

Missoula County Community Wildfire Protection Plan

August 2005



Initiated by the
Missoula County
Office of
Emergency
Services



Moved Forward by Concerned Citizens

THE WILDLAND/URBAN INTERFACE
of Pattee Canyon (top) captured
by satellite imagery; and the 2003
Crazy Horse Fire near Seeley Lake.
Photos courtesy NRI & J.S. Hahn – NPS/USFS

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For copies of this plan,
visit the Missoula County website
<http://www.co.missoula.mt.us/des/>

Missoula County
Community Wildfire Protection Plan

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Missoula County Community Wildfire Protection Plan

INTRODUCTION

Wildland fire in western Montana is well documented. It's been occurring for eons, and has shaped the vistas we treasure. It brings nutrients to the soil and diversity to the vegetation and wildlife (even the aquatic kind) and, in doing so, benefits the humans who later live in its path. More to the point, we cannot stop wildfire from occurring. Our attempts to do so—our suppression of all wildland ignitions for most of the 20th century—have actually made a complicated “fire management” situation more difficult.

Missoula County leaders in emergency response, land stewardship, and community preparedness want us to live safer with wildland fire. They created this Community Wildfire Protection Plan (CWPP) to do just that. Mandated by the Healthy Forests Restoration Act of 2003 (and a host of national fire-strategy documents, including the National Fire Plan), this county-level document emphasizes *collaboration*, and *reduction of hazardous fuels and structure ignitability*, per national direction.* It gives Missoula County residents “notice” of their wildfire hazards and risks, and offers suggestions for treatment on public and private lands. Essentially, it strives to be the citizen’s voice in the ongoing process of protecting communities from wildfire. –Without this voice (and subsequent actions to prepare for wildfire at the neighborhood level), we remain potential victims of wildfire, and that’s not necessary for humans or nature.

Note: A diverse group of interested parties guided development of this plan, which is supported by Missoula County officials and members of the Missoula County Fire Protection Association (MCFPA), a multi-agency partnership that seeks changes in wildland fire risks through the most cost-effective, time-efficient, and community-supported means available.

This plan is an appendix to the Missoula County Pre-Disaster Mitigation Plan and is a companion document to the Seeley-Swan Fire Plan. Copies can be obtained through the Missoula County website (see Emergency Services homepage).



A western Montana crown fire in 2000. Photo: USFS

* References: The National Fire Plan (2000); the Implementation Plan of the 10-Year Comprehensive Strategy for A Collaborative Approach For Reducing Wildland Fire Risks to Communities and the Environment (2002); the Healthy Forests Restoration Act (2003), and Preparing A Community Wildfire Protection Plan (2004). Also see Suggested Readings in Appendix Section.

WHAT'S AT RISK?

The “values at risk” from wildfire in Missoula County (Montana) are countless. The jurisdiction covers nearly 2600 square miles of mountainous terrain—containing five large valleys; two major rivers; an Interstate highway and railway system; numerous historic, recreation, and cultural, sites; a state university; acres of private and public forests; and a populace estimated at 98,610, by the US Census Bureau in 2003.

Note: This section addresses the entire county. However, the following Assessment/Recommendations sections ONLY pertain to the **Missoula County Project Area** (see map on previous page), which includes all of Missoula County, except the northern portion. The Seeley/Swan Fire Plan covers that area.

MISSOULA COUNTY COMMUNITIES

Western Montana’s largest city—Missoula (estimated population 63,000)—is the County Seat. In 2001, the Federal Register listed Missoula and many other communities in the area as being “at risk from wildfire.” This Community Wildfire Protection Plan (CWPP) supplements those findings. It’s built using scientifically based data and assessment methodology, as well as input from fire district personnel and interested publics. It recognizes that much of Missoula County is a wildland/urban interface *wildfire-risk* area, and that the folks who live, work, or recreate in its environs—whether grass-, shrub- or forest- lands—must be prepared for wildfire. This plan also offers ways to minimize risk and, thereby, reduce the undesirable effects of wildfire on lives, property, water supplies, economies, and aesthetics.

FIRE RESPONSE JURISDICTIONS

Most* of Missoula County (meaning its communities and their growing suburban areas) is part of a legally recognized, rural fire district, fire

Fire Response Jurisdictions & Their Communities in Missoula County	
	<i>(Co. Response Area)</i>
Arlee Rural Fire District _____	(152 sq.mi.)
➤	<i>South of Arlee</i>
Clinton Rural Fire District _____	(8 sq. mi.)
➤	<i>Clinton</i>
➤	<i>Lower Rock Creek +</i>
East Missoula Rural Fire District _____	(.98 sq. mi.)
➤	<i>East Missoula</i>
Florence Rural Fire District _____	(7 sq. mi.)
➤	<i>North of Florence</i>
Frenchtown Rural Fire District _____	(105 sq. mi.)
➤	<i>Evaro</i>
➤	<i>Frenchtown</i>
➤	<i>Huson/Ninemile</i>
➤	<i>Petty Creek</i>
➤	<i>The Wye</i>
Greenough/Potomac Fire Service Area _____	(201 sq. mi.)
➤	<i>Greenough</i>
➤	<i>Potomac</i>
Missoula Rural Fire District _____	(84.5 sq. mi.)
➤	<i>Blackfoot/Turah</i>
➤	<i>Grant Creek/Rattlesnake</i>
➤	<i>Pattee Canyon</i>
➤	<i>Lolo/Miller Creek</i>
➤	<i>Target Range/Big Flat</i>
Missoula City Fire Department _____	(25 sq. mi.)
➤	<i>Missoula</i>
Seeley Lake Rural Fire District* _____	(60 sq. mi.)
➤	<i>Seeley Lake</i>
Swan Valley Fire Service Area* _____	(139 sq. mi.)
➤	<i>Condon</i>
+ Wants to Join Clinton Fire District. * Covered by Seeley/Swan Fire Plan	

* To date, very few known structures are located outside a fire response jurisdiction. For more explanation, see Fire Response Capabilities section.

service area, or a municipal fire department. And it's from this jurisdictional context that we identify high-priority treatment areas and suggest ways to approach projects (and funding opportunities) that can reduce vegetation buildups and the ignitability of structures within those at-risk communities.

Missoula County*	
Land Ownership Statistics	
<i>USDA Forest Service:</i>	<i>696,085 acres</i>
<i>Plum Creek Timberlands:</i>	<i>436,969 acres</i>
<i>Private Owners:</i>	<i>311,584 acres</i>
<i>State of Montana:</i>	<i>100,866 acres</i>
<i>Flathead Tribal & BIA Trust:</i>	<i>94,554 acres</i>
<i>Bureau of Land Mgm.:</i>	<i>20,682 acres</i>
<small>*includes the Seeley/Swan areas</small>	

Other Response Jurisdictions

In addition to firefighters fielded by each community, *seasonal wildland* firefighters are deployed by the Forest Service (USFS), the Montana Department of Natural Resources and Conservation (DNRC), and the Confederated Salish and Kootenai Tribes (CSKT). These crews can help reduce local fire hazards and steer flames away from private homes and communities, but their job is to fight wildland fire. And unlike, the community fire response crews, they are not trained or equipped to fight a structure fire (see definitions of structural and wildland firefighting in Appendix glossary).

The largest *private* landowner in Missoula County is Plum Creek Timberlands, Inc. Their forestry crews are helpful in fire watch, prevention and fighting. However, the company ultimately relies on the State of Montana, which is tasked with providing wildland fire protection to private lands not inside a fire-response jurisdiction. A formal cooperative agreement for such coverage exists between the State of Montana and Missoula County.

Note: By interagency agreement, the DNRC is responsible for wildfire protection on Bureau of Land Management (BLM) lands in Missoula County. For more specifics, see Fire Response Capabilities section.

KEY COMMUNITY VALUES

Critical Infrastructure

Communication and power transmission lines; transportation corridors; hazardous-material facilities and other critical structures (such as hospitals, schools and public shelters)—all are priorities for a Community Wildfire Protection Plan (CWPP). The Missoula County Pre-Disaster Mitigation Plan (PDM) more fully describes the County's critical infrastructure. This CWPP recognizes that proactive planning and action can limit wildfire's indirect effects (i.e., heavy smoke) as well as its direct (flames and embers).



Power lines in jeopardy during the Black Mountain Fire of 2003.
Photo: USFS

Water Supplies

However natural to the landscape, wildfire in watersheds usually equates to post-fire erosion and downstream drinking-water problems. Even in areas where tap water comes from below ground, it's best to minimize severe wildfire in surrounding watersheds.

In most of Missoula County, the drinking water is pumped to its citizens via personal wells or the Mountain Water Company (MWC) system, which taps a fast-moving aquifer that is sometimes less than 10 feet below the surface. According to MWC literature, this water requires only "a low-level disinfection with chlorine" before being delivered to more than 56,000 customers. MWC also designates Rattlesnake Creek as a surface-water source: Under state mandate, this water can only be tapped under special circumstances. In the northern portion of the County, drinking water comes from surface sources, making watershed protection a particular priority.

Fire and Water

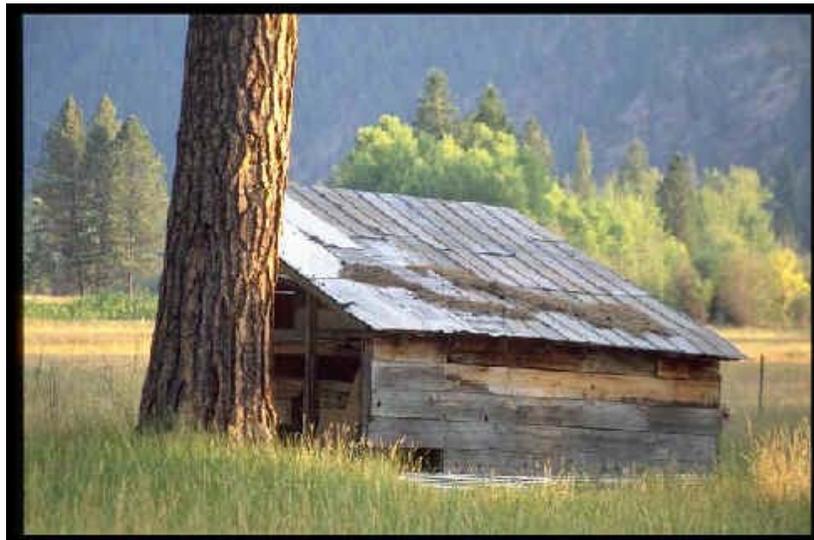
In addition to potable water, local companies supply water for sewer treatment and fire protection. The County's abundance of rivers, lakes and streams is also crucial in wildland fire protection operations.

- Missoula County
Pre-Disaster Mitigation Plan

Cultural/Tribal/Historical Sites

The footprints of Montana's native peoples and immigrants can be traced across Missoula County. In the northwestern portion (the southern end of the Flathead Indian Reservation), the CSKT Tribal Preservation Department continues to identify and record place names and locations of sacred sites, camps, and trails. Elsewhere, Missoula County has more than 75 sites listed on the US Register of Historic Places. These sites include the Lower Rattlesnake and Fort Missoula historic districts in Missoula; the Catholic Church in Frenchtown; the Stark Schoolhouse in the Ninemile Valley; and the Camp Paxson Boy Scout Camp in Seeley Lake.

Note: Local communities can best plan the means to protect these historic places from severe wildfire.



Signs of earlier times in western Montana. Photo: USFS

Open Space/Recreation Sites

Missoula County residents place a high priority on scenic vistas and their ability to recreate outdoors. Wildfire limits those opportunities. Accordingly, it's important from a community values and public safety perspective to mitigate wildfire risks within/around designated open-space areas near communities, as well as recreation sites on public and private lands.

NOTE: Other values can be added/specified during micro-level planning or the CWPP revision process.

ASSESSING THE SEVERE WILDFIRE RISK

Assessing the factors that can contribute to a fast moving, home-destroying (high-intensity or severe) wildfire is a crucial first step when developing a Community Wildfire Protection Plan. National guidelines suggest compiling a baseline of data that can include critical infrastructure, population densities, fire history, and vegetative fuel types—to name a few possible elements. Guidelines also recommend mapping this data, if possible.

The group building Missoula County's CWPP chose five assessment criteria to apply to its Project Area: *Three* are related to wildfire behavior (*Vegetative Fuels, Insect and Disease Mortality, and Slope*). The other *two* (*Population Density, and Critical Egress*) are human factors. Each was assigned a weight of importance and combined with the others to determine *High, Moderate and Low Priority for Fuels Reduction* project areas. More details on this process are provided in the Assessment Results section. It also offers map references and explanation of other factors, such as emergency response capabilities and fire chief knowledge about wildfire risks.

Plan Assessment Criteria

Fire Factors

- Vegetative Fuels
- Insect & Disease Mortality
- Slope

Human Factors

- Population Density
- Critical Egress

Local Fire History

Perhaps Montana's most famous wildfire burned into western Missoula County in 1910 (or at least as the county was then configured). Seventy-eight firefighters and an unknown number of citizens; five towns; and three million acres in Montana and Idaho burned during The Great Fires of 1910. Some say this catastrophic event influenced America's wildland fire policies for most of the 20th century.

More recently, wildfire has destroyed homes near the city of Missoula, at least twice. In 1977, six homes were lost on the southeastern edge of the city during the Pattee

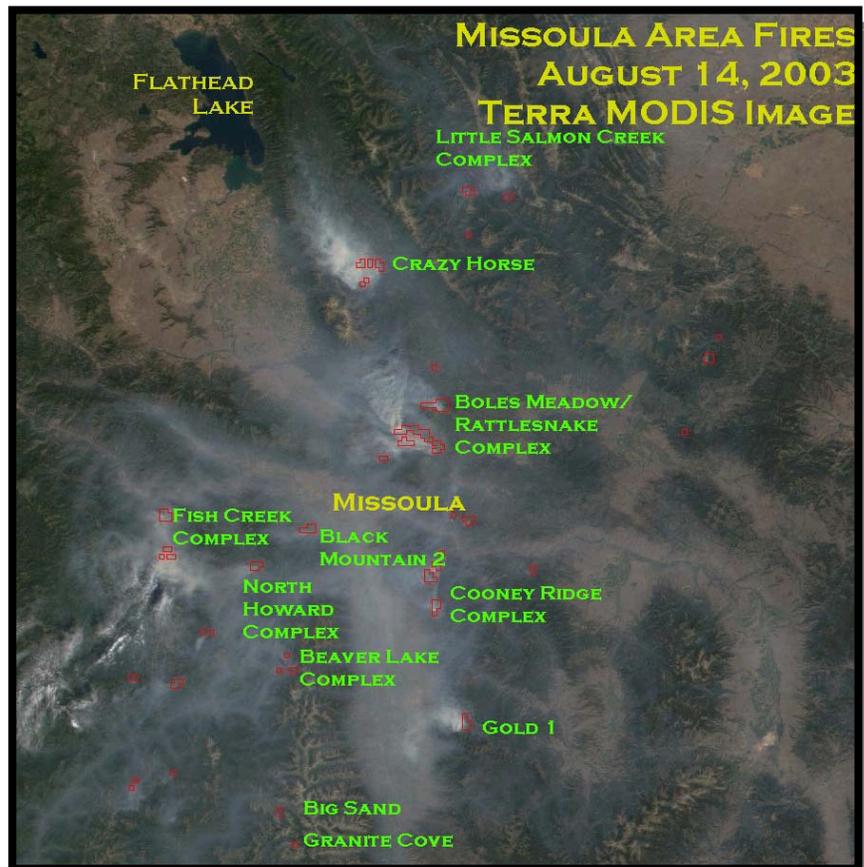


Image courtesy Fire Sciences Lab: USFS

Canyon Fire; then in 2003, three dwellings burned during the Black Mountain Fire, which over the course of a week threatened some 600 homes at the city's southwestern edge. In between these landmark fires are the 1988 Canyon Creek Fire, *which burned 180,000 acres in 24 hours just to the north of us*; the 2000 Bitterroot Fires, *which burned 360,000 acres and 70 homes just to the south*—and a long list of others that have claimed their share of taxpayer dollars and firefighter resources, but did not result in loss of lives or homes. So they are forgotten (by most people) in the never-ending parade of wildfires in western Montana.

Wildfire Causes

Lightning is a historic fire starter in Missoula County. On average, we experience 3,000-4,000 strikes a year, which equates to one strike for every 1.3 square miles. Most ignitions occur in remote areas, but when the flames move toward unprepared urban fringes, they do damage. Of the 609 fires reported during the 2000 season in the Southwest Montana Zone (which includes Missoula County), two-thirds (439) were lightning caused.

People also cause wildfires. They burn yard waste (or a patch of land) and let the fire escape its boundaries, or ignition occurs by children playing with fireworks, smokers careless with cigarette butts, or heated catalytic converters in dry grass. Only a fraction of starts are arson.

Note: While humans can prevent careless human-caused fires, we cannot prevent lightning starts. Our best option is to prepare for fire's arrival and so minimize its more devastating effects. (See Reducing Ignitability section.)

Fire Behavior Factors

The type and condition of the *fuel* (vegetation and structures), the *topography* of the land, the local *weather*—all this data is used to predict wildfire behavior. Only the fuel factor can be manipulated, however. Topography and weather can be understood, but not influenced.

Climate for Western Montana is described as “continental” with “cold winters and warm, dry summers” due to our location east of the Cascade Mountain Range while still being interior to the Columbia River Basin. Missoula County has an average 113 growing season days annually.

Temperatures, at their extremes, vary from well below 0° Fahrenheit (F) in the winter and above 100° F in the summer. Daily averages for maximum temperatures are 29° F (in January) and 84° F (in July).

