

## Revision Topic – Fire Risk

### **Need for Change**

Since the Forest Plans were approved in 1987, more homes and other structures have been built near and around national forests. Should fires occur, these structures within the wildland-urban interface are very vulnerable. As people, homes, and structures continue to occupy the wildland-urban interface and as hazard fuels continue to accumulate, a high risk and volatile situation needs to be addressed. There is a need for change in the 1987 Forest Plans to better address the restoration of fire-adapted ecosystems (refer to the Vegetation section of this document) and the reduction of risk to communities and the environment. The 1987 Forest Plans do not adequately address this issue.

Since the 1987 Forest Plans were written, much has been learned about the role fire plays as a disturbance process in western forest ecosystems. Fire suppression has changed the vegetation patterns, structure, and composition of forests. Therefore, the role that fire plays in these ecosystems has also been altered. The altered forest composition, when coupled with the additional structures and communities in the urban interface results in changed conditions that need to be addressed in the revision of the Forest Plans.

National and Regional strategies describe fire risk conditions in terms of condition class and fire regime. The 1987 Forest Plans did not address fire management from this perspective. Therefore, there is a need to update the 1987 Forest Plans so they reflect national fire management strategies and policies completed in recent years. These strategies include:

- The 1995 Federal Wildland Fire Management Policy and Program Review: This review directs the integration of fire into land management planning, working with landowners and stakeholders, and directs landscape level analysis (USDA/USDI, 1995c).
- National Fire Plan (2000): The documents that make up the National Fire Plan (NFP) direct that Fire Management Plans are more closely linked to Forest Plan direction.
- Region 1 and Region 4 Fire Planning Framework (2000): This provides fire management direction for Forest Plan Revisions that will help meet NEPA compliance in implementing wildland fire use, provides planning consistency across geographic areas, and other plan revision efficiencies (USDA 2000d).
- 10-Year Comprehensive Strategy (2001): This strategy reflects views of a broad cross-section of governmental and non-governmental stakeholders. The strategy addresses a comprehensive approach to the management of wildland fire, hazardous fuels, and ecosystem restoration on Federal and adjacent State, tribal, and private forest and range in the United States (USDA 2001a).

### **Laws and Regulations**

In recent years, there have been several major reviews of federal wildland fire management, resulting in policy and direction. The 1995 Federal Wildland Fire Management Policy and Program Review (USDA and USDI 1995c) recognized that fire was part of a larger problem, a symptom of altered fire regimes creating instability in ecosystems, setting the ecosystems up for large, catastrophic fires. It documented the need for landscape-level resource management, the integration of fire into land management planning and implementation, and the involvement of all affected landowners and stakeholders.

The Cerro Grande Fire in 2000 was an escaped prescribed burn that spread to Los Alamos, NM. Resulting public concern caused a review of fire management policy and program in 2000. The findings of this review strengthened the 1995 Federal Fire Policy and Program Review (USDA and USDI 1995c). These program reviews call for using "...the full range of fire management activities...to achieve ecosystem sustainability", including fire use. The policy review stresses the need to complete or revise

fire management plans that are “...more effectively and directly” integrated “with other natural resource goals”.

Wildland fires in 2000 burned over 7 million acres of land, mostly in the western States. The total acreage burned was three times the 10-year average. On September 8, 2000, the Secretaries of Interior and Agriculture delivered a joint report to the President entitled “Managing the Impact of Wildfires on Communities and the Environment: A Report to the President in response to the Wildfires of 2000” (USDA/USDI 2000b). The President asked for recommendations as to how best to respond to the effects of the severe fires, how to reduce the effects of wildland fire on rural communities, and how to ensure sufficient firefighting resources in the future.

A “National Fire Plan” (NFP) was prepared, and implementation has begun, to address the recommendations accepted by the President. The NFP sets forth goals and objectives to address:

- Agency firefighting capacity
- Restoration of damaged watersheds
- Hazardous fuels reduction
- Economic assistance to communities
- Reduction of fire hazards and restoration of landscapes in communities

### **Forest Service Strategic Plan**

The goals and objectives of the USDA Forest Service Strategic Plan (Revision 2000) guide future agency actions (USDA 2000a).

Goal 1 “Ecosystem Health” states: Promote ecosystem health and conservation using a collaborative approach to sustain the Nation’s forests, grasslands, and watersheds.”

Objective 1.c states: “Increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases, and invasive species.” Some of the strategies to achieve this objective are:

- Focus agency resources to reduce fire hazards, especially in urban/wildland interface areas.
- Prepare fire management plans tiered to land and resource management plans.
- Increase wildland fire protection capabilities to provide for firefighter and public safety.

