remove competing vegetation. Financial incentives, which might encourage landowners to conduct increased burning activities are likely to have some impact, but are not currently in place in the Southeast.

Mechanical and other fuels mitigation activities are occurring but they are often sporadic and not strategic or coordinated. They tend to be focused where they are most cost effective and can often be cost prohibitive.

Support for and development of markets for forest products is provided by state and federal forestry agencies for the purpose of providing markets for material removed through fuel reduction treatments and timber harvesting. In general, this has the result of reducing fuel loading. Maintaining working forests is encouraged because active management usually involves forest management activities that reduce fuels.

Management Scenario B: Increased Personal Responsibility and Action Through Outreach and Education

In this scenario, resources would be focused in outreach, education, and prevention activities aimed at Southeastern residents to instill a sense of personal responsibility for preventing ignitions and actively preparing their homes and communities for wildfire. Firefighter safety and fuels mitigation remain static in this scenario.

The fire management community would collectively work to present a unified message in outreach, education, and prevention, coordinating activities utilizing a common prioritization of particularly high risk communities in Management Scenario B. This resource investment would encompass landowners, residents, and visitors, recognizing everyone that lives, visits, or works in the Southeast as a stakeholder in wildfire risk abatement. The outreach effort would identify as a particular priority new and non-traditional residents in the South, including but not limited to non-traditional landowners, and older individuals new to the area.

The Southeast has one of the fastest growing populations in the nation, with many living in fire-prone WUI areas. Nearly sixty thousand communities in the Southeast are considered at risk of catastrophic wildfires that could take lives, destroy infrastructure and other values, and damage local economies. In this scenario, well-coordinated education and outreach activities on the part of the fire management community in the Southeast catalyzes wide-spread development of awareness of wildfire risk. RFDs receive support and training from state and federal agencies to enable them to deliver timely, effective fire education messages coordinated throughout the region. At-risk communities are identified and prioritized for outreach by the fire management community. Planners, developers, and local governments utilize Firewise or similar program standards while planning and constructing developments. Insurers provide incentives to residents and homeowners for making their homes more fire safe, recognizing that even a small investment can leverage significant returns in homeowner activity. Residents in WUI areas, coordinating with

Firewise or similar program coordinators, plan and implement fire risk abatement activities at the community level. Communities are prepared to mobilize and have plans in place guiding evacuation in the event of a wildfire. Individual residents and homeowners take personal responsibility for retrofitting their dwellings and preparing their property for wildfire. Better understanding wildfire risk and the effectiveness of prescribed burning as a risk abatement tool, Southeastern residents are supportive of prescribed burning as a tool and tolerant of smoke. Though fire management agencies support and maintain engagement with Firewise communities and similar programs, local residents take personal responsibility for their community fire risk abatement programs, proactively reaching out to new residents and remaining engaged in abatement activities. A multi-lateral fire prevention initiative, conducted in coordination with law enforcement agencies, increases awareness and enforcement of fire laws and has a substantial impact on rates of human-caused wildfires.

In this scenario, forest product markets remain at the same or similar levels, thus motivation and ability to engage in thinning activities remains static. An increase in outreach activities focused on landowners results in widespread understanding of the importance of deliberately managing land, regardless of ownership objective. Landowners, particularly new and non-traditional, are encouraged to participate in prescribed burning education which provides training on prescribed burning and reduces concerns about liability. Educating homeowners and landowners about invasive species reduces their potential spread and harmful impacts. The fire management community works closely with the EPA and other similar air quality management agencies/entities to increase understanding of and support for prescribed burning. As a consequence, more prescribed burns take place throughout the region with a significant increase in the number of acres treated. Land fragmentation and increased frequency of ownership turnover present a challenge in the Southeast region. However, in this Scenario, a long-term commitment throughout the fire management community to ongoing outreach and education of landowners will help mitigate this issue.

In this scenario, agencies and organizations in the fire management community work closely to coordinate fuels management activities. State, federal, and local wildland fire agencies as well as NGOs and other members of the fire management community develop and implement MOUs enabling them to assist each other in carrying out fuel treatment and reduction activities. Effective pre-planning at all levels throughout the region results in a well-coordinated, efficient response to

fuels mitigation following natural disturbance events such as hurricane, insect, and disease. Potentially hazardous fuels are quickly and effectively removed.

Management Scenario C: Increased Firefighter Safety and Wildfire Response Through Enhanced Collaboration, Training and Capacity

In this Scenario, resources are focused on increasing the effectiveness of wildfire response through capacity-building, training, and enhanced collaboration between agencies and organizations in the wildland fire management community to improve safety. Personal responsibility and fuels mitigation remain static in this Scenario.

The Southeast relies on an extensive network of rural fire departments (RFDs) for a significant amount of wildfire response. RFDs are committed, however limited resources and frequent turnover of personnel hamper training. Safer response to fire depends on continuous interagency coordination and training. In this Scenario, the fire management community substantially invests in training and capacity-building for RFDs. Continual training is provided in order that RFD training meets NWCG standards.