Precipitation in the high elevations averages 24 inches annually (but as much as 60 inches in some places). In the low elevation basins, it averages 12 inches. Most precipitation occurs during the winter. May and June are the rainiest months. Thunderstorms and lightning are common throughout the summer. We average about 25 storms a year.

Burn of the Century

“Had they been able to soar upward with the smoke over the St. Joe Mountains, and a bit beyond, they would have witnessed a vast tsunami of flame, set into motion by the tremors of a fast-paced cold front, sweeping across the Rockies like a broken-edged scythe. Their separate behaviors followed everywhere more or less the same scenario. The winds rose, the fires exploded, the winds shifted, the fires veered with them, the winds dropped, and the surge subsided. The longer the fetch of wind and fuel, the larger the fire. The biggest burns moved from the most westerly origins, rushing eastward along deep valleys until, with a roar, they broke over the crest of the Bitterroots.

*From the
Year of the Fires:
The Great Fires of 1910*

Relative humidity—the amount of moisture in the air—during an average summer can range from 30%-40% in the daytime (late afternoon) and 75%-83% in the evening (very early morning), based on a 30-year average. In 1994 and 2000 (both severe wildfire seasons locally), the daytime readings for relative humidity in August averaged 19%. Evening readings averaged 63%. The average winter daytime and evening readings (for December) are 80% and 86%, respectively.

Wind speeds during the summer months (at the Missoula Airport) average seven miles per hour (mph) from the northwest. During a typical July, according to the National Weather Service (NWS), winds are often calm during the morning hours (9 am – 12 pm), but due to daytime heating pick up (to a sustained six to seven mph) until about 9 pm when they generally calm again. During the Black Mountain Fire of 2003, sustained winds were clocked at 20-25 mph with gusts of 40-45 mph.

Wind events increase the amount of oxygen available to a wildfire, thereby increasing its intensity. Wind events are often associated with cold fronts. In this region during the winter months, high pressure tends to dominate. Calm winds and cold air tend to trap smoke and pollution in the valley bottoms, limiting winter use of wildland fire for land-stewardship purposes, or the burning of wood for home heating.

Fire Weather Events of Note

- At the writing of this fire plan in 2005, Missoula County is in its sixth year of drought. NOAA scientists estimate that western Montana experiences drought in 20-40 year cycles, which indicates that our potential for catastrophic wildfire could continue to escalate, due to the effects of drought on standing and downed vegetation.
- Missoula County may well become drier yet. Scientists are predicting that by 2040, at the current rate of global warming, Glacier National Park (several hours north of us) will have no glaciers. This means less precipitation to the overall landscape as well as runoff to rivers and streams.
- The Missoula Station of the National Weather Service (NWS) reports that there were more 100° Fahrenheit (F) days in Missoula County between 2000 and 2004 than all of the previous 30 years. This heat further stresses vegetation around communities.
- During the severe wildfire seasons of 2000 and 2003, the NWS indicates “an unusual number of days with relative humidity of less than 15%.” Fire managers know that readings like those mean intense wildfire conditions, because it contributes to low fuel moisture. In 2000, live standing timber had fuel moistures comparable to kiln-dried lumber.
- The NWS also indicates that precipitation levels in the winter/spring do not influence severe wildfire seasons. The only characteristic these catastrophic years have in common is hot, dry summers, such as that experienced in 1910, 1988, 1994, 2000 and 2003 (or “every bad fire season since 1900”).
- The potential for “big fire runs” is highest in August and September due to the passage of cold fronts.
- High-intensity or severe wildfires, also called firestorms, create their own, highly erratic winds.
- Winds contribute to the aridity of a landscape.

DEFINING THE FIRE INTERFACE

In the fire-management community, the term *Wildland/Urban Interface* (WUI) refers to the area *where human development meets natural vegetation and the chance for catastrophic wildfire increases*. This could literally mean most of Missoula County. So for our Community Wildfire Protection Plan (CWPP), we need a more precise (community-supported) definition.

National guidelines recommend for landscapes such as ours (meaning with our makeup of fuels and topography) that we define the WUI as being 1.5 miles from structures. However, Missoula County doesn't have a database of exact structure locations—and is likely to never have such, given the expense of data acquisition and the expanding nature of the WUI. Instead, this fire plan relies on *population density* data, as provided by the US Census Bureau. Project leaders understand that this data is useful for predicting development patterns within the County and, as such, it could be referenced to influence development in future.

Knowing that this fire plan is a living document, regularly and easily updated, project leaders have elected to accept the national default, and thus define the County WUI as being a 1.5 mile zone around areas of population density (see Map B in Appendix). They encourage local fire officials (and their community partners) to analyze their jurisdictions/neighborhoods in future and modify this definition with rationale, i.e. an expanding development area or a specific risk factor, such as homes in an existing lightning alley.

Note: Federal, state and local agency representatives (including those from the Missoula City/County Office of Planning and Grants) encouraged the writers of this plan to consider landscapes that may in future become fire interface areas, such as Plum Creek Timberland holdings. These citizens, in effect, want to address future development patterns and the potential for extreme fire behavior in areas of High and Moderate Priority for Fuel Reduction work. Other entities, such as the National Forest Protection Alliance, prefer to limit the WUI to 400 meters (about a ¼ mile) around structures. They posit creating this more limited "Community Protection Zone" is the most effective fuel-mitigation strategy in terms of affecting short-term change and long-term maintenance.



Typical interface in the Upper Rattlesnake area. Photo: USFS

Sphere of Influence

Wildfire ignitions that occur on lands adjacent to Missoula County can spread rapidly into our local communities. This is particularly true for lands to the west of our communities, given prevailing winds. The primary land manager in much of this area is the USFS Lolo National Forest, which operates under a Forest Plan that divides the land into Management Areas (MAs). Many of the MAs in this "Sphere of Influence" for Missoula County are designated as Wilderness, Backcountry, and Mixed Forest Use. In terms of micro-level, community fire planning, it is worth recognizing and factoring in these land-use designations as well as understanding what they mean to local communities.

BASELINE ASSESSMENT CRITERIA

Those who develop a Community Wildfire Protection Plan (CWPP) can use a variety of criteria to determine their priorities for fuel reduction projects. Obviously, there are common data needs, such as fuel loadings and population density to assess risk, but there are no national mandates as to which factors to consider or how much weight to give to each one. That remains in the local realm, which depends on budgets and expertise. Consequently, most assessments are unique to each community, although each CWPP presents its findings in terms of High, Moderate or Low Priority for Fuel Reduction, or words to that effect.

As previously noted, project leaders for the Missoula County CWPP opted to use five criteria. They chose the categories of *vegetative fuels*, *slope*, and *insect and disease mortality* (see sidebar) because they wanted to denote the areas of the County where wildfire would most likely behave in a severe manner—meaning high flame lengths, rapid advancement, and lots of fire brands and embers (spotting). They used *population density* and *critical egress* to reveal areas with the most vulnerability to humans. They then rated these factors in terms of importance—expressed in weighting percentage. This data is explained more fully explained below (also see Appendix maps).

Missoula County Fire Plan Factors													
➤	<table style="width: 100%; border: none;"> <tr> <td style="text-align: left;">Assessment Criteria</td> <td style="text-align: right;">(Weighting)</td> </tr> <tr> <td style="padding-left: 20px;">○ <i>Vegetative Fuels</i></td> <td style="text-align: right;">(35%)</td> </tr> <tr> <td style="padding-left: 20px;">○ <i>Population Density</i></td> <td style="text-align: right;">(25%)</td> </tr> <tr> <td style="padding-left: 20px;">○ <i>Critical Egress</i></td> <td style="text-align: right;">(20%)</td> </tr> <tr> <td style="padding-left: 20px;">○ <i>Slope</i></td> <td style="text-align: right;">(10%)</td> </tr> <tr> <td style="padding-left: 20px;">○ <i>Insect & Disease Mortality</i></td> <td style="text-align: right;">(10%)</td> </tr> </table>	Assessment Criteria	(Weighting)	○ <i>Vegetative Fuels</i>	(35%)	○ <i>Population Density</i>	(25%)	○ <i>Critical Egress</i>	(20%)	○ <i>Slope</i>	(10%)	○ <i>Insect & Disease Mortality</i>	(10%)
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○ <i>Insect & Disease Mortality</i>	(10%)												
➤	<p>Other Considerations:</p> <ul style="list-style-type: none"> ○ Fire Chiefs' Survey ○ Local Fire Response Capabilities ○ Current Mitigation Projects ○ Other Assessment Data of Note 												

Note: This assessment process is ONLY the first step in a long process. Areas that we identify in this plan as High to Moderate Risk will need further (micro-level) scrutiny to implement the most effective implementation strategies. This will demand strong citizen/agency partnerships.

Fire (Management) Factors

- *Vegetative Fuels*

Preventing the rapid spread of severe (high-intensity) wildfire in the wildland/urban interface depends on the dominant vegetative fuel type and the amounts/arrangement of it that surrounds each community. Missoula County contains some 640,000 acres of the Lolo

Missoula County Fire Behavior Models
<u>FUEL Model - Descriptions</u>
#10 – <i>Moderately dense to dense timber</i>
#5 – <i>Shrub and herbaceous vegetation types</i>
#1 – <i>Grass and herbaceous vegetation types</i>

National Forest (LNF) within its boundaries, and the USFS has compiled fuel data on this land, including the most dominant categories of fuel models/groups (grasses, shrubs, and timber), as established by the USFS document *Anderson's Aids to Determining Fuel Models For Estimating Fire Behavior (1982)*.

LOCAL FIRE ECOLOGY

A good way to assess the land's potential to burn in a severe wildfire is to examine its fire history and makeup of vegetation. Responsible for the largest landmass in Missoula County, the Lolo National Forest (LNF) describes its jurisdiction in terms of ecosystems or habitat types. These descriptions are also useful for fire planning in Missoula County.

○ **Miscellaneous Special Habitats** (Fire Group 0)

Wet Meadow and Mountain Grasslands – Herbaceous forest opening further characterized by presence of water, i.e. meadows have a water source and are frequently too wet to burn during fire season. They can carry grass fire in late summer and early fall. In some situations, especially when dominated by grass, meadows may burn in early spring following snowmelt and prior to green-up. Grasslands are maintained by light fire. Both meadows and grasslands can act as natural fuel or firebreaks.

Aspen Groves and Alder Glades – Both are fire-dependent. Groves of quaking aspen, or quaking aspen and black cottonwood, occur on streamside sites or those that regularly experience wildfire. In the absence of fire, aspen gradually disappear. Alder glades burn infrequently, but they can burn intensely and will re-sprout from surviving underground stems.

Note: This habitat type also includes *Forested Rock* and *Scree*, both of which are generally characterized by non-contiguous fuel clusters that can burn but with limited spread and length of intensity.

○ **Warm/Dry Ponderosa Pine Habitat Types** (Fire Group 2)

Primarily fire-maintained ponderosa pine stands with grass undergrowth. Sites are typically hot, dry, south and west facing slopes at low elevations. In mature, open-grown stands the most abundant surface fuel is cured grass. Downed woody fuels usually consist of widely scattered, large trees (deadfalls) and concentrations of needles, twigs, cones, etc., near the base of individual trees. Fuel loads tend to increase in young stands. *Historic fire frequency was probably 5 to 25 years between fires.*

○ **Warm/Dry Douglas-Fir Habitat Types** (Fire Group 4)

Found at lower elevations. Primarily fire-maintained ponderosa pine stands with Douglas-fir regeneration. Characterized by relatively light fuel loads, sparse undergrowth, and generally open nature of the stands. Where dense regeneration does occur, fire was probably a thinning agent. Ground fire created open, park-like conditions in mature stands. Low probability of crown fire. *Historic fire frequency was probably 35 to 45 years between fires.*

○ **Cool/Dry Douglas-Fir Habitat Types** (Fire Group 5)

Found at sites too dry for lodgepole and too cold for ponderosa pine, Douglas-fir dominates. Fuel conditions vary according to stand density, species composition, age and history. The most hazardous conditions occur in well-stocked stands with dense Douglas-fir understories. Severe, stand-replacing fires probably occurred in these areas. *Historic fire frequency was probably 15 to 40 years between fires.*

○ **Moist Douglas-Fir Habitat Types** (Fire Group 6)

Found at elevations of 3,000 to 6,500 feet. Douglas-fir often dominates. Fuel conditions vary according to stand density, species composition, age and history. The most hazardous conditions occur in well-stocked stands with dense Douglas-fir understories. Severe, stand-replacing fires probably occurred in these areas. *Historic fire frequency was probably 15 to 40 years between fires.*

Continued on next page....

LOCAL FIRE ECOLOGY

(continued)

- **Dry Lower Sub-Alpine Habitat Types** (Fire Group 8)
Found at higher elevations. Spruce, sub-alpine fir, or mountain hemlock are the climax species. Prevalence of Douglas-fir and lodgepole pine may be due in part to periodic wildfire that sets back the invasion of sub-alpine fir and spruce. Sites contain large amounts of downed woody fuels of all sizes. Dense understories develop and provide ladder fuels to the overstory tree crowns, although some stands are devoid of such understories. Severe fire will generally favor lodgepole pine. *Historic fire frequency was probably 50 to 130 years between fires.*
- **Moist Lower Sub-Alpine Habitat Types** (Fire Group 9)
Found at elevations of about 2,900 to 7,500 feet. Soils are moist or wet much of the year. Older stands are dominated by sub-alpine fir and spruce. In younger stands, Engelmann spruce is usually a major component, along with lodgepole pine and Douglas-fir, which is also represented in the overstory of older stands. Under normal moisture conditions, lush shrub/herb undergrowth usually serves as an effective barrier to the rapid spread of fire. However, deep duff and large amounts of dead fuel can result in severe surface fire during unusually dry conditions. The dominance of lodgepole pine, Douglas-fir, larch or spruce on many sites suggests these stands developed on a fire-created, mineral, soil bed. *Historic fire frequency is between 100 and 150 years*
- **Warm/Moist Grand Fir, Redcedar and W. Hemlock Habitat Types** (Fire Group 11)
Often occurs on valley bottoms, benches, ravines, and protected exposures. Ten species of conifer may occur during the successional process. Western hemlock, western redcedar, and grand fir are climax species. Much of the downed woody fuel results from deadfall and occasional natural thinning. Fuel loadings average higher in all size classes. Under normal conditions, the fire hazard is normally low to moderate. Drought conditions contribute to severe, widespread fires. Stands are replaced and sites revert to pioneer species. *Fire-free intervals are reported from 50 to greater than 200 years.*

Note: Fire Groups are more fully explained in the USFS General Technical Report INT 233 (1987) "**Fire Ecology of Western Montana Forest Habitat Types**" by William C. Fischer & Anne F. Bradley.

- *Slope*

Aside from fuel types and weather factors, a landscape's topography is a leading indicator of how a wildland fire will behave once started. Topography includes slope, aspect and elevation. The last two factors speak to the aridity of a site. Project leaders preliminarily selected slope as *the* critical factor because of its immutable role in fire behavior.

Slope analysis for this plan is based on the Montana Natural Resource Information System (NRIS) digital elevation models, which were converted to display the slope distribution. The following are the slope classifications:

- *Slope Class 1 is characterized as Low (0-15% slope)*
- *Slope Class 2 is characterized as Moderate (15.05 –30% slope)*
- *Slope Class 3 is characterized as High (30.05 –60% slope)*
- *Slope Class 4 is characterized as Extreme (slopes greater than 60%)*

- *Insect & Disease Mortality*

Outbreaks of insects and disease (I&D) in the tree species around Missoula County are a natural part of the landscape. However, drought and past land-management policies may have exacerbated the situation. This means, in some places, dead and live vegetation is more dense, as well as drier and perhaps more stressed than its historical levels, which could lead to a high intensity (severe) wildfire near homes and communities.

Currently, the Lolo National Forest estimates that 32% of its land inside Missoula County is I&D infested. This is based on aerially collected data, which offers insight into the number of acres killed between 1980 and 2004. Where appropriate, this criterion was further weighted High or Low.

Excerpt from the
Fire Effects Guide

“Slope is an extremely important factor in fire behavior because the flames of a fire burning upslope are positioned closer to the fuels ahead of the fire. This dries and preheats the fuels at a greater rate than if they were on flat terrain.

By the
National Wildfire
Coordinating Group

WORTH NOTING

With increasing amounts of dead and live vegetation and an extended regional drought, it's important to note that all fuel types within Missoula County can burn at high severity under average summer conditions. Also worth noting is the number of fires that start in grasslands and then move into forestlands. These grassland or rangeland fires may not appear as intimidating as a crowning forest fire, but they can move very fast—historically killing more firefighters in the United States than forest fires. They also claim their share of structures.

Human (Safety) Factors

- *Population Density*

Homes, businesses, and other manmade structures can be easy fuel for wildfire. Knowing where they are located and how they're built (i.e. wood shake shingle roof or other vulnerabilities) is an important factor in predicting risks and hazards. USFS studies of big home-loss fires reveal that burning homes tend to ignite their neighbors. In effect, structures become another source of flames and wind-born embers, much like the original wildfire, which could still be miles away.



A crop of homes in Grant Creek, Missoula. Photo: G. Wallace

In 2002, the US Census Bureau reported 41,000 housing units in Missoula County. Ideally, the baseline map for this plan would have these structures identified and precisely marked, courtesy of satellite technology. However, the costs of such an enterprise and the ongoing, rapid growth into rural and wildland areas are prohibitive. Hence, the use of population density figures for this plan. Note that these figures do not account for routine population spikes due to tourism.

The baseline data used in this assessment process recognizes four classes of population density (provided by US Census Bureau; 2002).