The goals and objectives of the NFP are broadly addressed in the Forest Service Strategic Plan (Revision 2000). A shift in emphasis and supporting funding is occurring and has implications for changing the emphasis in the strategic plan and for how quickly some of the objectives will be achieved. As the NFP is implemented, the goals and objectives in the Forest Service Strategic Plan may need to be adjusted.

### **The Forest Plans and Monitoring and Evaluation**

The Monitoring and Evaluation of the two Forest Plans do not provide for monitoring of fire management and risk. In addition, current direction in the Forest Plans does not provide for management on a Fire Management Unit (FMU). Rather, current direction for fire is found within standards and guidelines for management areas. The management areas for the 1987 Forest Plans were small and lacked the reference to fire management needs.

### **Planning Questions for Fire Risk**

Planning questions have been developed to provide context to the fire risk revision topic. These questions are followed by a description of the historic and current condition and form the baseline to compare the effects of the alternatives. Additional analysis will be completed for the DEIS to more fully address these questions. This information will provide the decision maker with the knowledge necessary to understand the issue and make a decision.

**Planning Question – What are the historic and current fire risk conditions on the KIPZ and what are the trends?**

**Historic and Current Condition of Fire Risk**

Earth has been and still is a fire environment. Wildfire has been present as long as there has been plant biomass ignited by lightning, at least 350 million years (Cope and Chaloner 1985). Evidence of wildland fires extends back to the Paleozoic Era, hundreds of thousands of years before the present. Wildfire has been a regular occurrence since the Mesozoic, when flowering plants first developed (Agee 1993). Fire intensity and frequency in the Rocky Mountains has occurred with present-day predictability within vegetative groupings since the beginning of the current climatic period (+/- 2500 years per Chatters and Leavell 1994).

The success of fire suppression efforts and resource management activities over the last 100 years has had a large influence on the structure and composition of forest and rangeland fuel conditions. The function and process of ecological systems has changed. Fire suppression and some management activities have altered fuel loadings. Population and development densities continue to increase within forested environments. The risk and severity of fires continues to grow. The ecological changes resulting from fire suppression are clearly defined in the Terrestrial Sustainability section. On a large-scale, the ICBEMP shows that if we continue with current management, ecological integrity is projected to decline. Additionally, the environment has a high likelihood of adversely affecting human assets through catastrophic wildfires. Some potential effects of continuing with current management would be an increase in wildfire and smoke occurrence and an increase in vegetation most susceptible to insects and diseases (USDA 1997a).

Scientific findings from the ICBEMP highlight fire as a major ecosystem process. Specific findings from the ICBEMP show that, “In recent times, the acreage with lethal fire regimes has more than doubled. This poses a significant threat to ecological integrity, water quality, species recovery, and homes in rural areas. Fire severity and frequency have changed across the landscape. Before Euro-American settlement, most fires in low and mid elevation forests were nonlethal. Forests and rangelands benefited from these frequent, surface fires, which thinned vegetation and favored growth of fire-tolerant trees. Lethal, or stand-replacing fires played a lesser role on these landscapes. Lethal or stand-replacing fires currently predominate. Lethal fire regimes now exceed nonlethal fire regimes in forested areas. Fire exclusion, livestock grazing, timber harvest, and exotic plant introduction have contributed to these changes,” (USDA 1997, p. 13).

Many voices were raised towards the latter part of the 19<sup>th</sup> century about the extent and problem of wildland fires in the Northwest (Mark Twain in Glickstein 1987, John Muir in Weaver 1974, Leiberg 1897). Modern forest fire suppression began in the West shortly after the immense and destructive fires of 1902. These fires formed one of the ten largest and most destructive fires in the history of this nation (Davis 1959). The Twenty-Five Percent Fund Act of 1908 authorized the Forest Service to make “advances of money” to chiefs of field parties for fighting forest fires in emergency cases.

The great fires of 1910 started on August 10<sup>th</sup> in the Bitterroot Range and ultimately burned over 3 million acres in Idaho and Montana, and resulted in the deaths of 85 people. Following these fires, timber industry recognized the risk to the resources as an impact on the economy. The Weeks Act of 1911 authorized cooperative fire protection and allowed the purchase of land necessary to protect navigable streams from fire. Many local county fire organizations were formed following the passage of the Weeks Act.

Slash burning was a source of many wildfires and destruction of property and resources following the 1910 fires and into the 1920s. The Clarke-McNary Act of 1924 increased federal aid to states for fire control. In the twenties and thirties, federal, state, and private protection agencies developed a system of

over 3,000 fire lookouts in the Northwest. The nearest lookout fireman usually headed out alone after a fire was spotted, sometimes in the dark of night, returning days later back to the mountain perch. The 10:00 AM Policy was adopted in 1935. This policy directed the prevention of all human-caused fires and the containment of any fire started by 10:00 AM the next day. Weaver in 1943 documented the increasing risk to disease and damage for vegetation in low severity fire regimes and undesirable changes in vegetation composition resulting from fire suppression (Weaver, 1943).