Capacity-building takes place throughout the Southeastern region, resulting in more adequate staffing and available equipment to safely and effectively respond to wildfires. The wildland fire management community including federal, state, local agencies as well as NGOs work together to ensure that sufficient responders with appropriate training are available to safely respond to wildfires. Agencies and organizations working in wildland fire management, working together, develop and implement statewide mutual aid MOUs making it possible for federal, state, local, NGO and RFDs to assist each other in wildfire response and collaborate in suppression activities. Cooperative fire agreement billing policies are efficiently implemented region-wide allowing for the mobilization of all fire suppression resources as needed. Additional Type 3 IMTs are developed and supported to assist in suppression efforts throughout the region. This reduces the demands on stressed resources, resulting in substantially increased firefighter safety in fire response and suppression activities. Collaboratively planned training efforts across agencies and jurisdictions result in better interagency understanding of response and enhanced communications. Predictive service tools are in more widespread use, and available to all responders, making wildland firefighting safer. Resources are provided to make certain equipment used in fire response by federal, state, local, NGOs and RFDs meets minimum safety standards. Where appropriate and

necessary, equipment and resources are provided to RFDs and local responders, resulting in a safer response through use of appropriate PPE and functioning apparatus.

This Scenario sees an increase in the number of prescribed burns and acres treated in the Southeast. More people receive prescribed burning training, and more prescribed burns are accomplished, resulting in an overall reduction in hazardous fuels and increased firefighter safety by reducing fuels and decreasing fire intensity and rate of spread. Prescribed burning reduces the chance of wildfire spread which increases the safety of responders.

Management Scenario D: Increased Proactive Fuels Mitigation Through all Management Techniques Including Prescribed Burning

In this Scenario, resources are focused on expanding the breadth and quantity of hazardous fuel abatement activities within the Southeast region. Personal responsibility and firefighter safety remain static in this Scenario.

The Southeast is home to extensive fire adapted landscapes with an extremely high incidence of fire and short fire return interval. These ecosystems rely on regular burning to restore and maintain characteristic ecosystem structure and prevent the buildup of hazardous fuels, which increase the risk, and severity of wildfires. Located adjacent to, and in many cases within these vegetated landscapes are human communities. These complexities require the use of a broad range of management techniques, including but not limited to managed wildfire, prescribed burning, grazing, and mechanical treatments. In this Scenario, multiple hazardous fuel mitigation techniques are promoted and used throughout the Southeast to restore and maintain landscapes. Agencies and organizations in the fire management community collaborate and conduct unified outreach in order to not only maintain but significantly expand the ability to tailor individual treatments to local circumstances based on ownership and landscape context. This initiative focuses on use of appropriate management techniques on the landscape to have the greatest impact on ecosystem health and wildfire risk in the safest and most cost-efficient manner.

The vast majority of lands in the Southeast are owned by private landowners. In order to effect landscape level fuel treatments and widespread hazardous fuel risk abatement, broad collaboration must take place between agencies, organizations, and landowners. A significant challenge in the Southeast is the fragmentation of ownership. Where fifty years ago a single landowner or entity might manage or own very large acreages, the trend today continues to expand a patchwork quilt

of ownership where thousands of landowners might each own parcels of ten acres or less. Under this scenario, extensive outreach by the fire management community as well as the provision of incentives for carrying out fuels treatments has resulted in landowner participation in land management activities for the purpose of landscape restoration and wildfire risk abatement. Unified education efforts have provided landowners and other stakeholders' fuel treatment skills, including a practical understanding of prescribed fire. Landowners and other practitioners are taught prescribed burning techniques and trained in effective smoke management tactics. This familiarity with prescribed burning dramatically reduces landowner concerns about liability related to prescribed burning.

Extensive collaboration produces a prioritization of landscapes on which to preferentially implement fuels treatments based on wildfire risk and ecosystem restoration needs. All stakeholders involved in planning and carrying out fuel treatments coordinate their efforts, including local government, air quality agencies/entities, and landowners as well as federal and state agencies. The fire management community continues to proactively engage with state and federal air quality agencies/entities, with the effect of exempting prescribed burning from additional air quality regulations and creating widespread support for prescribed burning in the air quality community. Consequently, practitioners are able to implement more fuels treatments throughout the region for a significant increase in acres treated. The unified outreach and education effort results in widespread increase in the amount of prescribed burns taking place and reduced smoke impacts due to training on appropriate burning techniques and smoke management. This increase in prescribed burning serves to help restore and maintain the Southeast's fire adapted landscapes while reducing the risk of wildfire by reducing fuel loading. These treatments also serve as a management technique to curb some invasive species that are not native to Southeastern landscapes. These invasives can crowd out native species or even increase wildfire risk.

Under this scenario, existing forest product markets remain healthy and strong, supporting and supported by the enhanced investment in fuel management activities. At the same time, economically sustainable new markets are created and develop to support efficient biomass removal, commercial timber harvests, and working forests. All of these markets support and increase the effectiveness of fuel management activities, reducing hazardous fuels and helping to restore and maintain Southeastern landscapes.

Measures for Success

(questions 20-21)

Refer to Objectives Hierarchy.

Conclusions

Guidance: This section is not a recap of the report (that was done in the Executive Summary). Instead, it will discuss significant findings and how the regions goals, objectives, actions and activities will reduce fire risk in the region and contribute to achieving the national goals and objectives.