Class 1 = 1 to 5 persons per square mile

Class 2 = 5 to 25 persons per square mile

Class 3 = 25 to 100 persons per square mile

Class 4 = greater than 100 persons per square mile

DEFINING OUR TERMS

Fire Risk – The potential for a fire start because there is a causative agent, such as a lightning strike, overhead power-line failure, spark from a passing car or train, escaped campfire, or children playing with matches, etc.

Fire Hazard – The density, condition, location and kinds of fuel that exist on a landscape that would influence fire behavior, which is measured in terms of intensity, rate of spread and effect.

For more definitions of terms used in this document, see the Defining Our Terms glossary in the Appendix.

- *Critical Egress*

Missoula County first mapped its limited egress (access) areas in 1994. This plan uses updated (1997) information, which is displayed on maps in polygons drawn around entire subdivisions, or groups of such. There were 37 areas identified for this project (see list in Appendix). These findings are critical for planning and implementing safe and efficient emergency evacuations. Inversely, they also point to situations where citizens and/or firefighters could be trapped, which would affect fire response and community safety.

Other Considerations

- *Fire Response Capabilities*

Project leaders consider all communities in Missoula County as having capable fire response agencies. However, they admit, daytime staffing is a challenge in smaller (volunteer-firefighter dependent) communities. What follows is an overview of local response capabilities (also see Appendix Map C):



Agency cooperation is essential to community fire protection.
Photo: MCFPA

Jurisdictions: In Missoula County, we have ten community-based, fire-response jurisdictions. Of them, only the Missoula City Fire Department has an all-paid staff. Missoula and Frenchtown rural fire districts (together covering nearly 200 square miles) have a mix of paid and volunteer firefighters. The other districts (see list on page 6) rely on citizen volunteers (even for the Fire Chief's position) to respond to structure fires, wildland fires, and other emergencies, such as vehicle accidents on the Interstate or secondary roads that run through each jurisdiction.

Additionally, as noted, the US Forest Service (USFS) and the Montana Department of Natural Resources and Conservation (DNRC) offer wildland fire response ONLY. They also offer access to national Incident and Area Command Teams and resources, when needed, such as the severe fire years of 2000 and 2003.

Note: All of Missoula County's fire agencies belong to the Missoula County Fire Protection Association (MCFPA), which serves as a sounding board for fire prevention and other fire-related needs. The MCFPA website offers a contact list for local jurisdictions as well as a link to the 1998 Community Interface Fire Plan, which captures interagency successes and fire-prevention capabilities (www.mcfpa.org).

Responsibilities: When an unwanted wildland fire ignites in Missoula County, a fire-response crew from a local fire response jurisdiction*, a USFS ranger district, and/or DNRC fire unit may respond, depending on its location. The Missoula City/County 911 Center and the USFS Missoula Area Dispatch Center use the "closest forces" concept in wildland fire dispatch.

* The exception is Missoula County Fire Service Areas, which (for the scope of this CWPP) represents Greenough/Potomac. It has no wildland fire responsibility.

This means engines are sent regardless of boundaries (jurisdictional responsibilities). This arrangement is particularly helpful at either end of the federally recognized fire season (typically mid June through mid September). When wildfire starts early, as they did in 2000 (the first wildfire occurred on March 15), federal fire crews are not yet employed, so it is the community-based firefighter who is often first on scene.

Interagency Agreements – All fire response crews in Missoula County can leave their jurisdictional boundaries to aid a requesting agency partner. This is possible through Mutual Aid Agreements. In addition, Montana statute allows these crews to assist throughout state, when needed/possible. Automatic Aid Agreements are also utilized between most Missoula County agencies sharing boundaries. These agreements are triggered by verbal request, typically at the time of first dispatch.

Emergency Preparedness/Evacuation – Emergency evacuation procedures are the responsibility of the Missoula County Sheriff’s Office. During a wildfire, the Incident Commander (in coordination and with the approval of the agencies having jurisdiction) will recommend evacuation. Routes and locations of shelters/centers depend on fire location and numbers of affected individuals, and so must be made on a case-by-case basis at the time of the Incident. Missoula County has an Evacuation Plan. For more information about it, contact the Missoula County Sheriff’s Office.

Areas Without Organized Fire Response – There are approximately 22,000 acres of private land in Missoula County without an organized fire-response system. Under the terms of a Cooperative Agreement between the County Commissioners and the State of Montana, the County has assumed fire suppression responsibility in these areas from the State. Therefore, the Sheriff’s Office is the official responding agency. However, historically, it’s the nearest local fire crew that responds. No formal agreement for this response (between the County Commissioners and the eligible community-based, fire response jurisdiction) exists at this time.

Lands without fire protection are located throughout Missoula County. Some of the larger examples include the following areas: *Upper Miller Creek, Holloman Saddle, Ninemile Prairie, and Upper Lolo Creek*. *There’s also some unprotected land near the Missoula Airport and the Eight-Mile area near Florence.*

Wildland Fire Response Zones

Wildland fire response in Missoula County is divided into two categories:

Non-Forested Zone

If outside an organized jurisdiction, responsibility belongs to the Missoula County Commissioners. The fire warden requests response from County fire agencies for fires within this non-forested zone.

Forested Zone

Responsibility of the USFS Lolo National Forest and the DNRC Southwest Land Office. Direct protection includes all of the forested zone areas, including the forested areas within community fire jurisdictions.

ASSESSMENT RESULTS

The assessment process for the Missoula County Project Area (using wildfire risk and human safety factors) produced no surprises for the Missoula County officials involved in this fire plan. At the start of the project, fire chiefs were asked to share their list of High Risk To Wildfire areas within their jurisdictions. The assessment findings and map support their concerns.

In general, most areas identified in Missoula County as having a High or Moderate Priority for Fuels Reduction are located within mountain drainages. They are characterized by heavy fuel loadings, increasing human development, and emergency egress/access issues. Additionally, each Priority Area is located near a more densely populated community that provides goods, services and jobs. Map D in the Appendix captures these areas.

Note: This county-level data compliments the findings of the Seeley-Swan Fire Plan, which used an assessment equation of fuel, slope and evacuation routes to determine priority areas. To determine the assessment results in that area, refer to the Seeley/Swan Fire Plan.

High-Risk-To-Wildfire Areas Fire Chiefs' Survey Results*

<p>Arlee Rural Fire District (See Appendix Map E)</p> <ul style="list-style-type: none"> #1 Grizzly Mountain Subdivision #2 Schley Creek #3 Subdivision at district boundary 	<p>Greenough/Potomac Fire Service Area (Map I)</p> <ul style="list-style-type: none"> #1 Forest Park Subdivision #2 Bear, Norman, Game Creek Area #3 Red Tail/Mystic Moon Area #4 Jordan Subdivision #5 Garnet Range Road Subdivision 		
<p>Clinton Rural Fire District (Appendix Map F)</p> <ul style="list-style-type: none"> #1 Donovan Creek #2 Kendall Creek #3 Wallace Creek 	<p>Missoula Fire Department (Appendix Map J)</p> <ul style="list-style-type: none"> #1 Lower Rattlesnake Area #2 Lower Grant Creek Area #3 Pattee Canyon 		
<p>Florence Rural Fire District (Appendix Map G)</p> <ul style="list-style-type: none"> #1 NW Corner of district boundary, west of Highway 93 	<p>Missoula Rural Fire District (Appendix Map K)</p> <table style="width: 100%; border: none;"> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> #1 Grant Creek #2 Rattlesnake #3 Big Flat #4 Hayes Creek </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> #5 Lolo Creek #6 Miller Creek #7 Pattee Canyon #8 Butler Creek </td> </tr> </table>	<ul style="list-style-type: none"> #1 Grant Creek #2 Rattlesnake #3 Big Flat #4 Hayes Creek 	<ul style="list-style-type: none"> #5 Lolo Creek #6 Miller Creek #7 Pattee Canyon #8 Butler Creek
<ul style="list-style-type: none"> #1 Grant Creek #2 Rattlesnake #3 Big Flat #4 Hayes Creek 	<ul style="list-style-type: none"> #5 Lolo Creek #6 Miller Creek #7 Pattee Canyon #8 Butler Creek 		
<p>Frenchtown Rural Fire District (Appendix Map H)</p> <ul style="list-style-type: none"> #1 Frenchtown Face #2 Evaro Area #3 Southside Road/Petty Creek Area #4 Six Mile Area #5 Nine Mile Area 	<p>Seeley Lake Rural Fire District Swan Valley Fire Service Area</p> <p style="text-align: center;">- See Seeley/Swan Fire Plan</p>		

* East Missoula Volunteer Fire District did not participate in this survey.

Priority Areas

This fire plan identifies more than 22,000 acres of Missoula County (excluding the Seeley Lake/Condon area) as having a HIGH PRIORITY for Fuel Reduction. This assessment also identifies more than 300,000 acres within the Project Area (see map on Page 6) that are considered MODERATE PRIORITY for Fuel Reduction. Project leaders know that's a lot of ground, but they want to target as much of the High and Moderate Priority areas for immediate treatment as possible. All involved realize that this work is dependent on many variables (see Funding The Next Step).

Missoula County Priority Fuel Reduction Areas Acreage Totals	
<u>PRIORITY For Fuel Reduction</u>	<u>Approx. ACREAGE</u>
HIGH	22,148
MODERATE	334,616
LOW	839,860

See Map D in Appendix

In general, this fire plan encourages creative thinking and innovative approaches to funding treatment in HIGH and MODERATE Priority Areas, since the County does not have extensive funding available for such.

Other Assessment Data of Note

Current Mitigation Projects – The fuel-reduction work already accomplished on public and private lands is an important factor in High and Moderate Priority Areas. The Appendix contains a partial (preliminary) list of such projects on federal lands.

Fire Frequency Condition Class – Many CWPPs that cover forest environments use the USFS database of current Condition Class. This measures the frequency of fires in a particular ecosystem and assesses a numerical rating based on the number of missed fire cycles. Project leaders deemed this data too gross for use at this level, but noted that it's being adapted for community planning and, as such, will be considered in future.

CONSEQUENCES OF RISK

Based on the fires in 2003 in Ravalli County and Missoula County, the losses from severe wildfire mount quickly. The County Pre-Disaster Mitigation Plan (PDM) estimates that fire suppression costs, and structure and infrastructure losses will exceed \$100 million in an extreme fire year. Other costs can include the following:

Loss of Lives –The Missoula County PDM rates wildfire as a Moderate risk, but judges its impact to the community as “VERY HIGH with a HIGH potential for casualties.” County officials also worry about the health impacts of heavy smoke on vulnerable populations. Air Alerts are common during catastrophic fire seasons.

Loss of Jobs – Given the variables, it’s almost impossible to calculate the cost of severe wildfire on economies and livelihoods. During the fires of 2000, evacuations and road and forest closures were common throughout western Montana, displacing countless workers, from fishing guides to residential painters. The state’s tourist economy, in general, took a hit in 2000, as the media carried daily reports of high fire danger, smoke, and ash.

Loss of Taxable Value – Property-loss estimates for wildfire are also hard to figure. In future, this fire plan may be able to capture these estimates for areas rated as High and Moderate Priority. Meanwhile, the County PDM utilizes crown fire data and estimates that “approximately 6.6% of residences are in zones that have a moderate or high potential for crown fire” and that “the value of those exposed residential structures is estimated to be \$284 million, with an estimated \$142 million in content value. Commercial buildings within high or moderate crown fire potential areas are estimated to be \$2.8 million with a content value of \$2.8 million.”

Loss of Sense of Safety - A University of Colorado report on the communities that experienced the Bitterroot Fires of 2000 indicates that residents faced “extraordinary challenges...and fire-related trauma” that may take years to overcome. Residents were stressed about the safety of loved ones, property, pets and domestic animals, and wildlife. They hated being confined indoors for weeks. This particularly impacted children who lost the normalcy of school activities.

A Community Response

“The fire devastated everything... The intensity of it was extreme. ...For some it was devastating... They have nothing to leave their families, their children’s’ children.”

“As the dry conditions continued, even thunderstorms became...“objects of terror.”

From “*The Fires of 2000: Community Response and Recovery in the Bitter Root Valley, Western Montana*”

Post-Fire Effects

Bitterroot Valley residents also experienced post-fire flooding and erosion. While a natural occurrence in western Montana (the process forms the rich alluvial plains at the mouths of our mountain drainages), such landscape disturbances in the short-term are a public-safety hazard that can be minimized through community preparedness and individual/agency responsibility for at-risk landscapes. Landscapes where vegetation density may be at historic levels are at particular risk for this phenomenon.

WHAT DO WE DO ABOUT IT?

Not that long ago, the job of protecting communities and other valued resources from wildland fire appeared to belong to the firefighter. The citizen's job was to report the wildfire ignition to 911 and run in the other direction to safety. This is still true, of course, but with a trend toward more episodes of severe wildland/urban interface fire in the US, there's increasing recognition that *everyone within a community must be involved in protecting lives and property from fire*. This means there's a role for property owners, land developers, community planners, public officials, insurance agents, firefighters, and many more. And our job begins before a wildfire occurs. This demands planning and participation by those potentially affected.

COMMUNITY FIRE PLANNING GOALS

The National Fire Plan (NFP), issued in August of 2000, recognizes that fuels reduction and community assistance are key goals. The Healthy Forests Restoration Act (HFRA), adopted in 2003, has a mandate that wildfire-prone communities measure their risks and reduce their ignitability. Both the NFP and the HFRA were launched after catastrophic fire seasons. Both recognize that the country needs less severe wildfire and more prepared communities, and they ask that citizens form the necessary partnerships and approve projects that can reduce our risks of catastrophic wildfire in neighborhoods, watersheds, timberlands, wildlife habitats, recreation sites, and view sheds.

Benefits of Fire Planning and Preparation

- Increased knowledge about severe (high-intensity) wildfire and ways to limit its effects on humans, dwellings, natural resources, critical infrastructure, economies, and other community values.
- Priority status for federal fuels-reduction project funds.
- A record of the community's preference for the methods used to reduce fuels on nearby federal lands with National Environmental Protection Act (NEPA) requirements. This "preferred alternative" streamlines federal decision making.
- A defined fuel-treatment area where we can focus funding opportunities and increase project effectiveness and maintenance of such. This area is referred to as the *wildland/urban interface* and the *community protection zone*.
- Landscapes that can withstand periodic wildfire (natural fire regimes, where possible) **and** sustain safe human habitation.

Community Incentive

The Healthy Forests Restoration Act is "landmark legislation [that] includes the first meaningful statutory incentives for the USFS and BLM to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects."

From the Handbook:
Preparing a Community Wildfire Protection Plan

Minimize Fire Intensity Before; Maximize Recovery After!

MISSOULA COUNTY FIRE PLANNING

Fire officials and emergency responders created Missoula County's first Community Fire Interface Plan in 1998. Oriented to homeowner education and still available on the Missoula County Fire Protection Association website, this plan advocates awareness of wildfire risks and increased stakeholder (citizen, landscaper, builder, insurance agent, planner, etc.) participation in solutions. A product of the '98 plan, the MCFPA website (www.mcfpa.org) also provides information on fire danger, burning permits, and Firewise landscaping and construction.

The County Director of the Office of Emergency Services spearheaded this Community Wildfire Protection Plan (CWPP) in late 2004. Using a U.S. Department of Interior Bureau of Land Management (BLM) funding agreement, the Director hired the coordinator/writer of the '98 fire plan, and engaged the County's Geographic Information System (GIS) specialist to handle the assessment portion of the project.

Initially, this team collaborated with two fire officials. In January of 2005, they convened a larger, more diverse group, consisting of MCFPA members and other interested individuals (see Appendix). With their guidance, the Coordinator scheduled public outreach and began writing a plan outline; the GIS specialist began the assessment/mapping process. Project completion was set for July.

Project leaders anticipate regularly updating this plan.

Note: The development group that developed this Missoula County CWPP included some of the citizens that created the Seeley/Swan Fire Plan.

This Community Wildfire Protection Plan (CWPP) is an umbrella document that makes all Missoula County communities eligible for priority federal funding. The Seeley/Swan Fire Plan is a companion document to this CWPP. All future, micro-level plans, such as the Blackfoot/Clearwater Fuels Mitigation Plan, will be subsets of this County-level fire plan.

A CWPP must be collaboratively developed by local and state government representatives in consultation with federal agencies and other interested parties...

Healthy Forests
Restoration Act

Planning Tiers

Just as fire seems to spread uniformly fast across a vast terrain, but it's actually behaving differently at each hill or valley or home, a County-level community fire protection plan must cover the big, but provide for the small picture. This plan deals in gross scales and macro-level strategies. Micro-level thinking can only occur at the community/neighborhood or watershed level, which is the main reason this plan is considered a living document, a primary module for what will most likely become a multi-module document linked to other County/State initiatives.

- **STATE** – The Montana Department of Natural Resources and Conservation (DNRC) validates all CWPPs developed within the state.
- **COUNTY** – The Missoula County CWPP, which includes the Seeley/Swan Fire Plan, is an appendix to the Missoula County Pre-Disaster Plan. The CWPP will consider goals of other County plans, as needed.
- **LOCAL** – Future CWPPs, developed at the community/neighborhood level planning through local fire jurisdictions, will tier to this County-level plan.
- **REGIONAL** – Consider collaboration opportunities with bordering counties via CWPPs findings/goals.

Public Outreach

National CWPP guidelines advocate collaboration in fire planning. This is standard practice in Missoula County's fire response community. For this plan, project leaders organized a series of public meetings—offered over a six-week period in the spring of 2005—for each fire response jurisdiction. One of the first meetings targeted Missoula City/County officials. Most occurred at fire stations during regular Fire District Board of Trustees meetings. Two were held in hotel conference rooms, including the last gathering, which asked County stakeholders (see invite list in Appendix) to attend. Fire officials advertised by word-of-mouth and targeted mailings. A PowerPoint Presentation on the project was used at most of these gatherings.