Fire management costs as well as risks to the resources and communities were increasing exponentially in the 1960s. Managers were beginning to see ecological benefits from natural and prescribed fire. The park service changed its fire policy in 1968 to allow for a more natural role of fire. The Forest Service 10-Acre Policy was added in 1971. This set a pre-suppression objective of containing all fires within 10 acres. In 1977, a new policy was adopted that changed both 10:00 AM and 10-Acre policies. Fire by prescription became the rule and fire suppression became fire management.

Smoke became a dominant issue in the 1970s. The Clean Air Act of 1977 had the greatest effect on smoke management, which was truly felt in the 1980s when smoke management plans were revised.

Table 1-4 below displays some general trends in fire on the KIPZ. For example, there is a sharp decline in acres of large fires from 1920 through the 1950s, most likely due to fire suppression. However, in recent decades, the acres of large fires are increasing or are variable, which may be due to the buildup of fuels resulting from successful fire suppression and the increased risk and severity of fires.

**Table 1-4: Summary of Large Fires on the KNF and IPNFs.**

Summary of IPNFs Fires	
Decade	Acres of large Fires
1910-1919	1,150,000*
1920-1929	599,000*
1930-1939	146,000*
1940-1949	14,100*
1950-1959	4,190*
1960-1969	78,400*
1970-1979	10,700
1980-1989	4,840
1990-1999	6,810
Summary of KNF Fires	
Decade	Acres of Large Fires
1910-1919	426,000
1920-1929	96,220
1930-1939	72,800
1940-1949	2,020
1950-1959	3,990
1960-1969	3,620
1970-1979	13,100
1980-1989	31,800
1990-1999	86,000

**Planning Question – Where and when would we (a) allow certain types of fire; and (b) always suppress fires on the KIPZ?**

A fire hazard/risk assessment will be completed to address this question. Steps in this process will be:

- Identify land by condition class or risk category;
- Discuss the resources to be protected from catastrophic wildland fire including human communities, watersheds, threatened and endangered species habitats; and
- Establish landscape goals to achieve sustainable ecosystems.

Condition class is defined in terms of departure from the historic fire regime, as determined by the number of missed fire return intervals with respect to (1) the historic fire return interval, and (2) the current structure and composition of the system resulting from alterations to the disturbance regime (*from* Protecting People and Sustaining Resources in Fire-Adapted Ecosystems (USDA 2000f). Historic and current fire regimes will be defined by referencing vegetative type or Vegetation Response Unit (VRUs) descriptions and characterizations. This will provide a description of where and how much current disturbance and vegetative conditions have deviated from the historic range of variability (HRV).

Based on the fire hazard and risk assessment, FMUs will be delineated. The concept of delineating FMUs to describe the standards that fire may be used or restricted under will enhance the use of fire to provide a workable area on the landscape for wildland fire and prescribed fire. This concept is outlined in the most recent Fire Policy Review (USDA 1995c). Implementation procedures will identify and interpret parameters for fire intensity, size, duration, seasonal constraints, and risk assessment for each FMU. Cooperating with state and county efforts will be very important.

Management objectives and strategies or prescriptions for wildland fire and prescribed fire can be described (using current terminology) allowing fire use for ecological, hazard fuels reduction, protection and enhancement of wildland urban interface areas, wildlife and other resource needs within designated and delineated FMUs. Sufficient analysis for each FMU will form a basis from which a framework of Appropriate Management Response strategies can be developed.

These FMU decisions can provide land managers and fire planners the guidance and NEPA required to develop and implement Fire Management Plans (FMP). With the development of FMPs, the Forest Plans direction for FMUs can be translated into on-the-ground-actions. Tactical decisions are described in FMPs and implementation procedures will identify and interpret parameters for fire intensity, size, duration, seasonal constraints, and risk assessment for each FMU. Programmatic NEPA decisions needed to implement FMPs will be made during the Forest Plan Revision process.

**What are the implications of continuing under current management direction for Fire Risk?**

Under the 1987 Forest Plans, each Management Area (MA) lists standards for fire, which includes both prescribed fire and wildfire. These standards are still relevant even with the new, standard terminology now in use. Existing MA's developed during the 1980's produced small, impractical areas for wildland fire use and for fire management prescription writing. Strategic decisions developed during the Forest Plan Revision should provide general fire management direction.

The MA's in the 1987 Forest Plans have made integrated fire management difficult to implement. The 1987 Forest Plans have not provided sufficient analysis and, therefore, have not adequately authorized wildland fire use. Because of this, the only management choice available with an unwanted fire is to respond with suppression tactics.