Effective wildland fire management is crucial to preventing loss of life and protecting communities while at the same time working to protect and maintain the unique diversity of fire adapted landscapes in the Southeast. In many ways, the Southeast region can be viewed as representative of the future of wildland fire management. As human populations continue to expand into wildland urban interface (WUI) areas, the management situation that land managers face will only grow more complex. The task of maintaining landscapes while protecting human populations from harm becomes even more demanding given increasingly limited resources. The national goals set forth in the National Wildland Fire Management Cohesive Strategy are profound challenges. But they are achievable, and the increasingly interconnected wildland fire management situation in the Southeast will play a significant role in the success of our Cohesive Strategy implementation. This collaborative spirit already exists, but further work must be completed to develop and enhance relationships and implement truly collaborative management strategies, using shared resources to achieve common goals.

Three key areas repeatedly identified and prioritized by stakeholders participating in outreach and engagement, as well as the strategies developed to implement them, speaks to this opportunity. The first, within the national goal of 'Restore and Maintain Landscape' was the need for increased opportunity for locally appropriate management decisions. Where appropriate, land management organizations want the flexibility to conduct prescribed burns, but also have the freedom to choose other management options depending on local conditions. In order to achieve this goal, work must be done in creating common policies, understanding, and cooperation across multiple jurisdictions.

The second area, within the national goal of 'Fire Adapted Communities', was equally persistent: educating communities about wildland fire and inculcating a sense of personal responsibility. The issue was raised, in one form or another, in every single outreach event conducted, and is a high

priority for each of the agencies and organizations involved in the Cohesive Strategy in the Southeast. Underlying this concern is the reality that numerous efforts have been organized in the Southeast, locally, and nationally to raise awareness of wildland fire and to prepare communities for inevitable ignitions. In fact, the national Firewise campaign has been terrifically successful in the South, where 70% of recognized Firewise U.S.A. communities are located. However, the Working Group identified that one thing challenging the success of such past efforts is a lack of unanimity in the wildland fire management community in selecting and supporting an education effort. Though this objective is a significant challenge, unified messaging and interconnected outreach efforts within the South's wildland fire management community will go far to increase the impact of such education messaging.

The third major area, within the national goal of 'Response to Fire', was related to capacity and capability building for firefighters and others responding to wildland fires. Management complexity and diminishing resources mean that multi-agency/organization wildfire response is ever more common. Increasingly, initial attack is falling to RFDs. Continuous training and providing appropriate equipment is necessary in order to ensure a safe, effective response. Promoting multi-lateral training efforts to increase capability increases safety, while providing a venue to create and further develop relationships between agencies, and offers opportunities to significantly influence wildfire outcomes despite limited resources.

The Regional Strategy Committee agreed on the following strategic opportunities where increased activity will contribute to critical needs to help lessen fire threat and impact:

- 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 wildfire and prescribed fire, and encourage WUI 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 where smoke can be effectively managed to allow for maintenance of ecosystem function and to reduce fire hazard.

The National Wildland Fire Management Cohesive Strategy presents a tremendous challenge – but an equally significant opportunity, to work in concert with other agencies, organizations, partners, and cooperators to reduce wildfire risk to communities, ensure continued effective, safe wildfire response, and protect and ensure the continued vitality of some of the most beautiful and unique fire adapted landscapes in the world. By allowing managers to determine the appropriate mix of actions and activities while using the best available information, the wildland fire management community and stakeholders in the Southeast region will meet the challenge presented, and achieve the Cohesive Strategy’s national goals through partnerships, sharing resources, and collaborative action to attain common priorities.

List of Appendices

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Appendix 1 – Acronym List

BIA	Bureau of Indian Affairs
CAR	Community at Risk
CWPP	Community Wildfire Protection Plan
DOD	Department of Defense
DOI	Department of the Interior
EMAC	Emergency Management Assistance Compact
EMDS	Ecosystem Management Decision Support system
FLAME	Act Federal Land Assistance, Management, and Enhancement Act
FPA	Fire Program Analysis
FPU	Fire Planning Unit
FWS	Fish and Wildlife Service
GAO	General Accounting Office
HVR	Highly Valued Resource
IAFC	International Association of Fire Chiefs
ICS	Incident Command System
MOU	Memorandum of Understanding
NASF	National Association of State Foresters
NFPA	National Fire Protection Association
NGO	Non Government Organization (e.g. non profit)

NICC	National Interagency Coordination Center
NIFC	National Interagency Fire Center
NPS	National Park Service
NVC	Net Value Change
NWCG	National Wildfire Coordinating Group
PDSI	Palmer Drought Severity Index
ROSS	Resource Ordering Status System
RFD	Rural Fire Departments (including volunteer fire departments)
SERPPAS	Southern Regional Partnership for Planning and Sustainability
SGSF	Southern Group of State Foresters
SWRA	Southern Wildfire Risk Assessment
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USFS	United States Forest Service
WFDSS	Wildfire Decision Support System
WFEC	Wildland Fire Executive Council
WFLC	Wildland Fire Leadership Council
WUI	Wildland-Urban Interface

Appendix 2 – CRAFT Question List

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?

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?
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?
16. How do your goals as stated above relate to the National goals of the Cohesive Strategy?
17. Which of the above are the highest priorities for completing this analysis?(for the scale of this decision)
18. For each priority goal, identify contributing objectives, and a range of actions and activities that could meet each objective.
19. How do you or can you quantify management success in meeting the goals and objectives?
20. What is the level of acceptability of these endpoints given the range of perspectives and values?