Clinton's Fire Chief at a Trustees/Fire Plan meeting.
Photo: G. Wallace

Additionally, the Plan Coordinator issued two news releases (see Appendix). The first, announcing the project, attracted the television media. The Clark Fork Chronicle newspaper and the Bitter Root Trails newsletter published the second release, which outlined the public meetings schedule. Public radio also picked up on this release. The Missoulian and local television stations are expected to cover a third release, announcing project findings. All material was posted on the Missoula County Fire Protection Association website. Additionally, the County placed an ad in The (Sunday) Missoulian to promote the last (stakeholders) meeting.

Questions for the Public

- 1) The national (default) definition of the wildland/urban interface is a mile and half from structures. Would you suggest any changes?
- 2) What types of hazardous fuel treatment methods would you suggest be used on federal ground?
- 3) What types of fuel disposal methods would you suggest for private ground?
- 4) What are your areas of geographic concern?
- 5) What do you think is the highest priority area within your fire district?
- 6) What, if any, regulatory approaches do you think the County should support in reducing the risk of wildfire to local communities?

Meeting Results

Public participation was minimal at each meeting (see Sign-In Sheets in Appendix). But a series of questions (see sidebar) helped generate meaningful discussion about local fire protection and forest management priorities. Outreach meetings also captured the need for *consistent* community education, particularly at the neighborhood or drainage level on a *person-to-person basis*. MCFPA agency participation was good (as usual).

Meeting Handouts

The public was offered handouts (see Appendix) that captured project goals, assessment criteria and initial findings, a list of USFS land-management/forest treatment methods, and a set of six questions. Five of these questions arose from national guidance. The sixth came from a county commissioner struggling with the idea of allowing more development in limited access areas (there are no rules to the contrary). Handouts were also given out during the burn permit process.

TREATMENT RECOMMENDATIONS

For Federal and Private Lands Within The Missoula County Project Area

Project leaders, and individuals interested in this community fire planning process, agree that too many acres of public and private lands within Missoula County are at risk of catastrophic wildfire and that steps can be taken to minimize the growing threat. This fire plan recognizes that there are several ways to accomplish this goal. It also acknowledges that risk reduction decisions must be made on a case-by-case basis, utilizing the knowledge of local fire officials, affected residents, and other community stakeholders. This approach provides maximum input, while allowing the County to make progress on a vital community safety issue. Ultimately, our goal of living more compatibly with wildfire can only be achieved by citizen awareness and action.

The Community Wildfire Protection Plan (CWPP) must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment.

- From the Handbook:
Preparing a Community Wildfire Protection Plan

Identify and Prioritize

National guidelines ask that we prioritize the lands within our project area in terms of High, Moderate or Low Priority for Fuel Reduction. We've accomplished this (see Assessment section and Appendix maps). However, it's important to note here that *this County-level fire plan does not set treatment priorities* for the County. Instead, local fire jurisdictions are asked to partner with stakeholders in High and Moderate Priority Areas—depending on response capabilities, funding, and homeowner/agency support.

Types & Methods of Treatments

We're also asked to recommend "the types and methods of fuel-reduction treatments" that will be done in priority areas. We posed this nationally mandated question to citizens via the news media and public outreach (one handout describes typical forest-stewardship practices - see Appendix). Generally, this question elicited a non-response, which project leaders interpreted to mean "no strong preference for treatment," or a comment withheld/pending a specific project.

Accordingly, we ask readers of this plan to consider the following: *What principals, guidelines or vision of future conditions should we use to guide planning and implementation of hazardous fuel reduction projects on the public lands? How should public land managers involve us (the general public and neighboring land owners) in the planning and implementation of these projects?*

This fire plan addresses some of the above questions. However, most answers will have to come through future revisions of this plan or via neighborhood-supported (micro-level) action modules attached to it.

The Healthy Forests Restoration Act of 2003 "gives priority to projects and treatment areas identified in a CWPP by directing federal agencies to give specific consideration to fuel reduction projects that implement those plans. If a federal agency proposes a fuel treatment project in an area addressed by a community plan but identifies a different treatment method, the agency must also evaluate the community's recommendation as part of the project's environmental assessment process."

National Guidelines

Fuel Treatment Goals and Guidelines

This fire plan recommends that federal and state personnel move quickly to reduce hazardous fuel buildups on public lands surrounding Missoula County communities. We ask that this work be done in areas rated as High Priority and Moderate Priority for Fuel Reduction by this fire plan assessment. We further request that private landowners, with large tracts and small, address their wildfire risks in a timely manner. Finally, we remind that all lands will need maintenance (retreatment) in five to ten years and that we only have so much money.

Project leaders also offer the following suggestions to support community-safety goals:

Federal (Public*) Lands

- **Treatment Priorities**
 - Select projects in High and Moderate Priority Areas for Fuel Reduction (preferred) that maximize safety, or best protect community values.
- **Treatment Strategies**
 - In lower and mid elevation, ponderosa pine/larch/Douglas fir forests, remove understory vegetation to eliminate fuels that lead to the canopy of mature, healthy trees; so as to reduce the likelihood of fast-moving, tree-killing fire. Additionally, seeding, sapling or pole-sized stands with little or no overstory may need thinning to reduce crown density and fuel continuity.
 - In higher elevation, lodgepole pine forests, select projects with enough scale so as to reduce fire severity around communities, critical infrastructure, or other community values, so they can survive without the immediate intervention of firefighters.
 - Design projects specifically to reduce hazardous fuel levels. Timber harvest and ecosystem restoration may be project outcomes. However, emphasis is on fuel reduction. Sell material targeted for removal, if it is profitable to do so.
 - Use existing fuel-mitigation projects to create perimeters around communities, roadways, railway lines, powerlines, etc.
 - Prescribed fire use is allowed, where/when appropriate, i.e. under all circumstances community safety must be preserved.
- **Machinery**
 - Make equipment choices that minimize disturbance to the land and prevent soil erosion.
- **Biomass Disposal**
 - Choose methods for disposing of unwanted vegetation (slash) that maximize profit and minimize future risk to landscapes.



Signs of work to limit the path of severe fire in the WUI.

Photo: Missoula Rural Fire District (MRFD).

** This fire plan focuses on federal lands but recognizes that other public land managers in Missoula County have responsibility for community wildfire safety. The Montana DNRC—tasked with maximizing revenue from state lands to support the Montana school system—relies on forest management practices to accomplish fuel reduction goals. It facilitates such work wherever possible, including cross boundaries. Additionally, Forest Service and Bureau of Land Management lands are governed by separate, existing laws, regulations and land-management actions that are directed by Decisions issued for Land Use Plans and Project Plans.*

Private Lands

- **Treatment Priorities**
 - Select projects in High and Moderate Priority Areas that can increase safety for individual home sites and/or home clusters.
 - Recognize that untreated areas on treated property can carry wildfire to structures on that property or adjacent properties.
- **Treatment Strategies**
 - In all fuel types, limit vegetation in the Home Ignition Zone. For specifics, see Community Preparedness below.
 - In densely forested lands that traditionally burn in severe fires, as well as for homes located on slopes, implement a large enough Home Ignition Zone (i.e. maximum 150 feet) so the structure can survive without the immediate intervention of firefighters.
- **Machinery**
 - Make equipment choices that minimize disturbance to the land and prevent soil erosion.
- **Biomass Disposal**
 - Choose methods for disposing of unwanted vegetation (slash) that minimize future risks.
 - Fire use for slash disposal is allowed, per County regulations and guidance.

COMMUNITY PREPAREDNESS

It's a basic premise of this fire plan that in "being prepared," communities can minimize—or even prevent—the more devastating effects of wildfire and, in doing so, better safeguard our community landmarks and personal resources. Achieving this goal will demand every resource our communities can provide—from firefighters to community planners and elected officials to property owners.

Note: Currently, Missoula County is blessed with local officials and community leaders who have attended a national Firewise Communities Workshop, offered through the National/Wildland Urban Fire Program from 1999-2003. The Firewise website still offers workshop material (courtesy of program sponsors: The National Wildfire Coordinating Group). This fire plan recognizes the value of this base of fire knowledge and recommends its nurturing as new community leaders step forward.



A landscaping buffer of green grass and well-spaced trees is key to home survival in the wildland/urban interface. MT/GF Photo

Reducing the Ignitability of Structures

During severe (multiple home loss) wildfires, ongoing studies reveal that structures burn because of their composition and what immediately surrounds them. This means that property owners, not public land managers or local firefighters, have control over the wildfire safety of a particular site. To meet the national mandate that community fire plans assist homeowners with reducing the ignitability of structures, this CWPP relies on the Firewise Communities

Program and its website (www.firewise.org) to recommend techniques that homeowners (and other stakeholders, i.e. land developers) can use to reduce the amount of time that flames and embers can linger, thus increasing the structure's chances for survival. This work can also reduce the severity of fire's effects on surrounding vegetation, which is difficult to insure against damage.

A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan...

- From the Handbook:
Preparing a Community Wildfire Protection Plan

Firewise Landscaping

This plan recommends that Missoula County wildland/urban interface dwellers create a Firewise-landscaping buffer around their homes, garages and outbuildings so as to better safeguard their property from wildfire. The Home Ignition Zone can range from between 30-150 feet or more from the structure, depending on the characteristics of the home site. Fuel-reduction work in this zone can involve vegetation removal, replacement and/or rearrangement and is necessary regardless of the priority rating for each site. Bottom line: Homes located in Low Priority areas are not *without risk* of catastrophe. With the right conditions, it can occur anywhere.

What follows is a few key landscaping considerations from the Firewise checklist:

"To create a Firewise landscape, remember that the primary goal is fuel reduction. To this end, initiate the zone concept. Zone 1 is closest to the structure; Zones 2-4 move progressively further away.

- *Zone 1. This well-irrigated area encircles the structure for at least 30' on all sides, providing space for fire-suppression equipment [if available] in the event of an emergency. Plantings should be limited to carefully spaced, low-flammability species.*
- *Zones 2-3. Low flammability...low-growing plants and well-spaced trees in [these] areas.*
- *Zone 4. Furthest from the structure...natural area. Selectively prune [so that the lowest limbs are 6' to 10' feet up from the ground] and thin all plants [a minimum 15' feet between tree canopies] and remove highly flammable vegetation.*

Also remember to:

- *Take out the ladder fuels—vegetation that serves as a link between grass, [shrubs or brush] and treetops.*
- *Give yourself added protection with "fuel breaks" like driveways, gravel walkways and lawns.*

While maintaining a landscape:

- *Remove leaf clutter [pine needles] and dead branches.*
- *Mow the lawn regularly.*
- *Dispose of cuttings and debris promptly, according to local regulations.*
- *Store firewood away from house.*
- *Be sure the irrigation system is well maintained.*

Note: The Montana Nurseryman and Landscapers Association's Firescaping brochure provides guidance for recognizing low flammability plants. Members of the Missoula County Fire Protection Association make this brochure and similar data available through local fire stations and agency offices.

Firewise Construction

The same principle—of preventing fire from lingering in any one place—applies to structures as well as vegetation. USFS research reveals that it's "the little things" that cause home destruction during wildfire: a bird's nest in your window lattice catches fire, embers fly into your attic vent or barn rafters, a wooden walkway in dry grass begins to burn, etc. This fire plan recognizes these findings and encourages property owners and land developers within Missoula County to adopt Firewise construction practices, i.e. modifying existing structures, when and where possible, and building only Firewise communities in future.

The following is excerpt from the Firewise Construction checklist:

"Remember the primary goals are fuel and exposure reduction. To this end:"

Structure Design/Maintenance

- *"Use materials that are fire-resistant or non-combustible whenever possible*
- *For roof construction, consider Class A asphalt shingles, slate or clay tile, metal, cement and concrete products, or terra cotta tiles"*
- *On exterior wall facing, stucco or masonry are much better choices than vinyl, which can soften and melt.*
- *Smaller [window] panes hold up better in their frames than larger ones. Double pane glass and tempered glass are more reliable and effective heat barriers than single pane glass.*
- *Install non-flammable shutters on windows and skylights.*
- *To prevent sparks from entering your home through vents, cover exterior attic and underfloor vents with wire screening no larger than 1/8 of an inch mesh. Make sure under-eave and soffit vents are as close as possible to the roofline.*
- *Keep gutters, eaves and roofs clear of leaves and other debris.*
- *Make periodic inspections of your home, looking for deterioration such as breaks and spaces between roof tiles, warping wood, or cracks and crevices in the structure."*

Attachments

- *"Use masonry or metal as a protective barriers between fence and house.*
- *Use metal when constructing a trellis and cover it with high-moisture, low-flammability vegetation.*
- *Prevent combustible materials and debris from accumulating beneath patio decks or elevated porches. Screen or box-in [these] areas with wire screen no larger than 1/8-inch mesh.*
- *Make sure an elevated wooded deck is not located at the top of a hill where it will be in direct line of fire moving up slope. Consider a terrace instead.*

Property Access

- *"The driveway and access roads should be well maintained, clearly marked, and include ample turnaround space [for fire trucks] near the house. Also provide easy access to fire service water supplies, whenever possible."*

Existing Regulations

At this time, only a few Firewise landscaping concerns (road widths and grades) are captured in the Missoula County subdivision regulations. Construction decisions are covered by the building codes adopted by the state and local jurisdictions. County fire officials have had some success working with developers using the Uniform Fire Code. Additionally, the State of Montana has created some wildland/urban interface guidelines (for more information, contact the DNRC).

Overall, project leaders rate existing laws as fairly weak. They also acknowledge that regulations require scarce commodities (staffing and funding) to enforce and that most residents resist the use of regulation.

This community fire planning process, of course, has generated discussion about more regulations (see Public Comments in Appendix). However, at this time, project leaders endorse the idea of not prohibiting land use and building/development in Missoula County. Rather, they encourage the adoption/execution of known guidelines/Firewise suggestions.

Community Assistance

Missoula County residents have a variety of avenues for addressing their wildfire safety issues. All the members of the Missoula County Fire Protection Association (MCFPA) offer some type of assistance.

- Municipal and rural fire district personnel (depending on the jurisdiction's resources) can assist with fire-risk assessments and mitigation work.
- State foresters regularly make on-site visits and offer treatment recommendations, as requested by individuals or multi-agency partners.
- The Bitter Root Resource Conservation and Development, Inc., area also offers forester assistance and a growing list of contractors capable of executing a variety of fuel-reduction tasks.
- The Lolo National Forest (US Forest Service) Supervisors Office and affected ranger districts also offer technical assistance and cost-share incentives for WUI dwellers.



A sign of our mitigating times in Western Montana
USFS photo

Note: More information on the MCFPA can be found at www.mcfpa.org. More information this topic of Community Assistant is provided in the following chapter "Funding 'The Next Step'."

FUNDING "THE NEXT STEP"

Stakeholders in the goal of reducing Missoula County's risk to severe wildfire are encouraged to work with their local fire officials and to concentrate fuel-reduction work in known priority areas (see Fire Chiefs' Survey and Assessment Results/Mapping). However, the fact is that only three of the County's fire response districts have paid, full-time personnel. The others are staffed by volunteers, who are already taxed by training and incident response requirements. Asking them to spearhead fuel-reduction work on private land is a hardship, particularly when it comes to attracting future funding for project administration and implementation.

Note: Fuel-reduction project funds will likely come through citizen or agency efforts in priority areas. Missoula County should not be relied upon to provide project funds or the means for continual planning. However, all applications for such must go through a County-designated, fire-response agency.

Funding Opportunities

Though budgets are limited and constantly fluctuating, there are several sources for grant-funded, community fuels-reduction projects in Missoula County. Generally, they include a funds match, either through cash, in-kind donations, or sweat equity. What follows is a brief listing of those grant sources:

Missoula County earmarks a certain portion of its Forest Service (PL 106-393 Title III) community assistance funds for the Missoula County Fuels Mitigation Program. This usually amounts to \$80,000 to \$100,000 annually. The deadline for application varies, but generally it's in the spring.

This program recognizes that one treatment method does not fit all. It encourages creative thinking non-traditional partnerships, and coordination of fuels treatment on private property with adjacent state and federal land.

This funding source is solid through the end of its five-year cycle (2006). After that, it may or may not be reauthorized by Congress. Project leaders also wish to acknowledge the contribution of local fire districts to County infrastructure through staff time, etc.

Montana State Department of Natural Resources and Conservation (DNRC) offers two National Fire Plan (NFP) fuels mitigation grant programs. Though similar in intent and funded via the USDA Forest Service, they have different requirements/administration.

- *The Western States Fire Managers' Wildland Urban Interface Grant Program* uses a portion of the Fire Assistance monies for 17 western states and protectorates to fund fuel treatment on private land. Funding is a 50-50 (dollar for dollar) match. It allows vegetation management only (no infrastructure, i.e. dry hydrants, road work allowed). Applications are available in the spring (May and June), with a typical deadline in the fall (September or October).

Missoula County Fuels Mitigation Program

Objectives

- removal of fuels
- education on sustainability
- creation of maps
- improving address visibility

Ground Rules

- Money gets spent "on the ground" in areas protected by a local fire district. Strictly limit dollars spent on administration.
- Collaboration occurs between fire jurisdictions and local community groups

- *The Community Protection Grant Program*, according to the DNRC's Quick Facts on Fuels handout, uses Congressionally authorized monies "to minimize losses on private lands adjacent to federal lands where fire-related activities are planned." Approved projects must include fire use on private lands (i.e. prescribed fire, pile burning, etc.) and this fire use must occur before treatment activities on federal lands. This mandate will "mitigate potential losses from subsequent federal treatments." The affected lands cannot have infrastructure present. Application opportunities vary annually and depend upon US Forest Service treatment targets.

Note: Funds from this program are also called Stevens Money after the Alaska Senator who created funding authorization for this Community Protection Program.

US Department of Interior/Department of Home Land Security funding opportunities exist via, respectively, the Bureau of Indian Affairs (BIA) and the Bureau of Land Management (BLM), and the Federal Emergency Management Agency (FEMA).

- *BIA Grants* are available for fuels mitigation on lands within reservations, regardless of ownership.
- *BLM Funding Assistance* is available for planning and fuels treatment, where a plan already exists. Funds (requiring a 90/10 match) are also available for education and outreach. Application deadline varies by field office, but usually it occurs in the spring.
- *FEMA grants* are available through the *Pre-Disaster Mitigation Program*. More information on timelines, criteria, etc., is available at www.fema.gov.

NOTE: *The Firewise Communities Program, funded by the National Wildfire Coordinating Group through its National Wildland/Urban Interface Fire Program, offers additional information on grants and funding sources (see www.firewise.org).*

Project Implementation Models

Grant-funded, fuel-reduction work can be accomplished in a variety of ways in Missoula County. This variety sometimes confuses the public, but choice is good, particularly when championed by the local fire jurisdiction and its citizen partners. The following is an overview of locally used implementation models. Each offers advantages and drawbacks that the pertinent agency can best explain.

Fire Department/District Mitigation Crews - Currently, a municipal fire department and two rural fire districts within Missoula County operate small, seasonal mitigation crews composed of firefighters. Missoula Fire Department utilizes paid firefighters; Frenchtown Rural uses volunteer firefighters, and Missoula Rural employs its firefighter cadets. These crews are devoted to fuel-reduction on private ground within their jurisdictions. Benefits for this approach include on-site firefighting equipment. With the rural district programs, most homeowners are charged a fee (typically \$100-200 a day) for work within the Home Ignition Zone. Those funds are then used to sustain the project, either by supplementing grant funds or paying for project costs, i.e. equipment maintenance, fuel, etc.

Note: In 2005, these two separate district crews worked together to create a Firewise development in a third fire response jurisdiction (Clinton Rural). This development is set to become the District's first Firewise Community/USA community.

RC&D Community Forester & Private Contractor(s) - The Montana DNRC contracted with the state's Resource Conservation and Development (RC&D) districts to implement its National Fire Plan monies (offered through the Western States Grant or Community Protection Grant programs). This approach allows the DNRC to expand its staffing capabilities. Locally, this partnership is with the Bitter Root RC&D, which has jurisdiction responsibility for Missoula County as well as adjacent Mineral County (to the west) and Ravalli County (to the south). This office has a Community Forester who is responsible for coordinating homeowner/agency partnerships in priority areas; inspecting properties, and making fuel-reduction recommendations, as well as acquiring additional grant monies. Homeowners can then hire local contractors to execute goals. Cost match is 50/50 or 75/25 with a maximum homeowner cost of \$500. Work must be done before funds can be awarded.

Note: As of 2005, the Bitter Root RC&D fields a Community Forester in Ravalli and Mineral Counties and in the northern portion of Missoula County, in the Seeley/Swan area.

Private Foresters with reputations for solid, environmentally sensitive, cost-efficient work abound in western Montana. The Bitter Root RC&D has developed a list for homeowners. For more information contact them at 363-1444 ext. 5.

Non-Profit Agencies are also offering services to western Montana residents. For example, the Montana Conservation Corp—a non-profit organization designed to help students give back to the community and learn new skills while earning a small stipend—successfully implemented cost-effective, fuel-reduction work in nearby Granite County, under the leadership of the Granite Conservation District and the Missoula Ranger District of the USFS.

YOUR "NEXT STEP" TIPS

Since so much of the work of community fire preparedness must be carried out by private individuals willing to identify and mitigate their specific hazards and risks, we offer the following tips on what local community leaders might make happen next:

- Focus attention through local homeowners association, or develop a local action group
- Recognize the specific factors (prevailing winds, fire history, etc.) that influences your community, neighborhood, or drainage in terms of wildfire
- Determine what you want to do, can do, and how it'll be done
- Work with fire specialists, where possible, to make decisions
- Seek funding sources

Note: End-of-project reports about grant-funded work can be found on the National Fire and the Lolo National Forest websites, among others.

WHAT DOES SUCCESS LOOK LIKE?

National guidelines offer some perspective on which projects to tackle first: They suggest concentrating on High Priority Areas with the *most hazards, people, and community value*. Public comments received during this planning process suggest we focus on areas with *high-density fuel loads, limited access and High to Moderate population densities*. This fire plan does not rely on a stated formula. Instead it asks that officials from the affected fire jurisdiction and residents make these decisions at the appropriate time, so as to best fit local culture and capabilities.

Project Priorities

Concentrate fuel reduction work in areas of highest priority and effectiveness: highest values, greatest hazards, highest population density, high fire occurrence...

*Healthy Forests
Restoration Act (2003)*

The Missoula County Strategy

In general, the strategy for Missoula County officials is to continue to advocate/support programs that educate the public about individual responsibilities for preparedness and maintenance of such. In addition, this fire plan offers the following standards for prioritizing fuel reduction work within fire response jurisdictions:

- Consider the entire community (neighborhood) and apply awarded funds to projects with the greatest number of homes at risk and the greatest number of acres to be thinned.
- Recognize that implementation is dependent on funding and that a district's highest priority may not be funded first. For example, applying a \$50,000 grant towards a \$200,000 project may not offer the best cost-benefits.
- Complete projects and change predicted outcomes.

Treatment Targets

More than 22,000 acres within 1.5 miles of Missoula County populations (communities as identified by this fire plan) are rated as having a HIGH PRIORITY for Fuel Reduction Work, based on fire risk and human safety factors. Another quarter million acres—just within the project area (not the County's entire wildland/urban interface area)—is rated a MODERATE PRIORITY. It all needs treatment and then regular Firewise maintenance (compared to the routine of mowing the lawn) thereafter.

Cost Estimates—Using DNRC provided data for treatment-costs-per-acre, it could cost between \$400 and \$2000 per acre to treat all of our HIGH and MODERATE Priority Areas. In order to accomplish this in a reasonable timeframe (a ten-year cycle), the County would need about \$6 million annually. This fire plan looks to the National Fire Plan and state resources to accomplish this goal. It also acknowledges that needed fuel-reduction work and maintenance of such will also (always) require private effort to accomplish.

Plan Accountability

Accountability for project success and failures is an objective in the National Fire Plan and supporting documents. Locally, it's an important sensibility as well. The living nature of this

community wildfire plan allows for consistent monitoring opportunities. The County Office of Disaster and Emergency Services (OES) will store all project data and serve as a clearinghouse for documenting future local accomplishments. Each update will be appended to this plan and posted on the County and other applicable websites. The County will also keep a hard copy of the Seeley Swan Fire Plan.

Plan Updates/Addendums

This fire plan will be updated regularly, if not annually. The Missoula County OES will ensure that it continues to coordinate with other existing plans at the County level or within the fire community. This fire plan allows the County to spend grant funds to accomplish these updates.

All community plans created within Missoula County after the creation of this plan will be guided by and appended to this plan. They must be created through the local fire jurisdiction and should not rely on County funding for creation or implementation, although it will assist in such where/when possible.

Recommended Action Items

The National Fire Plan and Healthy Forests Restoration Act emphasize action. This fire plan offers the following tasks, generated from public meetings, to increase our public safety:

Wildfire Response – Improve Fire Prevention & Suppression

- Update mutual aid agreements within Missoula County
- Update fire response pre-plans in High/Moderate Risk area
- Create process to provide local knowledge to Incident Command Teams
- Formalize agreement for fire response in unprotected County lands

Status

Accomplished
In Progress
Accomplished
Pending

Hazard Mitigation – Reduce Hazardous Fuels

- Develop a mechanism that can assist with grant writing, education, project implementation, plan coordination, etc.
- Assist fire jurisdictions/community groups with mapping
- Post reports on appropriate websites about past fuel-reduction projects
- Encourage economic opportunities for wildfire risk reduction.

In Progress
As needed
In Progress
In Progress

Community Preparedness – Improve/promote community assistance

- Update education materials, targeting High Priority Areas
- Publicize fuel-reduction reports and other useful data

Future Action (2006)
In Progress

Structure Protection – Reduce ignitability of structures

- Encourage use of fire-resistant materials/design of non-combustible homes
- Assist planners with comprehensive planning to mitigate disasters
- Encourage review of subdivision regulations for coordination with this fire plan.
- Consider developing a County mitigation crew or enabling cross-boundary crews

Pending (2006)
Future Action
In Progress
Accomplished

CONCLUSION

The creators of this fire plan pledge to implement the above-recommended actions and to work diligently to design and implement fuels-reduction projects that can increase our ability to live safely with wildfire. Anyone who reads this plan is asked to help in this endeavor.

**SEELEY-SWAN FIRE PLAN
MAY 2008 UPDATE TO THE
MARCH 2004 PLAN**



FIRE PLAN COOPERATORS:

**SEELEY LAKE RURAL FIRE DISTRICT
SWAN VALLEY VOLUNTEER FIRE DEPARTMENT
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION
UNITED STATES FOREST SERVICE**

**TECHNICAL SUPPORT
PROVIDED BY THE
ECOSYSTEM MANAGEMENT RESEARCH INSTITUTE**

COOPERATING AGENCIES from 2004

Frank Maradeo, Fire Chief
Seeley Lake Rural Fire District

Date

Roland Matthew, Fire Chief
Swan Valley Volunteer Fire Department

Date

Steve Wallace, Unit Manager
Montana Dept. of Natural Resources & Conservation
Blackfoot/Clearwater Unit

Date

Dan Roberson, Unit Manager
Montana Dept. of Natural Resource & Conservation
Swan Lake Unit

Date

Timothy Love, District Ranger
U.S. Forest Service
Seeley Lake Ranger District

Date

Steve Brady, District Ranger
U.S. Forest Service
Swan River Ranger District

Date

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EXECUTIVE SUMMARY

1.1 PROBLEM OVERVIEW

The fire seasons of 2000, 2001, 2003, and 2007 had both direct and indirect impacts on the safety and well being of the Seeley Lake and Condon, Montana communities. While wildfire hazard cannot be eliminated in this region, some of the risk and effects from them can be mitigated in the wildland/urban interface (WUI). The Seeley Lake Rural Fire District, working in conjunction with the Montana Department of Natural Resources and Conservation, the U.S. Forest Service, and the Swan Valley Volunteer Fire Department, prepared the Seeley-Swan Fire Plan in 2004 to help guide and focus wildfire mitigation activities in the WUI. The 2004 Fire Plan has been revised and updated as presented in this report. Primary updates to the 2004 Plan include mapping of fuel mitigation work completed in the past 4 years, mapping of areas affected by fire during this time period, updating of contacts and related resources in the Plan and a revision of the fuels layer using the Landfire database that was produced in the interim. This then resulted in a change to the fire hazard map. The area of the fire plan was also expanded to include the entire Clearwater River watershed and expanded further north in the Swan River watershed. All of these changes resulted in changes to acreage estimates in the fire risk categories.

This Fire Plan identifies significant wildfire risks to the communities and outlines an action plan that can reduce or eliminate their impacts. The Fire Plan compiled available information of use in responding to fires or in reducing the risk of fires, furthering the existing coordination and cooperation of fire fighting units in the Seeley-Swan Valley, and developing action steps for addressing fire risks and fire fighting capabilities in the Valley. The Seeley-Swan Fire Plan includes resources and information to assist county residents, public and private organizations, local government, and others interested in planning for wildfire risk reduction, including a list of action steps that will assist both communities in reducing and preventing loss from future wildfire events.

1.2 PROCESS OVERVIEW

Information for the 2004 Seeley-Swan Fire Plan was gathered during monthly meetings of the Fire Plan Team conducted from March 2003 to March 2004 and developed using existing public and private information. Fire Plan Team participants included Seeley Lake Rural Fire Department officers, Swan Valley Volunteer Fire Department officers, U.S. Forest Service personnel, Montana Department of Natural Resources and Conservation personnel, and technical support was provided by the Ecosystem Management Research Institute. Two public meetings, one in Seeley Lake and one in Condon, were held to gather public input for the plan. The revision of the Fire Plan was undertaken by the Seeley Lake Fuels Mitigation Task Force, a cooperative group including representatives of the Clearwater Resource Council, Seeley Lake Rural Fire Department, U.S. Forest Service, MT DNRC, Swan Ecosystem Center, and Bitter Root RC&D. This Task Force was formed to implement the 2004 Fire Plan, and has functioned effectively for the past several years. The Task Force was again provided technical assistance from the Ecosystem Management Research Institute in completing this revision and update.

1.3 OVERALL GOAL

This document will serve as a template and should be evaluated and updated on an annual basis or as new information is gathered or developed. The goal of this document is to develop a cooperative and coordinated fire plan for the Seeley Lake and Condon communities-at-risk to wildfire. The objectives to accomplish this goal include:

- 1) Facilitate community planning and outline strategies for protecting community values,
- 2) Identify existing information and conduct a wildland-urban interface risk assessment for the entire project area,
- 3) Identify pre-fire management risk/reduction actions and programs,

- 4) Develop a community fire plan that can be integrated with local comprehensive growth and development plans as well as broader landscape plans to ensure social, economic and ecological concerns are addressed at all levels, and
- 5) Develop a framework to ensure wildfire policy, prevention, suppression, and funding efforts are coordinated locally among stakeholders that include local communities, as well as private and public organizations.

1.4 METHODOLOGY

The Seeley-Swan Fire Plan was developed with 3 primary steps required to complete the overall process. Step 1 included the development of a GIS and Database Support System. Available information to support fire planning or response within the fire plan region was compiled and entered in a GIS and database system. Some examples of pertinent information include roads, utilities, ownership, location of structures (partial), water drafting sites, communication facilities, historical fires, and forest conditions. Step 2 included using the information gathered in step 1 to conduct a risk assessment for the wildland/urban interface. The risk assessment used information on forest fuel loadings, slope, structure densities, and evacuation routes to identify areas of high, moderate, low, and very low risk to wildfire. Step 3 used the information obtained in Step 1 and 2 to develop the Seeley-Swan Fire Plan that represents a cooperative and coordinated fire plan for the Seeley Lake and Condon communities-at-risk to wildfire.

1.5 SPECIFIC RECOMMENDATIONS

The plan identifies the importance of maintaining the good, cooperative working relationship among the different fire agencies in the plan area. It also identifies the importance in maintaining and improving public communication and educational programs. The plan compiled considerable data and maps to facilitate fire suppression activities. It identified over 31,000 acres of high-risk areas and over 109,000 acres of moderate risk areas within the wildland/urban interface of the Seeley/Swan Valley. A goal of conducting annual fuel treatments on at least 10% of the high-risk areas and additional moderate risk areas was identified. This will require obtaining additional resources to accomplish these goals. Frequent meetings of the cooperators through the Seeley Lake Fuels Mitigation Task Force have occurred and should continue to ensure effective and efficient suppression and pre-suppression coordination.

1.6 MONITORING AND REVIEW

The data and maps compiled for the plan should be examined and updated annually. Specific measures of plan accomplishments are identified, and will be collected and compiled by the cooperating agencies annually. A complete review of the plan should be conducted no later than 5 years from this acceptance of this plan.

1.7 ADDITIONAL INFORMATION NEEDS

The plan identified three remaining information needs that should be addressed as soon as practical. These three information needs are:

- Determining the accuracy of the Landfire fuels map for the Swan and Clearwater Valleys,
- Defining Fire Regime Conditions Classes (FRCC) and historical reference stand conditions, and
- Determining policies and guidelines for incorporating additional ecological considerations for fuel thinning within the WUI.

INTRODUCTION

A wildfire is defined as an unplanned fire be it human-caused or from natural origins, originating or spreading outside of the urban environment. For the past three decades, the intensity of wildfires has been increasing throughout the western United States due to past fire suppression efforts and forest management practices including grazing and logging. In addition, the frequency of fires has been high due to effects of drought, and in combination with the higher intensity has led to dramatic increases in major fire incidents. Since 1970, over 10,000 homes and 20,000 structures have been lost to wildfire throughout the West. Increasing frequency and intensity of wildfires has been observed in the Seeley-Swan fire plan region as well. Recent fire seasons have posed considerable threat to the Seeley Lake and Condon communities. In 2000, severe drought conditions lead to level III fire restrictions that closed state and federal forests. In addition to the fear and tension within the communities, the resulting loss of tourism and recreational income impacted many area businesses. In 2001, severe drought conditions resulted in 30 fire ignitions, with 2 major fire occurrences within the fire plan area. In 2003, severe drought and weather conditions contributed to 57 fire starts within the fire plan area, with 2 of those becoming major fire incidents that required considerable resources and money to overcome. In 2001, 2003, and 2007 the communities of Seeley Lake and Condon were impacted by Stage II fire restrictions as well as air quality problems resulting from smoke, and loss of income to some local businesses. In 2007, the Jocko Lakes Fire threatened the community of Seeley Lake, and resulted in the evacuation of large parts of the community for up to 2 weeks. Access to the community was restricted to local residents for a number of days, resulting in sizable losses to recreation-supported businesses. The fire history of the Seeley/Swan Valley coupled with severe weather patterns and current forest conditions suggest that future wildfire events are inevitable and could result in considerable loss of property and natural resources, as well as threaten the lives and safety of firefighters and residents alike.