Appendix 3 – SE Regional Steering Committee and Working Group members and Support Staff

SE RSC

Mike Zupko – Chair, Southern Governors Association Representative (Executive Director, Southern Group of State Foresters)

Kevin Fitzgerald – Vice Chair, Great Smoky Mountains National Park Deputy Superintendent, NPS (alternate: Liz Struhar – Fire Planner, NPS)

Liz Agpaoa – Regional Forester, Southern Region, USFS (alternate: Dan Olsen – Director of Fire & Aviation Management, Southern Region, USFS)

Tom Boggus – Texas State Forester, NASF

Ed Brunson – BIA (alternate: Larry Mahler - Forester, BIA)

Rob Doudrick – Station Director, USFS (alternate: Kier Klepzig – Assistant Director, SRS)

Bob Eaton – Chief, Division of Fire Management, FWS

Jim Ham – County Comm, GA

Tom Lowry – Choctaw Nation

Alexa McKerrow – Biologist, USGS

Bruce Woods – Department Head, Mitigation and Prevention, Texas Forest Service, IAFC

SE Working Group

David Frederick – Chair, Fire Director, Southern Group of State Foresters

Darryl Jones – Vice Chair, State Fire Chief, South Carolina Forestry Commission

Tom Spencer – Vice Chair, Predictive Services Department Head, Texas Forest Service

Forrest Blackbear – BIA

Vince Carver – Regional Fire Ecologist, FWS

Margit Bucher – North Carolina Fire Manager, The Nature Conservancy

Alexa McKerrow – Biologist, USGS

Shardul Raval – Assistant Director, Fire & Aviation Management, Southern Region, USFS

Rachel Smith – Natural Resource Specialist, Presidential Management Fellow, USFS

Liz Struhar – Fire Planner, NPS

Support Staff

Sandy Cantler – SE Coordination Lead, USFS

Carol Deering – (on NEMAC SE site as member) USGS

Jim Fox – Director, NEMAC, RENCI, UNC Asheville

Jeff Hicks – Geospatial Software Engineer, NEMAC, UNC Asheville

Matthew Hutchins – UNC Asheville

Jim Karels – WFEC Liaison (FL State), Florida Forest Service

Danny Lee – Director, Eastern Forest Environmental Threat Assessment Center, Southern Research Station, USFS

Karin Lichtenstein – Project Manager/Research Scientist, NEMAC, UNC Asheville

Tom Quigley, Contractor, National Science Team

Appendix 4 – Maps/Figures

Wildland-Urban Interface Acreage and Percent by State

	WUI Acres	Percent
Alabama	7,717,348	8.70%
Arkansas	3,707,445	4.20%
Florida	6,455,596	7.30%
Georgia	9,012,124	10.20%
Kentucky	6,011,150	6.80%
Louisiana	3,814,381	4.30%
Mississippi	5,139,675	5.80%
N. Carolina	12,772,497	14.40%
Oklahoma	2,850,113	3.20%
S. Carolina	6,468,498	7.30%
Tennessee	7,820,454	8.80%
Texas	8,006,315	9.10%
Virginia	8,658,057	9.80%

TABLE 4. Wildland-urban interface acreage and percent of total southern WUI acres by state.

Figure 2 – Wildland-urban interface acreage and percent of total southern WUI acres by state (SWRA)