2.1 BACKGROUND

The Seeley-Swan Fire Plan was initiated with funding from a grant received by the Seeley Lake Rural Fire Department using U.S. Forest Service National Fire Plan funds and administered by the Montana Department of Commerce. The fire plan committee that directly supervised the plan development consisted of Frank Maradeo, Jim White and Tim Downey of the Seeley Lake Rural Fire District, Jack Novosel of the Swan Valley Volunteer Fire Department, Colin Moon, Allen Branine, and Howie Kent of the MT DNRC, and Tim Love and Jon Agner of the Lolo National Forest. The Seeley Lake Rural Fire District contracted with the Ecosystem Management Research Institute for assistance in data compilation, GIS development, and plan organization. The revision of the Fire Plan by the Seeley Lake Fuels Mitigation Task Force involved the input of Frank Maradeo of the Seeley Lake Rural Fire District, Colin Moon of the Bitter Root RC&D, Howie Kent and Allen Branine of MT DNRC, Tim Love, Phil Shelmerdine, Becky White, Alison Kolbe, and John Ingebretson of the U.S. Forest Service, Kathy Koors of the Swan Ecosystem Center, Jon Haufler and Stan Nicholson of the Clearwater Resource Council, and Roger Marshall of Plum Creek Timber Company. The Ecosystem Management Research Institute compiled the new data, developed the GIS layers, and prepared the revisions to the Fire Plan document.

2.2 CURRENT RELEVANT FIRE POLICIES

2.2.1 Federal

2.2.1.1 National Fire Plan

The National Fire Plan was initiated as a result of the 2001 Interior and Related Agencies Appropriations Act (P.L. 106-291) and is a long-term investment that will help protect communities and natural resources, and the lives of firefighters and the public. It is a commitment based on

cooperation and communication among federal agencies, states, local governments, tribes and interested publics. The federal wildfire management agencies worked closely with these partners to prepare a 10-year Comprehensive Strategy, completed in August 2001. The primary goals of the 10-Year Comprehensive Strategy were: 1) improve fire prevention and suppression, 2) reduce hazardous fuels, 3) restore fire-adapted ecosystems, and 4) promote community assistance. In May 2002, the Secretaries of Interior and Agriculture worked with the Western Governors to develop "A Collaborative Approach for Reducing Wildfire Risks to Communities and the Environment - 10-Year Comprehensive Strategy Implementation Plan". See Western Governor's section below, for a discussion of the Implementation Plan.

The National Fire Plan recognized the important role of state and local fire organizations, and of communities and individuals, in meeting the challenges of fire management across the landscape. The National Fire Plan includes a suite of programs that enable better fire planning and prevention, reducing fire risk in forests adjacent to communities, and strengthening state and local capabilities to supplement Federal fire management efforts. The following provides a brief discussion of these programs:

- Through Cooperative Fire Protection, State Fire Assistance and Volunteer Fire Assistance programs at the State and local level, the National Fire Plan provides resources to enhance local firefighting capabilities, improve preparedness of state and volunteer firefighting organizations, and streamline communication and coordination across organizational boundaries to prevent, manage, and put out fire more effectively.
- Through the Community and Private Land Fire Assistance programs, the National Fire Plan promotes local action in impacted areas by increasing public understanding and providing tools to enhance local and individual responsibility and actions to reduce fire risk and prevent the outbreak of fire around homes and communities.
- Through Economic Action Programs, the National Fire Plan supports technology development and market expansion to stimulate local economies by diversifying jobs and business activities. The emphasis is on products generated from woody material removed from dense forest stands.
- These programs provide training, information, technical assistance and financial support to States, communities and local organizations, and individual landowners. Over the long-term, the National Fire Plan will reduce fire risk to communities and people, while offering economic growth opportunities that enable them to maintain their rural character and ties to the land.

2.2.1.2 Safety

The following safety policies are accepted and endorsed by the Secretaries of Agriculture and Interior. They provide consistent fire management practices among federal wildfire management agencies fire operations.

- Firefighter and public safety is the first priority. All Fire Management Plans (FMPs) and activities must reflect this commitment.
- All fire personnel will meet appropriate training, experience, and qualifications requirements for incident assignments (*See NWCG 310-1, DOI Incident Qualification and Certification System, and FSH 5109-17.*)
- All fire personnel will be equipped with approved personal protective equipment (PPE) appropriate to their position.
- All agency personnel assigned to fireline duties will complete annual refresher training.
- All wildfire entrapments and fatalities will be reported using the current National Wildfire Coordinating Group (NWCG) initial entrapment/fatality report form.
- All wildfire serious accidents will be investigated using the agency serious accident investigation procedures and interagency agreements as appropriate.
- Follow all safety policies, standards, and guidelines identified within the *Interagency Incident Business Management Handbook (IBMH), Fireline Handbook, Interagency Helicopter Operations*

2.2.1.3 Disaster Mitigation Act 2000

The Disaster Mitigation Act (DMA) of 2000 requires all local governments to have an approved pre-disaster mitigation plan (PDMP) in place to be eligible to receive Hazard Mitigation Grant Program project funding. Missoula County completed its Pre-Disaster Mitigation Plan in October 2004 (<http://www.co.missoula.mt.us/oes/plans/MSOCountyPDMFinal.pdf>). The Seeley-Swan Fire Plan was incorporated as a component of the Missoula County Community Wildfire Protection Plan that was developed in 2005 as an appendix to the County Pre-Disaster Mitigation Plan, with the Seeley/Swan Fire Plan being the Community Wildfire Protection Plan (CWPP) for these two areas of Missoula County (<http://www.co.missoula.mt.us/oes/plans/CWPP/CWPPIntro.pdf>). The State Hazard Mitigation Officer submitted the county PMDF's with its CWPP appendix to the Federal Emergency Management Agency which accepted the Plan and made the Seeley-Swan region eligible for local wildfire mitigation project grants and post-disaster hazard mitigation grant projects.

DMA 2000 facilitates cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning, and promotes sustainability as a strategy for disaster resistance. This enhanced planning network will better enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

To implement the new DMA 2000 requirements, FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002, at CFR Parts 201 and 206, which established planning and funding criteria for states and local communities.

2.2.1.4 Western Governors' Association

Improving forest health and reducing the risk of wildfires were identified as top priorities for the Western Governors' Association (WGA). To that end, the WGA engaged in a multi-year effort working with regional stakeholders and the federal Wildfire Leadership Council to implement the [10-Year Comprehensive Strategy for Reducing Wildfire Risks](#). The Comprehensive Strategy utilized a community-based approach that recognizes that key decisions in setting restoration and fire and fuel management project priorities should be made at the local level. The Implementation Plan identifies the desired outcome to be achieved by each goal, measuring progress toward achieving the goals, and the specific steps that must be taken to realize measurable progress.

2.2.1.5 Local Implementation of Federal Fire Policies

The Lolo and Flathead National Forests derive their fire management direction from multiple plan and policy documents including each forest's respective Land Management Plan (1986), the Forest Service Manual 5100, the Federal Wildland and Prescribed Fire Management Policy (1995), the Thirtymile Hazard Abatement Plan (2003), the Fire and Aviation Operations Management 2003 Operations Action Plan and the Interagency Standards for Fire and Aviation Operations (2003). Each of the National Forests has a Forest Fire Management Team that establishes the annual program priorities based on National, Geographic, and Forest direction. In general, however, fire suppression actions are initiated on all unplanned ignitions. The appropriate response to each wildfire is commensurate with seasonal fire activity, resource availability, cost of suppression actions versus the potential environmental loss, and Land Management Plan direction. The appropriate response and subsequent suppression actions focus on the following priorities:

- Protection of human life, and firefighter, aviation, and public safety;

- Property, and natural and cultural resource protection decisions based on the cost investment, commensurate with benefits and values-to-be-protected; and
- Effectiveness and timeliness of planned actions to meet resource objectives.

In instances where wildfire caused by natural ignitions is allowed to burn, this decision will be based on an approved Wilderness Fire Management Plan, pre-determined resource management objectives, and/or short-and long-term risk assessments. In addition, fire use standards, personnel qualifications, risk assessments, and prescribed burn plans will meet interdisciplinary land management objectives, move towards long-term desired conditions and be supported by scientific research.

Prescribed fire may be used to enhance resource values and reduce hazardous fuel accumulation. Fire Use also may be implemented, where there is an on-site specific plan, to enhance designated resource values and to allow fire to assume its natural ecological role." (Flathead National Forest LRMP narrative, chapter III). The Definition of Fire Use in this LRMP is:

"A wildland fire use fire is a fire that is managed for resource benefits. Before a fire is put into wildland fire use status, land managers evaluate several criteria. For example, if a fire threatens life, property or resources, it is not considered appropriate for wildland fire use and is immediately suppressed. Once a fire is put into wildland fire use status, it is actively managed, meaning that fire managers establish boundaries and define weather and fuels conditions under which the fire will be allowed to burn. All wildland fire use fires must be naturally-ignited (lightning)."

2.2.2 State Fire Policies

A primary mission of the Montana Department of Natural Resources and Conservation (DNRC) is the protection of the State's natural resources from wildfire. Forest fire protection is defined in 76-13-102(6) as the "work of prevention, detection, and suppression of forest fires and includes training required to perform those functions." In addition, Montana State law requires that all privately owned forested lands in the State be provided with wildfire protection (76-13-201 MCA). This is accomplished through DNRC's Division of Forestry and includes those State and private classified forestlands lying within the protection boundaries, as well as areas not classified as forestland where agreements are in place. Large tracts of federal lands, within protection boundaries, are also being protected through contract or offset. The DNRC's current program direction is to take suppression actions that are both offensive and defensive on farm, range, forest, watershed, or other uncultivated lands in private and public ownership. DNRC accomplishes its mission of protecting these private and public lands through a combination of three primary methods. These methods are labeled as direct, contract, and State/County cooperative fire protection. These methods are outlined as follows:

1. Direct Protection: This type of protection occurs within a Forest Fire Protection District or an Affidavit Unit, which are generally referred to as direct protection areas. Within these areas there is only one recognized agency assigned wildfire protection, usually the DNRC, USFS, BLM, or Salish and Kootenai Tribe. These are defined as forested lands and they are provided this protection based on an assessment for services rendered, paid through the county tax rolls to the State. Prevention, pre-suppression and suppression work is all considered DNRC direct fire protection responsibility. DNRC hires personnel and purchases equipment necessary to fulfill wildfire protection responsibilities for assigned lands. Assigned lands are within established wildfire protection districts or units.

2. Contract Protection: This is another type of direct protection provided to state, private and federal lands. A federal agency that has been recognized by the DNRC can protect state and private lands. Recognized federal fire protection agencies are required to provide protection at the same or higher level as they do on their own lands. DNRC may provide direct protection to federal lands. An offset acreage protection program exists within Montana to provide uniform fire protection areas and to avoid payments from one agency to another. Contracting by the offset method (the State provides fire protection on an approximately equal area of federal land) is how

we currently operate in Montana. Contract protection may be by direct payment to the federal agency for their services or to the state for protection of federal acres.

3. State-County Cooperative Protection: The State and county cooperative fire program is a lower intensity fire protection than that of direct or contract protection but fully meets the legal requirements for protecting natural resources. The county provides the basic level of fire protection through a system of volunteers, county personnel, rural fire districts, etc. The county may be supported by the State in matters of organization, planning, prevention, equipment, training, and fire suppression. If a county reaches the point that it can no longer handle a wildfire situation it can call the DNRC for assistance. DNRC will then provide expertise and resources to handle the wildfire situation.

2.2.3 Local Fire Policies

The next level of wildfire protection occurs at the local or county level. Rural Fire Districts are responsible for all fires occurring within their boundaries. There is no distinction in the law regarding what type of fire so all fires are included (structural, vehicle, and wildland). This applies regardless of the vegetative cover on the land so forested lands are also included even if these lands are already protected by a Recognized Wildland Protection Agency. It is these forested lands, lying within established rural fire districts that are referred to as having “overlapping jurisdiction.” ((7-33-2202 MCA). RFD’s are supported by taxes paid on all property within their district. The Seeley Lake Rural Fire District and a small portion of the Greenough Rural Fire District are in the project area. Condon and the Swan Valley have established another type of fire protection. The Swan Valley Fire Service Area is a relatively new form of fire protection codified in 7-33-24 MCA. The structures within the Fire Service area are the only responsibility of the Swan Valley Volunteer Fire Dept. As such, the structures are the only item taxed for the service area. The Seeley Lake RFD has been in place since 1984 and the Swan Valley VFD was instituted in 2003. RFD’s assume primary responsibility for structure fires within their jurisdiction.

2.3 PLANNING AREA BOUNDARIES

The Seeley-Swan Valley is located in northwest Montana and represents a land area of approximately 645,848 acres. The Fire Plan boundary spans 65 miles from north to south and 30 miles from east to west. Figure 1 identifies the actual boundary of the fire plan within Missoula, Lake and Powell Counties. Two primary communities lie within the Seeley-Swan Fire Plan region; Seeley Lake in the south half of the project area and Condon in the north half.

2.4 COMMUNITY LEGAL STRUCTURE

The Seeley-Swan Fire Plan boundary encompasses the rural communities of Seeley Lake and Condon, Montana. These communities are unincorporated and reside within Missoula County. Missoula County is governed by the Board of County Commissioners. All legislative, executive and administrative powers and duties of the local government not specifically reserved

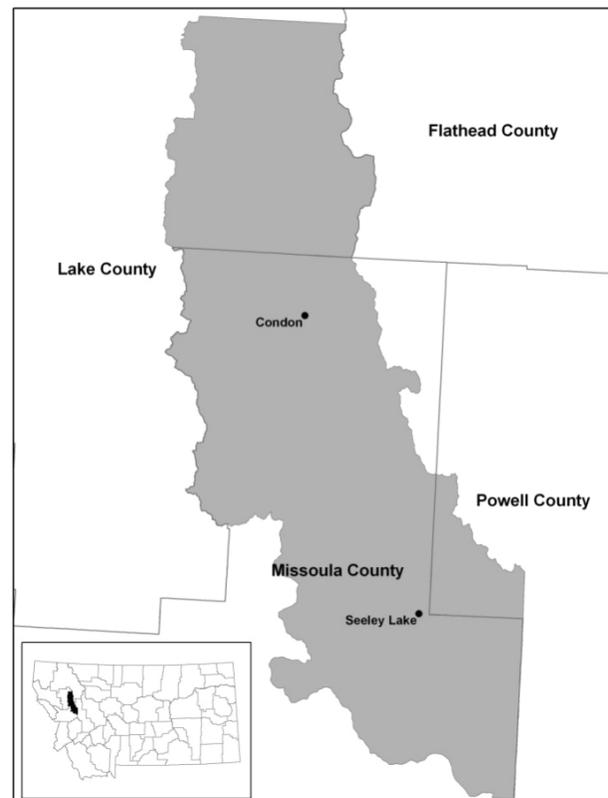


Figure 1. Location of Seeley-Swan Fire Plan boundary within northwest Montana.

by law or ordinance to other elected officials reside in the Commission (MCA-7-3-401). The Board of County Commissioners has jurisdiction and power to represent the County and has care of the County property and the management of the business and concerns of the County. However, the Seeley Lake Community Council and Condon Community Council, while not legally recognized governing bodies, were established, in part, to advance and promote the interests and welfare of the residents of Seeley Lake and Condon. They inform the Missoula County Commissioners and other County departments about issues within the Seeley Lake and Condon planning areas. The Councils work with permanent and part-time residents, state and federal agencies, property owners, and visitors to assist local government in making decisions that benefit the Seeley Lake and Condon areas.

2.5 JURISDICTIONAL BOUNDARIES

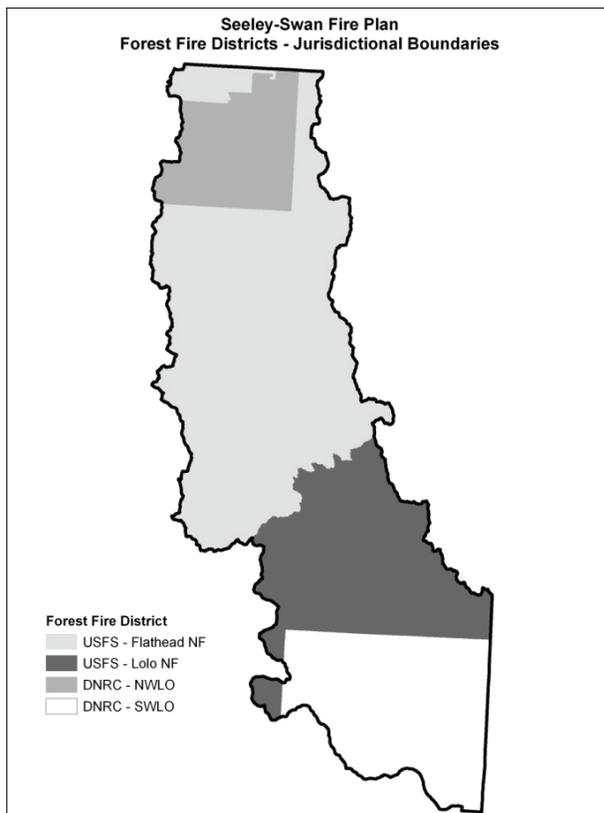


Figure 2. Forest Fire Districts - jurisdictional boundaries.