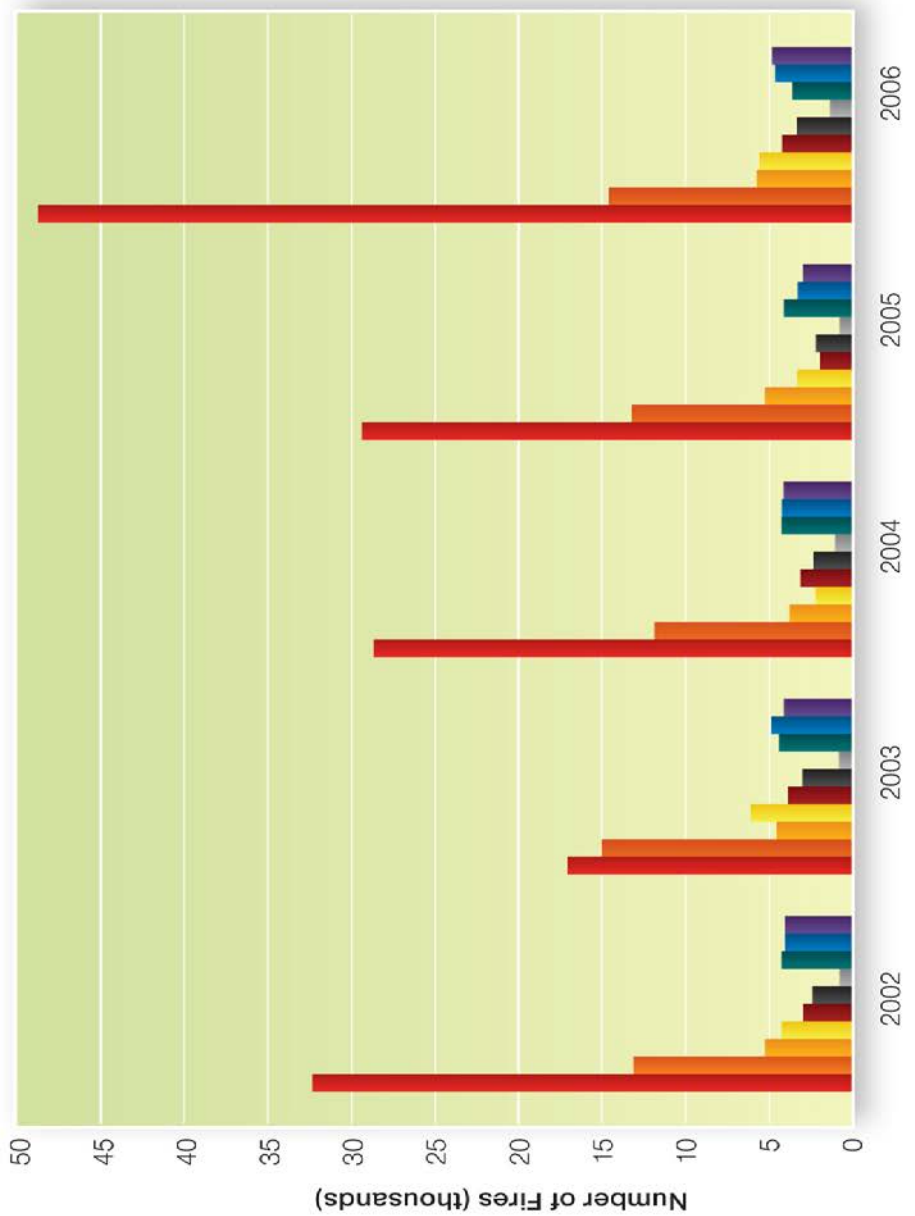


FIGURE 2. The number of fires by year (2002–2006) for geographic areas of the United States.

Source: National Interagency Fire Center, Wildland Fire Statistics (http://www.nifc.gov/fire_info/fire_stats.htm)

Note: The geographic areas are defined by the Geographic Area Coordination Center boundaries used to collaboratively manage wildfire incident management. Western Texas and Western Oklahoma are not included in the southern geographic area, although they are included in the Southern Wildfire Risk Assessment.

Figure 3 – Number of fires by year (2002 – 2006) for geographic areas of the United States (SWRA)

Communities at Risk Classes

	Low		Moderate		High		Very High	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alabama	1,020	12.0	6,683	78.6	787	9.3	16	0.2
Arkansas	1,107	27.4	2,045	50.6	835	20.7	53	1.3
Florida	115	0.8	534	3.7	4,903	34.2	8,799	61.3
Georgia	815	6.9	5,887	50.0	4,970	42.2	96	0.8
Kentucky	4,674	57.1	2,567	31.4	930	11.4	13	0.2
Louisiana	1,929	39.5	1,031	21.1	1,725	35.3	200	4.1
Mississippi	747	15.4	3,095	63.7	1,017	20.9	0	0.0
N. Carolina	1,418	9.2	5,191	33.6	7,766	50.3	1,069	6.9
Oklahoma	277	6.7	769	18.6	2,728	66.1	355	8.6
S. Carolina	26	0.3	3,265	34.4	6,125	64.6	72	0.8
Tennessee	3,627	37.1	5,550	56.8	601	6.1	0	0.0
Texas	2,457	16.9	5,576	38.4	5,861	40.4	612	4.2
Virginia	1,444	17.7	5,917	72.7	780	9.6	0	0.0
USFS	1,480	10.9	5,289	39.1	5,661	41.8	1,109	8.2
USFWS	1,054	20.5	1,498	29.1	1,595	31.0	1,006	19.5
NPS	1,346	17.3	3,307	42.5	2,750	35.4	378	4.8
DOD	2,690	18.4	5,547	38.0	5,057	34.7	1,287	8.8
BIA	398	6.6	1,065	17.7	4,070	67.5	499	8.3
Other Federal Agencies	238	22.2	463	43.3	369	34.5	0	0.0

TABLE 1. Number and percent of communities in each class of Communities at Risk ratings by state and federal agency. These four classes define the risk of wildfire damage to communities based on the likelihood of fire occurring in areas surrounding the communities.

Figure 4 – Number and percent of communities in each class of CAR by state and federal agency (SWRA)

Wildland Urban Interface 2000



Figure 5 – WUI map of the United States, 2000 (University of Wisconsin, Madison)

Appendix 5 – Further Reading and Foundational Documents

Note: Web links valid as of 08/2011

Cohesive Wildland Fire Management Strategy Foundational Documents

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Appendix 7 – Objectives Hierarchy

Objectives hierarchy containing the regional goals, objectives, performance measures, and actions and activities.

Priority Goal	1. Restore and Maintain Landscapes- Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives
Contributing Objective	1.1 Build and maintain resiliency in Southeastern landscapes through strategic use of prescribed fire, mechanical treatments, grazing, etc, and managed wildfire where and when appropriate based on ownership and landscape context
Performance Measures	<ul style="list-style-type: none"> •Acres burned or otherwise treated •Acres under stewardship programs or equivalent certifications
Actions and Activities	1.1.1 Promote and use fire to emulate natural disturbance patterns to maintain and improve ecological systems, balancing social, cultural, and economic needs, especially over large contiguous landscapes
	1.1.2 Use prescribed fire to reduce fuel loads where feasible, prioritizing burning to maintain fuel loading in previously treated areas
	1.1.3 Manage wildfire for beneficial effects where it meets resource objectives
	1.1.4 Encourage the use of alternative management techniques (mechanical, grazing, etc.) to restore and maintain fire dependent ecosystems where fire is not feasible or desirable
	1.1.5 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”) <ul style="list-style-type: none"> • Support the “One Message, Many Voices” campaign and development of other unified prescribed fire education