The primary wildfire protection system utilized in the Fire Plan area is the Forest Fire District. A Forest Fire District is an area authorized and established under 76-13-204 MCA, and administered by the Montana Department of Natural Resources and Conservation for the protection of classified forestland from fire. Protection within a District is the most intensive form of forest fire protection provided within the state. District boundaries are established through a vote of the landowners. The DNRC assigns the protection for the state and private lands within the district to a recognized protection agency. All classified forestlands, whether state, private, or federal, within the district boundaries are normally under the protection of one recognized agency. Payment for protection is made by the private landowners through annual assessments which are charged up to the maximum as provided by law, based upon actual costs of protection. Payment for protection of another agency's lands within a district is handled on a direct billing basis. Fire prevention, detection, and suppression services are provided through the state in all districts. Most of the National Forests or certain portions have been formed into protection districts. All of the lands lying within the boundaries of the Lolo and Flathead National Forests are in a Forest Fire District.

Figure 2 identifies the Forest Fire Districts and responsible agencies within the Seeley-Swan Fire Plan area. The DNRC is the primary agency responsible for wildfire protection to state and private lands in the fire plan area. The Lolo and Flathead National Forests are the primary agencies responsible for wildfire protection on federal land. However, some jurisdictional boundaries have been delineated to maximize time and resource efficiencies and therefore may result in cross-responsibilities among agencies. Consequently, a fire originating within a designated forest fire district will be responded to by the agency identified in Figure 3.

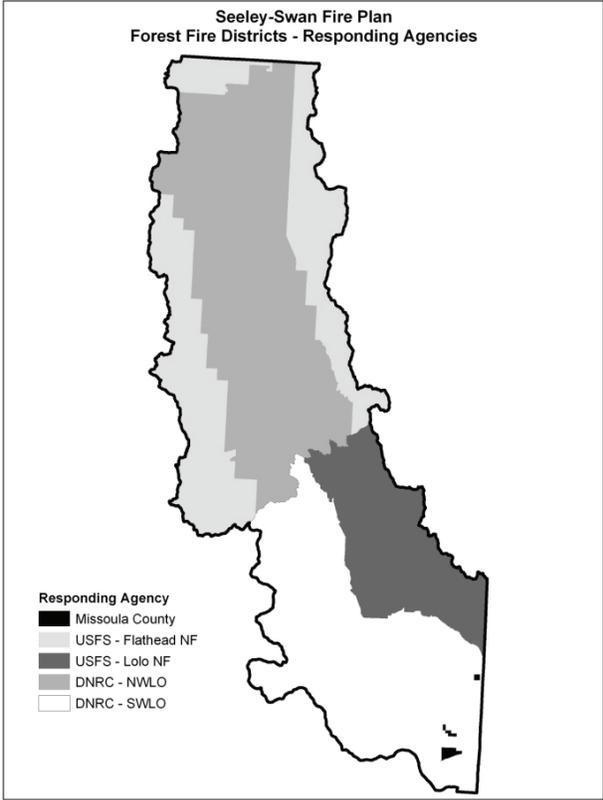


Figure 3. Forest fire - responding agency jurisdictional boundaries.

2.6 STRATEGIC GOALS

The goal of this document is to develop a cooperative and coordinated fire management plan for the Seeley Lake and Condon communities-at-risk to wildfire. This plan includes five strategic objectives:

1. Facilitate community planning and outline strategies for protecting community values,
2. Identify existing information and conduct a wildland-urban interface risk assessment for the entire project area,
3. Identify pre-fire management risk/reduction actions and programs,
4. Develop a community fire plan that can be integrated with local comprehensive growth and development plans as well as broader landscape plans to ensure social, economic and ecological concerns are addressed at all levels, and
5. Develop a framework to ensure wildfire policy, prevention, attack, and funding efforts are coordinated locally among

It is important to note that the Seeley Lake RFD and the Swan Valley VFD have lead responsibilities for structural fire and emergency services within their respective jurisdictional zones (Figure 4). The Seeley Lake RFD and the Swan Valley VFD can provide a limited level of wildfire suppression assistance within their jurisdictional zone due to limited resources and personnel. However, they will coordinate with the appropriate state and federal agencies to ensure a timely response and adequate resources are applied to a wildfire within their jurisdictional zones. Human safety and structure protection will be their primary responsibility within their jurisdictional zone. Structures located outside the Seeley Lake RFD and Swan Valley VFD jurisdictional zones are not protected by the Rural Fire Districts. In the event of wildfire, state and federal agencies will attempt, where practical, to stop fires from reaching these structures. Wildfire firefighters are not trained for interior structural fire suppression.

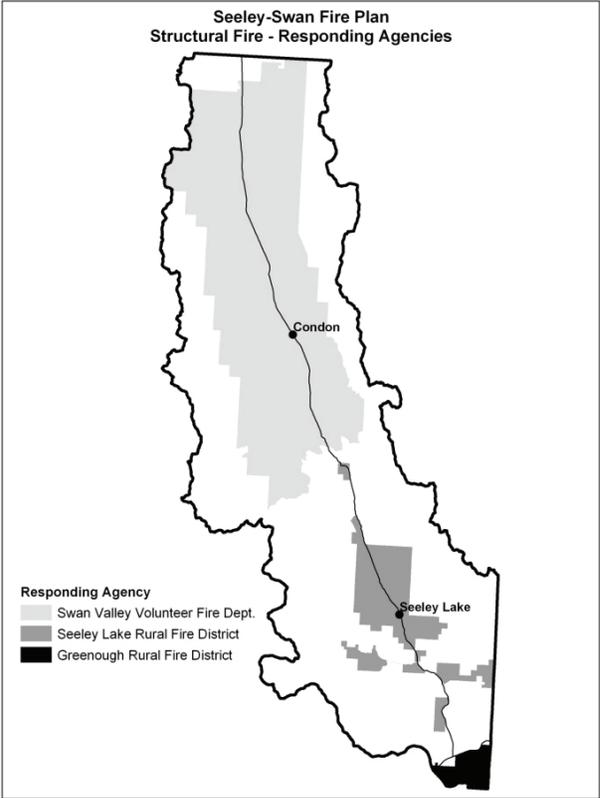


Figure 4. Structural fire - responding agency jurisdictional boundaries.

stakeholders that include local communities, as well as private and public organizations.

COMMUNITY DESCRIPTION

3.1 POPULATION, DEMOGRAPHICS

Table 1 represents the estimated population of the fire plan area according to data acquired by the U.S. Census Bureau in 2000. While the census area boundaries did not precisely represent the Fire Plan boundaries, the data presented are believed to generally reflect the population estimates. Additional information is provided on housing units and types of occupancy to illustrate the level of seasonal, recreational, or occasional use within the planning area.

Figure 5 represents the primary ownership distribution within the fire plan area. Federal ownership comprises 54.9% of the land area, state of Montana ownership comprises 11.9%, Plum Creek Timber Company comprises 23.9%, and other private ownership comprises 8.4%. Lakes within the region comprise 1.4% of the total fire plan area.

Table 1. Estimated population of the fire plan area (Source: U.S. Census Bureau, 2000).

	Seeley Lake (59868)	Condon (59826)
Population		
- Year-round occupants	1884	576
- Summer occupants	1302	730
Total	3186	1306
Total Housing Units		
- Occupied year-round	776	249
- Seasonal, recreational or occasional use	538	320
- Vacant	74	50
Total	1388	619

3.2 NON-GOVERNMENTAL ORGANIZATIONS, HOMEOWNERS' ASSOCIATIONS

Several non-governmental organizations and homeowner's associations are present in the fire plan area that could provide support to fire planning and on-the-ground efforts to prepare for wildfire.

Non-governmental organizations include:

Swan Ecosystem Center - Condon	Clearwater Resource Council - Seeley Lake
Blackfoot Challenge - Ovando	Northwest Connections - Condon
Ecosystem Management Research Institute - Seeley Lake	

Homeowner's Associations include:

Double Arrow	Lake Inez	Big Sky Lake
Placid Lake	Eagle Point Ranch	Crescent Meadow
Lindbergh Lake	Salmon Lake	Seeley-Swan Forest Service Leaseholders

3.3 EMERGENCY SERVICES

3.3.1 Rural Fire Departments

The Seeley Lake RFD and Swan Valley VFD represent two of the six Rural Fire District stations within the overall Missoula (County) Rural Fire District. The Swan Valley VFD also provides emergency services in Lake County Fire Service Area. The Seeley Lake RFD and Swan Valley VFD provide fire protection, emergency medical services, auto extrication, and special rescue response to the communities of Seeley Lake and Condon, respectively. The Seeley Lake RFD emergency services are provided by 35

volunteers, as well as 2 full-time employees and 1 part-time employee. The Swan Valley VFD emergency services are provided by 16 volunteers.

Contacts:	Seeley Lake Rural Fire District	677-2400 (non-emergency) 911 (emergency)
	Swan Valley Volunteer Fire Department	754-2870 (emergency only)

3.3.2 Disaster Emergency Services

The Montana Department of Disaster Emergency Services (DES) deals with “emergency management” which applies science, technology, planning, and management to deal with extreme events that can injure or kill large numbers of people, do extensive damage to property, and disrupt community life. DES uses a variety of resources, techniques, and skills to reduce the probability and impact of extreme events and should a disaster occur, to ensure responsibility, authority, and channels of communication are clearly delineated. DES is also responsible for cleanup and removal of hazardous materials that result from accidental spills.

Contacts:	Missoula County DES	542-2742 (non-emergency) 911 (emergency)
	Lake County DES	883-7253 (non-emergency/emergency)

3.4 INFRASTRUCTURE

3.4.1 Roads

The primary public road for ingress and egress to the fire plan area is Highway 83, which runs north and south through the center of the region. Highway 83 is maintained by the Montana State Department of Transportation. Other secondary public roads identified as important for evacuation during the fire season include the Woodworth to Cottonwood Lakes loop, Placid Lake/Jocko Road, and the road to the Morrell Creek Trailhead. These secondary roads are maintained by the Missoula County Road Department except for the Morrell Creek road, which is maintained by the U.S. Forest Service.

Figure 5 also identifies the existing road system in terms of primary and secondary roads. Additional forest roads occur in the plan area, particularly on Plum Creek Timber Company lands. Many of these forest roads are maintained by individual agencies or landowners such as the U.S. Forest Service, DNRC, or Plum Creek Timber Company. These additional forest roads are not shown on this map as many are not actively maintained, and others have been gated or bermed to obstruct vehicle access or to meet the land management objectives of the individual landowner or agency.

Contacts:	State Highways - Montana State Department of Transportation	677-2599
	County Roads - Missoula County Road Department	677-2222
	Montana Department of Natural Resources and Conservation	
	Clearwater Office	244-5857
	Swan Lake/Condon Office	754-2301
	U.S. Forest Service	
	Seeley Lake Ranger District	677-2233
	Condon Work Center	754-2295
	Swan Lake Ranger District	837-7500
	Plum Creek Timber Company	677-2320

Seeley-Swan Fire Plan Land Ownership

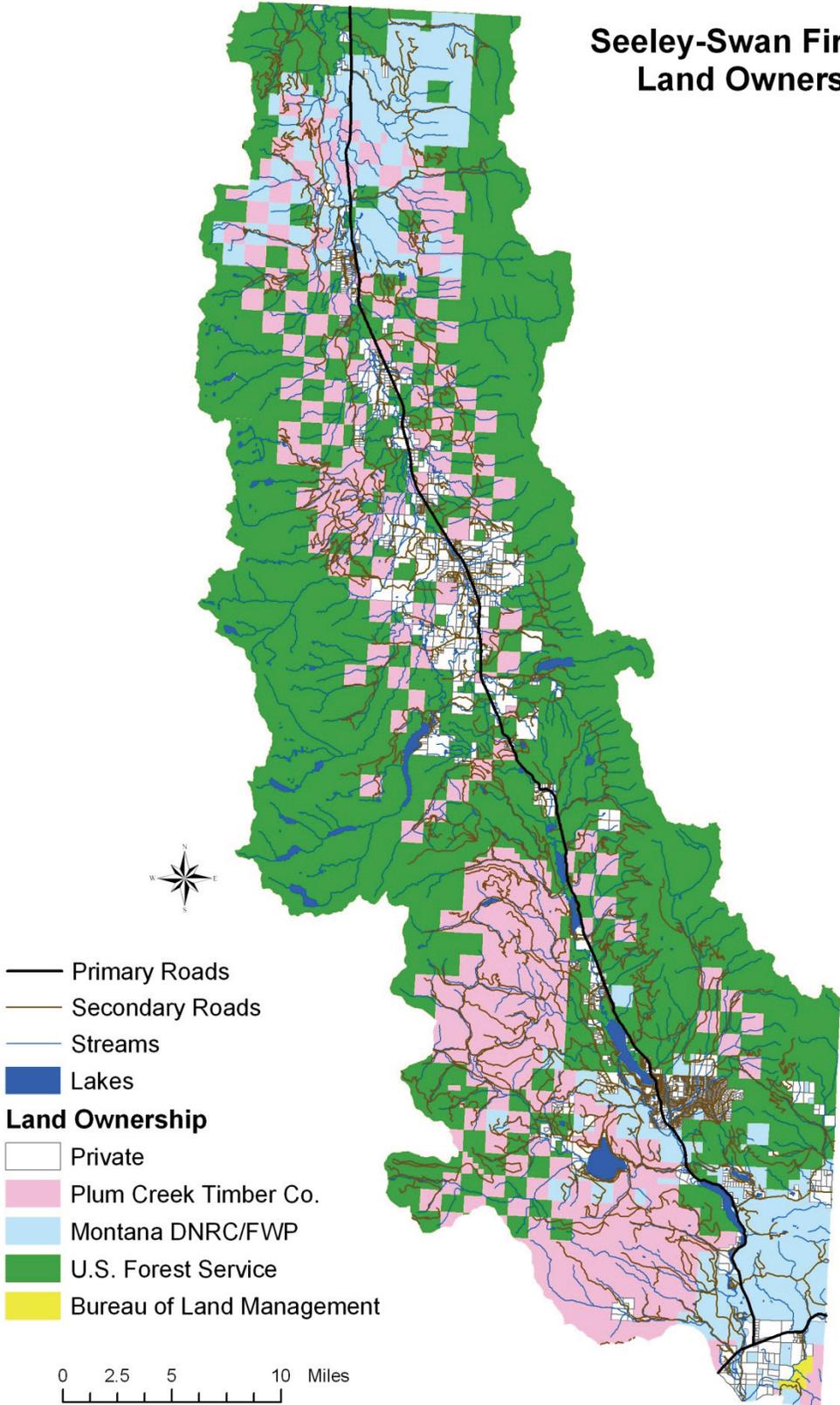


Figure 5. Land ownership distribution, maintained roads, and primary lakes and streams in the Seeley-Swan Fire Plan region.

3.5 CRITICAL FACILITIES

Critical facilities are defined as facilities critical to government response and recovery before, during or after a wildfire. Critical facilities for the Seeley Lake and Condon areas include emergency operations centers, fire stations, public works facilities, medical centers, and shelters. Critical facilities also include those that are essential to the continued delivery of community services such as the U.S. Postal Service facilities and public and private schools. In addition, the propane distribution facilities and the Condon Formulary contain hazardous materials that could jeopardize public safety in the event of a wildfire and therefore qualify as critical facilities.

3.5.1 911 and Emergency Operations Centers

Residents who wish to report a wildfire should call 911. The Clearwater Dispatch functions as an initial attack communication center for the DNRC Clearwater Unit. Wildfires occurring within the Seeley Lake RFD jurisdiction or Swan Valley Fire Service Area jurisdiction are dispatched through the Missoula 911 system. The Missoula Interagency Dispatch Center in Missoula or the Flathead Interagency Dispatch Center (FIDC) currently dispatches U.S. Forest Service and DNRC Swan Unit resources, depending on the location of a wildfire within the fire plan area.

Operationally, Clearwater Dispatch handles radio communication for initial attack fires, and supports fire fighting agencies by ordering resources requested by the Incident Commanders. Clearwater Dispatch also cooperates and coordinates with other volunteer fire departments around the area and coordinates to assist with initial attack support and resources sharing. If local resources are unavailable, the Missoula or Flathead Interagency Dispatch Centers are contacted for additional support.

In addition to Clearwater Dispatch, the Swan Valley VFD fire station serves as an emergency operations center during a wildfire event and the Seeley Lake Ranger District in Seeley Lake and the Swan Valley Work Center in Condon, serve as emergency operations centers for U.S. Forest Service and DNRC personnel. Swan Valley VFD also has a fire station in Salmon Prairie for Lake County fire protection.

3.5.2 Utilities

Most residences in the fire plan area use electric and/or propane to heat and operate their homes. Missoula Electric Cooperative is the only source of electricity to the area. It has a major distribution facility at the south end of Seeley Lake. Propane distribution facilities are maintained in the Seeley Lake and Condon communities by the vendors listed below. Energy Partners, LLC. has prepared a Disaster and Emergency Plan that contains contact and general information that would be useful to fire fighting agencies in the event of a wildfire. The plan is on file with the Seeley Lake RFD.

Contacts:	Electric -	Missoula Electric Cooperative	800-352-5200
	Propane -	Energy Partners, LLC. (Cenex) - Seeley Lake/Condon	677-3656
		Mountain View Co-op.	677-0180
		Amerigas	406-543-3598

3.5.3 Communications

Telephone services are the primary means of communication within the fire plan area. Blackfoot Telephone Company operates the landline communication grid as well as provides cellular and internet service to the area. Verizon Wireless and Alltel also provide cellular service to the region through towers near Placid Lake and Double Arrow Lookout, respectively. Most of the Condon area is without cell phone coverage. The location of critical communication equipment and radio towers are maintained in a Geographic Information System (GIS) and available to firefighting agencies in the event of a wildfire emergency.