	programs
	1.1.6 Plan and implement post-fire stabilization and rehabilitation in order to reduce site degradation and potential impact from hydrological events, invasive plant infestations, and other events which follow severe fires
	1.1.7 Support SERPPAS effort to increase prescribed burning for Longleaf Pine restoration
Contributing Objective	1.2 Promote strategic interagency planning and policy development across agencies, organizations, and the public to more effectively integrate wildland fire planning into land-use planning and economic development
Performance Measures	<ul style="list-style-type: none"> •Number of agreements to allow for shared resource use to conduct fuel treatments •Number of integrated land-use and fire management plans in place •Number of multi jurisdictional treatments planned and implemented
Actions and Activities	1.2.1 Encourage planning efforts across landscapes between practitioners and land managers to address wildland fire and landscape resiliency and community safety balancing other concerns, emphasizing plan development in high risk areas
	1.2.2 Utilize prioritization in SWRA and other efforts to identify and treat wildland fuels in areas that will facilitate tactical defense of human communities or ecological values and services from wildfire (tactical fuel breaks)
	1.2.3 Work with air quality agencies and entities to ensure that prescribed fire remains a viable management tool and maintain flexibility for its use

	1.2.4 Encourage traditional and developing economic markets, such as biomass, to enhance economic viability of timber harvesting and mechanical fuel treatments
	1.2.5 Encourage landowners, particularly new and non-traditional landowners to deliberately actively manage land regardless of ownership objectives, including fuels management
Contributing Objective	1.3 Develop and sustain capability and capacity required to plan and carry out landscape treatments, including prescribed fire
Performance Measures	<ul style="list-style-type: none"> • Number of practitioners trained to plan and conduct prescribed burning
Actions and Activities	1.3.1 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
	1.3.2 Enhance prescribed burning coordination amongst practitioners in order to increase safety and prescribed burning intelligence/opportunity while reduce smoke impacts through use of Smoke Management Guidelines, on-site weather, fuels, air quality monitoring equipment, and smoke modeling tools (BlueSky and Hysplit)
	1.3.3 Encourage wide area coordination of prescribed burning for air quality
Contributing Objective	1.4 Encourage increased public awareness to ensure public acceptance and active participation in achieving landscape objectives

Performance Measures	<ul style="list-style-type: none"> • Number of active fire councils
Actions and Activities	1.4.1 Work collaboratively with Prescribed Fire Councils and other NGOs to develop and deliver a positive national prescribed fire message to community members and landowners
	1.4.2 Encourage greater public smoke tolerance through outreach and understanding
	1.4.3 Where possible, create landowner incentives for fuels management on private lands
Contributing Objective	1.5 Mitigate environmental threats other than wildfire that reduce ecosystem vitality and increase its susceptibility to wildfire
Performance Measures	<ul style="list-style-type: none"> • Number of acres treated
Actions and Activities	1.5.1 Aggressively treat or restore areas affected by disturbances, identifying and prioritizing high risk areas (such as severe weather events, insects, disease, etc.) to reduce catastrophic fire risk
	1.5.2 Control invasive species that alter fire regimes and ecosystem function
Priority Goal	2. Fire Adapted Human Communities- Human populations and infrastructure can withstand wildfire without loss of

	life or property
Contributing Objective	2.1 Support development of and maintain engagement with communities by developing and leveraging partnerships for community wildfire planning for improved community preparedness
Performance Measures	<ul style="list-style-type: none"> • Number of communities-at-risk (CAR) covered by a Community Wildfire Protection Plan (CWPP) or equivalent that are improving their wildland fire preparedness. Evidence that a community is improving its wildland fire preparedness can be represented by any of the following: <ol style="list-style-type: none"> 1. Adoption of “Firewise” or equivalent principles to safeguard homes, 2. Adoption of “Ready, Set, Go!” or equivalent principles to prepare for fire and evacuation 3. Enact ion of mitigation / fire prevention ordinances 4. High priority hazardous fuels identified in a CWPP or equivalent are reduced or appropriate fuel levels on such lands are maintained in accordance with a plan
Actions and Activities	2.1.1 Utilize Southern Interagency Fire Prevention and WUI Strategies to guide fire prevention and community protection
	2.1.2 Provide Firewise or equivalent presentations and conduct education/outreach to local communities to raise awareness of wildland fire hazards and promote community action to reduce risk
	2.1.3 Promote establishment of insurance incentives, building and landscape ordinances, and fire resistant construction techniques through communication and collective action with planners and insurers, emphasizing Firewise concepts when planning communities and building homes to reduce wildfire impacts
	2.1.4 Increase awareness of community and homeowner responsibility for fire preparedness and prevention

	2.1.5 Encourage development and implementation of CWPP and Firewise or equivalent concepts, prioritizing CARs in greatest need of CWPPs
Contributing Objective	2.2 Eliminate loss of life and minimize loss of structures
Performance Measures	<ul style="list-style-type: none"> • Number of communities-at-risk that have reported an increase in local wildfire suppression capacity. This can be evidenced by any of the following: <ol style="list-style-type: none"> 1. An increasing number of trained and /or certified wildland fire fighters and crews, 2. Upgraded or new fire suppression equipment obtained, 3. Formation of new or expansion of existing fire department involved in wildland fire fighting
Actions and Activities	2.2.1 Develop community support for fire prevention and mitigation actions, partnering with rural fire departments to increase understanding of wildland fire and associated smoke impacts through education, planning, use of technology, etc.
	2.2.2 Educate the public on WUI, fuels, and wildland fire challenges, implement I&E programs in high hazard communities to raise awareness of WUI fuels and wildland fire challenges to support mobilization and evacuation efforts
	2.2.3 Increase community preparedness and mobilization abilities (e.g., evacuation) and increase coordination and planning between local, state, and federal responders prior to wildfire ignition
Contributing	2.3 Coordinate public policy and shared responsibility across jurisdictions

Objective	
Performance Measures	<ul style="list-style-type: none"> • Number of fire prevention programs and Firewise communities in place • Number of Communities-at-risk (CAR) that have increased their preparedness and capacity through shared responsibility. This can be evidenced by the following: <ol style="list-style-type: none"> 1. Enacting mutual aid agreements 2. Forming or joining fire protection associations 3. Number of enhanced and/or improved agreements
Actions and Activities	2.3.1 Increase prescribed fire/Firewise knowledge and participation in community planning efforts
	2.3.2 Appropriately use cost-effective technology (social media, SWRA, etc.) and systems to ensure decision makers (county commissioners, urban planners, town councils, etc.) have access to information in a timely manner
	2.3.3 Increase community capacity and sense of personal homeowner/community responsibility by engaging with developers, urban planners, and homeowners
	2.3.4 Find synergies between existing education programs to ensure consistent educational messages are provided to the public. Ensure fire prevention includes education, enforcement, and engineering
	2.3.5 Develop new, and enhance existing agreements to allow fuels mitigation work to be conducted in the wildland urban interface (WUI) across jurisdictions

Priority Goal	Response to Fire- All jurisdictions participate in developing and implementing safe, effective, and efficient risk-based wildfire management decisions
Contributing Objective	3.1 Increase firefighter safety by using risk management
Performance Measures	<ul style="list-style-type: none"> •Trend change in number of firefighter injuries and firefighter fatalities during wildfire suppression activities compared to previous years
Actions and Activities	3.1.1 Train, develop, and increase state, federal, and local agencies and cooperating entities capacity for wildland fire management to ensure staffing levels meet operational needs. Utilize training academies and improved MOUs to increase response capacity, including awareness of risk management techniques
	3.1.2 Utilize tools to analyze, mitigate, and establish strategies each year prior to the fire season with cooperators and communities, increasing distribution, use, and understanding of predictive service tools across all jurisdictions
	3.1.3 Utilize spatial analysis tools to evaluate strategies for response
Contributing Objective	3.2 Increase and leverage resource capability and capacity. Streamline and support training across all areas to maximize effectiveness
Performance Measures	<ul style="list-style-type: none"> •Percent increase in the number of firefighters receiving wildland fire training relative to previous years •Percent change in homes, improved property, and forests lost and saved over time •Percent increase in the number of states with statewide mutual aid agreements relative to prior years

Actions and Activities	3.2.1 Provide appropriate training by utilizing the NWCG crosswalk program, increased ICS training, and encouraging the adoption of one training and qualification standard.
	3.2.2 Investigate and invest in the development and deployment of specialized fire suppression equipment to increase the efficiency and effectiveness of wildland fire suppression activities. Ensure that specialized equipment is available to all entities that have a role in wildland fire suppression
	3.2.3 Garner policymakers' support and educate leadership in order to maintain adequate capacity for firefighter and public safety, including support for local, state, and federal agencies with wildland fire suppression responsibilities
	3.2.3 Utilize relationships to increase interagency cooperation during wildland fire suppression. Develop/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 IMTs

Appendix 8 – Strategic Opportunities

Actions grouped by strategic opportunity.

Strategic Opportunity A	All Current Activities Remain Static
Strategic Opportunity B	Encourage Personal Responsibility and Action through Outreach, Education and Prevention with Landowners and Residents, New and Non-traditional
	Purpose
Action/Activity 1.1.4	Use of alternative management techniques (mechanical, etc) where fire is not feasible in order to treat difficult areas <i>Cross-cutting Action/Activity: Also in Strategic Opportunity D</i>
Action/Activity 1.1.5	Encourage all landowners to manage their land which usually includes some type of fuel reduction activity either intentionally or unintentionally
Action/Activity 1.4.2	Some tolerance of smoke will be necessary if prescribed burning is increased
Action/Activity 1.4.3	In order to get more fuels management accomplished <i>Cross-cutting Action/Activity: Also in Strategic Opportunity D</i>
Action/Activity 2.1.1	Utilize strategies already developed
Action/Activity 2.1.2	To reduce damage to human communities and reduce risk to firefighters
Action/Activity 2.1.3	To reduce damage to human communities and reduce risk to firefighters <i>Cross-cutting Action/Activity: Also in Strategic opportunity C</i>
Action/Activity 2.1.4	In order to increase protection for human communities and reduce the burden on wildland fire agencies

Action/Activity 2.1.5	To reduce damage to human communities and reduce risk to firefighters <i>Cross-cutting Action/Activity: Also in Strategic Opportunity C</i>
Action/Activity 2.2.1	Obtain the assistance of rural fire departments for fire prevention and mitigation <i>Cross-cutting Action/Activity: Also in Strategic Opportunities C and D</i>
Action/Activity 2.2.2	To increase support of mobilization and evacuation efforts
Action/Activity 2.2.3	To increase pre-fire coordination between all responders <i>Cross-cutting Action/Activity: Also in Strategic Opportunity C</i>
Action/Activity 2.3.1	To reduce damage to human communities and reduce risk to firefighters <i>Cross-cutting Action/Activity: Also in Strategic Opportunity D</i>
Action/Activity 2.3.3	To reduce damage to human communities and reduce risk to firefighters as communities are being developed
Action/Activity 2.2.4	Speak with one voice on a comprehensive fire prevention program
Action/Activity 2.3.5	Develop agreements for fuels mitigation across jurisdictions <i>Cross-cutting Action/Activity: Also in Strategic Opportunities C and D</i>
Strategic Opportunity C	Increase Firefighter Safety and Wildfire Response Through Enhanced Collaboration, Training, and Capacity-building across Agencies
Action/Activity 1.2.1	Planning between prescribed burn practitioners for wildland fire, landscape resiliency and community safety

Action/Activity 1.2.2	Prioritize fuel treatments to defend human communities and ecological values
Action/Activity 1.2.3	To ensure the continued used of prescribed fire <i>Cross-cutting Action/Activity: Also in Strategic Opportunity D</i>
Action/Activity 1.3.1	To train prescribed burners <i>Cross-cutting Action/Activity: Also in Strategic Opportunity D</i>
Action/Activity 1.4.1	To gain public and landowner support for prescribed burning <i>Cross-cutting Action/Activity: Also in Strategic Opportunity D</i>
Action/Activity 2.1.3	To reduce damage to human communities and reduce risk to firefighters <i>Cross-cutting Action/Activity: Also in Strategic Opportunity B</i>
Action/Activity 2.1.5	To reduce damage to human communities and reduce risk to firefighters <i>Cross-cutting Action/Activity: Also in Strategic Opportunity B</i>
Action/Activity 2.2.1	Obtain the assistance of rural fire departments for fire prevention and mitigation <i>Cross-cutting Action/Activity: Also in Strategic Opportunities B and D</i>
Action/Activity 2.2.3	Increase pre-fire coordination between all responders <i>Cross-cutting Action/Activity: Also in Strategic Opportunity B</i>
Action/Activity 2.3.2	Ensure policy makers and planners have timely access to information
Action/Activity 2.3.5	Develop agreements for fuels mitigation across jurisdictions <i>Cross-cutting Action/Activity: Also in Strategic Opportunities B and D</i>

Action/Activity 3.1.1	Increase training and capacity for wildfire response
Action/Activity 3.1.2	Increase pre-fire season coordination and use of predicative services tools
Action/Activity 3.1.3	Utilize technology to evaluate response strategies
Action/Activity 3.2.1	Increase standardized train for all responders
Action/Activity 3.2.2	Deploy specialized fire suppression equipment
Action/Activity 3.2.3	To increase firefighting capacity at federal, state and local level
Action/Activity 3.2.4	To encourage use of statewide mutual aid agreements and MOUs, including Coop Fire Agreement billing and development of type 3 IMTs
Strategic Opportunity C	Reduce Fuel Through Prescribed Fire and Other Management Techniques
Action/Activity 1.1.1	To emulate natural disturbance over large landscapes
Action/Activity 1.1.2	Prioritize prescribed fire to maintain previously treated areas
Action/Activity 1.1.3	Manage wildfire for resource benefit where it meets resource objectives
Action/Activity 1.1.4	Use of alternative management techniques (mechanical, etc) where fire is not feasible in order to treat difficult areas <i>Cross-cutting Action/Activity: Also in Strategic Opportunity B</i>
Action/Activity 1.1.6	In order to reduce negative impact of wildfire and prescribed burns

Action/Activity 1.1.7	Use SERPPAS efforts to get more burning accomplished
Action/Activity 1.2.3	To ensure the continued ability to use prescribed burning
Action/Activity 1.2.4	Develop economic markets to encourage mechanical fuels treatments and timber harvesting
Action/Activity 1.2.5	Encourage landowners to manage lands most of which intentionally or unintentionally reduce fuels <i>Cross-cutting Action/Activity: Also in Strategic Opportunity B</i>
Action/Activity 1.3.1	Train prescribed burners <i>Cross-cutting Action/Activity: Also in Strategic Opportunity C</i>
Action/Activity 1.3.2	Encourage the use of technology to manage smoke while prescribed burning to reduce smoke impacts
Action/Activity 1.3.3	Coordinate prescribed burning to reduce the impact of smoke
Action/Activity 1.4.1	To gain public and landowner support for prescribed burning
Action/Activity 1.4.3	In order to get more fuels management accomplished
Action/Activity 1.5.1	Treat natural disturbances to reduce fire risk
Action/Activity 1.5.2	Control invasive that alter fire regimes
Action/Activity 2.2.1	Obtain the assistance of rural fire departments for fire prevention and mitigation

	<i>Cross-cutting Action/Activity: Also in Strategic Opportunities B and C</i>
Action/Activity 2.3.1	Increase prescribed fire knowledge in community planning <i>Cross-cutting Action/Activity: Also in Strategic Opportunity B</i>
Action/Activity 2.3.5	Develop agreements for fuels mitigation across jurisdictions <i>Cross-cutting Action/Activity: Also in Strategic Opportunity B and C</i>