Contacts:	Blackfoot Telephone Company	406-541-5000
	Verizon Wireless - cellular service	866-396-0403
	Alltel - cellular service	877-245-2687

3.5.4 Water Services

Water services are provided to the central infrastructure of Seeley Lake through the Seeley Lake Water District. The Water District maintains a number of fire hydrants. The locations of the water district facility, existing fire hydrants and water draw sites are maintained in a GIS and available to fire fighting agencies in the event of a wildfire emergency.

Contact:	Seeley Lake Water District	677-2039
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3.5.5 Public and Private Schools

Four public schools operate within the fire plan area. Two elementary schools are located in each of the Seeley Lake and Condon communities and an additional elementary school is located in Salmon Prairie. The Seeley-Swan High School is located in Seeley Lake and includes students from both the Seeley Lake and Condon communities. Several private schools are also operated in the Condon area and include students from across the country.

Contacts:	Seeley Lake Elementary - enrollment 280	677-2672
	Swan Valley Elementary - enrollment 100	754-2320
	Seeley Swan High School - enrollment 140	677-2224
	Salmon Prairie School - enrollment 10	754-2245
	Mission Mountain Girls School - enrollment 24	754-2580 x3119

3.5.6 Community Medical Center

Medical care within the fire plan area is provided by the Seeley-Swan Medical Center located on Highway 83 at the south end of Seeley Lake. This center is a non-profit organization and is associated with St. Patrick's Hospital in Missoula. The medical center also has a helipad site that is serviced by Life Flight, Care Flight, and Alert Air Ambulance.

Contact:	Seeley-Swan Medical Center	677-2277
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3.5.7 Local Airports/Helipad Sites

Two fixed-wing airstrips are located within the fire plan area. The Seeley Lake Airstrip is located on Airport Road on the northeast side of Seeley Lake. The Condon Airstrip is located across from the USFS Condon Work Center on the eastside of Highway 83 at mile marker 42.7.

Helipad sites used for emergency rescue and medical calls or by firefighting efforts are located and maintained throughout the fire plan area. Helipad locations continue to be identified and added each year. During a wildfire response, helipads are used to drop off the firefighting crew and deploy the water bucket to assist the initial attack crew with water. Because of the remoteness and limited road access this is an extremely valuable tool for firefighters. The locations of helipad sites are maintained in a GIS and available to fire fighting agencies in the event of a wildfire.

3.6 INSURANCE RATINGS

Effective June 1, 2001, Insurance Services Office, Inc. (ISO) identified the following criteria for determining fire insurance classification for calculation of property insurance premiums in the Seeley Lake RFD jurisdictional area:

“Class 7 applies to properties within 1,000 feet of a public hydrant, five (5) road miles or less of the responding fire station and with a needed water flow of 3,500 gpm or less. Class 8 applies to all dwelling properties within five (5) road miles of the responding fire station but beyond 1,000 feet of a fire hydrant. Class 9 applies to all other properties within five (5) miles of the responding fire station but beyond 1,000 feet of a fire hydrant. Class 10 applies to properties beyond five (5) road miles of a fire station. The private and public protection at properties with larger needed water flows are individually evaluated, and may vary from the district classification.”

The ISO rating for fire insurance classification in the Swan Valley VFD jurisdictional area is Class 9.

3.7 LAND USE/DEVELOPMENT TRENDS

Land uses of the Seeley Lake and Condon communities have historically been closely linked and very dependent upon the abundant natural resources of the Seeley-Swan Valley such as timber resources in the surrounding forests, summer cabins on the abundant lakes and streams, and hunting, fishing and other recreational opportunities in the Valley and adjacent National Forests and Wilderness Areas. Changes in National Forest Policy have led to a decline in timber resource output from Federal lands and concerns about threatened and endangered species have further restricted state and federal management actions on public lands in the Fire Plan area. A checkerboard ownership pattern in the upper Swan Valley is a particular challenge for mitigating fire at the landscape level. In the last decade, Seeley Lake in particular has observed an increase in seasonal tourists and year-round residential development resulting from relocating retirees and work-at-home professionals. The value of private property has significantly increased in recent years, particularly in the Condon area. As a result, Plum Creek Timber Company has announced plans to sell select residential/recreational properties, at present and in the future, to meet corporate objectives for “higher and better use” of company real estate. The result has been an increase in residential development outside the historical boundaries of the Seeley Lake and Condon communities. These trends have and will contribute to increased homes and structures at the wildland/urban interface and less forest management occurring on non-industrial forestlands surrounding both communities.

4.0 GENERAL ENVIRONMENTAL CONDITIONS

4.1 TOPOGRAPHY, SLOPE, ASPECT, ELEVATION

The Seeley-Swan valley was formed by continental glaciation when the Cordillerian ice sheet advanced through northern Montana. Smaller mountain glaciers formed in the Mission and Swan Mountain Ranges and moved along the Swan and Clearwater Valleys, as well. The Swan Mountain Range borders the east side of the plan area and the Mission Mountain Range borders the west side. Topography within the area is highly variable, ranging from flat in the Valley bottom to steep on the surrounding slopes. Elevation within the fire plan area ranges from 2,770 feet in the valley bottom to 9,795 feet on the surrounding peaks. Slopes within the plan area range from 0 to 76 degrees, with 43% of the area represented by slopes of 0 to 10 degrees, 28% by slopes of 10 to 20 degrees, 17% by slopes of 20 to 30 degrees, 9% by slopes of 30 to 40 degrees, and 3% by slopes of greater than 40 degrees. Approximately 0.5% of the plan area has 0 degree aspect or is flat. The remaining 99.5% of the plan area is nearly evenly distributed among north (23%), east (28%), south (23%) and west (25%) aspects.

4.2 CLIMATE

The climate of the Seeley-Swan Fire Plan area is characterized as cool and temperate with minor maritime influences. However, large day-to-day temperature variations are not uncommon. Summers are dry with temperatures averaging between 42° F and 78° F. Winter temperatures average from 12° F to 33° F. Arctic air intrusions can also occur in winter. Precipitation ranges from 12 to 31 inches with most of the precipitation in fall, winter, and spring occurring as snow. Average rainfall in July and August is less than 2 inches. A snow pack of greater than 3 feet is typical for the area in winter. There is also a slight climatic gradient in the fire plan area with the middle of the fire plan area being slightly moister than the north or south ends due to the position of prevailing storm tracks and the rain shadow effect of the Mission Mountain range.

4.3 LOCAL FOREST CONDITIONS AND FIRE ECOLOGY

4.3.1 *Historical Disturbance Regimes*

An important factor in identifying the potential range of forest conditions that can occur on a landscape is an understanding of the influence of historical disturbance regimes on vegetation structure, species composition and spatial distribution. Some of the more common disturbance regimes within North America include fire, insects, disease, hurricanes, blowdowns, and flooding. Within any given landscape, several different historical disturbance regimes may have operated to influence vegetation in this manner. For the Fire Plan area three primary historical disturbance regimes influencing species composition and structure were the short-interval fire regime (avg. <25 years) and the long-interval fire regime (avg. >100 years), and the mixed severity fire regime with intermediate fire return intervals creating forest patches displaying either short or long-term fire effects. Fire was the primary disturbance agent in this landscape directly influencing large-scale changes in forest species composition, structure, and spatial distribution. While insects and disease were and continue to be important disturbance agents as well, their activities often contribute to the occurrence and severity of fire as the end result. Consequently, the ultimate driving force of large-scale disturbance in the fire plan region was predominately fire.

Human-induced changes and/or impacts have functionally suppressed, eliminated or changed many of the historical disturbance regimes throughout North America. The result has been the loss of many native ecosystems and their corresponding biodiversity. In the Seeley-Swan Valley region, the primary influence in this regard has been the suppression of fire for nearly 100 years as well as past logging that has changed the historical structure of many forest stands. Fire suppression programs have had profound effects on many ecological communities and ecosystem processes. Fuel loadings in the Clearwater and Swan Valleys have been altered considerably over the past 100 years. There has been active timber harvest on many National Forest lands and most lands currently owned by Plum Creek Timber Company. Fuel loadings on many recently harvested sites have been reduced. However, as a result of fire suppression, many areas that have not received vegetation treatments have experienced accumulations of fuels. Untreated acres represent an estimated 60 % of the land base in the Swan Valley. One of the most significant changes occurring in the fuel loadings within this area has been mortality to lodgepole pine and whitebark pine.

4.3.1.1 Short-interval Fire Regime

The short-interval fire regime is predominantly characterized by relatively frequent, non-lethal, low to moderate intensity fires that burn along the ground and remain within the understory. The frequency of these fires, generally averaging between 5 and 25 year intervals, influences both the species composition and vegetation structure within these forests. Fire tolerant species such as ponderosa pine and western larch become dominant in the overstory and bunch grasses become dominant in the understory. This becomes what is referred to as a “fire maintained seral disclimax”; due to the frequency of the fires, the stand is unable to succeed toward climax vegetation. Stand history studies have demonstrated that stands occurring within the short-interval fire regime had relatively predictable species composition and vegetative structure. They were also less likely to move through a

typical successional progression of age classes. Instead, fire maintained a multi-age structure, characterized by saplings to old growth trees.

4.3.1.2 Long-interval Fire Regime

The long-interval fire regime is characterized by an infrequent, lethal, high intensity fire that consumes both the understory and overstory as it moves across the landscape. Stand replacing fire regimes result in a short term, catastrophic effect on stand conditions, in contrast to the persistent, yet less obvious effects of the short-interval fire regime. The result of this impact is to set the stand back to an early successional stage and release plant species stimulated by severe fire events. Then the stand proceeds along an undisturbed successional trajectory for many years, depending on the ecological site.

4.3.1.3 Mixed Severity Fire Regime

Within the Fire Plan region, a “mixed severity” fire regime also occurred. That is, depending on site conditions or position on the landscape, both non-lethal and lethal fires could occur within a mosaic of diverse stand conditions. This is typically common through the transitional portion of the environmental gradient where the lower elevation, drier sites are dominated by non-lethal fire regimes and the high elevation, moister sites are dominated by the lethal fire regime. Consequently, where a transitional site occurs primarily adjacent to the low elevation types, it is predominantly influenced by a short-interval fire regime. Where it occurs primarily adjacent to the high elevation types, it is predominantly influenced by a long-interval fire regime. Topographic features can also influence the occurrence of a “mixed” fire regime as well. For example, dry south aspect slopes and ridges within an ecological site such as warm, moist subalpine fir can be predominantly influenced by a short-interval fire regime. Whereas under average site conditions, this ecological site would more typically be influenced by a long-interval fire regime.

In 2002, field surveys were conducted to evaluate historical fire regimes for a 5 mile transect beginning near Holland Lake in the east and ending near Lindbergh Lake in the west. The results of the survey indicated that many of the previously assumed moderate-to long interval fire regime classifications were actually short interval regimes. The average fire interval in the study area that includes the summit divide between the Swan and Clearwater watersheds was between 10 and 15 years (Barrett 2002).

4.3.2 *Historic Forest Conditions*

4.3.2.1 Warm, Dry Ponderosa Pine, Xeric Douglas-fir

Distribution: This group of habitat types, representing only a small percentage of the fire plan area, is at the warm, dry extreme of forest environments wherever ponderosa pine is found. Typically, they represent lower timberline conditions and in northwest Montana may occur as low as 2,000 feet in elevation. Upper limits may extend to about 5,400 feet on steep, dry, southerly aspects. Associated geology is quite variable and includes steep, rocky sites to glacially scoured ridge tops and ridge noses to moderately deep glacial till, with drumlins and moraines, to shallow and moderately deep residual soils. Geology and terrain appear to be limiting factors only to the extent of retaining sufficient soil moisture, which is the controlling influence.

Potential Dominant Species: Open stands of ponderosa pine are the characteristic tree cover. At the upper elevations of this habitat type, scattered Douglas-fir may be associated with the pine. The undergrowth vegetation is characterized by grasses (bluebunch wheatgrass, elk sedge and pinegrass) and occasional shrubs (bitterbrush and snowberry). In contrast to other habitat types, all members of the shrub and forb layers occur as components of the even drier shrub steppe or mountain shrub zones of vegetation. Consequently, this group of habitat types marks the lower transition between forest and non-forest.

These sites are severely limited in their tree-stocking capability and maintain a savannah appearance when fully stocked. Before Euro-American settlement interrupted the normal fire cycle, nearly all stands were likely in a savannah condition with grass-dominated understories. Historically, these sites burned at least every 5 to 25 years. Average densities ranged from 5 to 20 trees per acre. Historical patch sizes were characterized by small openings of less than 5 acres, within 20 to 200 acre stands of low-density trees. Low-intensity short-interval fires would result in few fire-sensitive shrubs, low fuel accumulations, and few tree seedlings and small saplings. Since the early 1900s, attempts to exclude fire have lengthened fire return intervals. Tree seedlings, small saplings, and fire-sensitive shrubs such as bitterbrush, and snowberry, have become more common and thereby have increased understory fuel loadings. When fires do occur, they are often of higher severity and result in conditions that rarely occurred historically.

4.3.2.2 Warm, Dry Douglas-fir

Distribution: This group of habitat types represents the warm and dry Douglas-fir/ponderosa pine forests of northwestern Montana and is a relatively small component of the fire plan area. It characterizes the warm, mild environments of low- to mid-elevation forests but may extend upward to about 5,800 feet on dry, southerly aspects. These sites are typically well drained and vary from fairly deep glacial till associated with drumlins and moraines, to shallow and moderately deep residual soils.

Potential Dominant Species: The Douglas-fir habitat types are characterized by mixed stands of Douglas-fir and ponderosa pine but at lower elevations, Douglas-fir may be absent. On moderate elevation sites, ponderosa pine, Douglas-fir and western larch are major seral species with small amounts of lodgepole pine, Engelmann spruce, or subalpine fir present as well. In unlogged stands, ponderosa pine, at low elevations, and western larch, at moderate elevations, are usually the larger, older component with Douglas-fir ranging from sapling to mature trees. The undergrowth, if undisturbed, supports mainly rhizomatous shrub and grasses such as common snowberry, mallow ninebark, pinegrass, or elk sedge. Following a disturbance such as fire or logging, a wide variety of other shrubs, forbs, and grasses may be present.

Historically, these sites experienced frequent low-intensity underburns that excluded most Douglas-fir and killed many small ponderosa pines and western larch. Estimates of fire return intervals range from 15 to 45 years. These fires burned extensively throughout the low- to mid-elevation forests, being extinguished only by fall rains or lack of fuel due to previous fires. Under this burning regime, the stands remained open and park-like, consisting of mostly ponderosa pine, western larch and to a lesser degree, Douglas-fir in a variety of age classes. Stand density ranged from about 15 to 30 large overstory trees per acre. Trees often occurred in clumps, with irregular shaped openings between the relatively low density of trees. The potential for destructive wildfire, insect, or disease events was low. Due to their different responses to low-intensity burning, it is likely that shrub cover was less and grass cover was greater than under present conditions

Since Euro-American settlement, fires have become less frequent and stand conditions have changed dramatically, particularly in unmanaged stands. Here, the historical stand of widely spaced ponderosa pine or western larch is often still evident in the overstory as an older stand component. Between the pines, many smaller Douglas-firs and lodgepole pine have become established since the last underburn, which likely occurred in the late 1800s to early 1900s. Stand densities now range from 250 to 600, and sometimes 900, trees per acre, creating stressful conditions throughout the tree layer. Now the potential for destructive wildfire, bark beetle, spruce budworm, Douglas-fir tussock moth, dwarf mistletoe, and root rot events is quite high.

4.3.2.3 Cool, Moist and Cool, Dry Douglas-fir

Distribution: Cool moist and dry Douglas-fir sites are more common in the fire plan area and represent the cooler extremes of the Douglas-fir zone. Subalpine fir is usually present on adjacent cooler sites.

Cool, moist Douglas-fir sites may extend upwards to about 6,800 feet in elevation but are also common down to about 4,800+ feet in cold air drainages and frost pocket areas. At the lower elevation, nightly cold air patterns may be compensating for soil moisture.

Potential Dominant Species: Ponderosa pine is present as a major seral species only at the warmer extremes of these habitat types and is usually absent at the colder extremes. Lodgepole pine may be common on the cooler and more frost-prone sites. Trembling aspen along with lodgepole pine, may dominate early seral stands. In some cases, Douglas-fir is the only tree species capable of growing on the site. The undergrowth is characterized by shade-tolerant species such as mountain maple, mountain ash, and/or huckleberries. Many other disturbance-related species may be present, such as serviceberry, Scouler willow, thimbleberry, and chokeberry. On drier sites, undergrowth vegetation may be sparse with pinegrass and elk sedge the most common species.

Historically, these sites likely experienced a mixed regime of both short-interval and long-interval fire regimes. Average short-interval fire regimes may have ranged from 17-102 years while long-interval fire regimes ranged from 150-400 years. Consequently, stand composition can vary from nearly pure stands of single-age lodgepole pine to mixtures of multi-age lodgepole or ponderosa pine with Douglas-fir or pure multi-age stands of Douglas-fir. The extended fire return intervals on some sites increase the opportunities for dwarf mistletoe and bark beetle infestations.

As a result of organized fire suppression, a shift to continuous, multi-story stands of Douglas-fir has occurred. The result of this shift is less opportunity for the diverse mosaic of vegetative conditions that resulted historically from a mixed fire regime. The probability of widespread stand-destroying fire has increased. Lack of fire has also increased the proportion of dense multistoried stands, making them more vulnerable to bark beetle attack and stand-destroying fire. Severity of dwarf mistletoe infection among these stands has also increased. In some areas, the increase has been dramatic, creating stands composed primarily of large witches brooms.

4.3.2.4 Warm, Moist Douglas-fir

Distribution: In northwestern Montana, the warm, moist Douglas-fir group of habitat types is usually inter-fingered with the warm, dry Douglas-fir group and occurs wherever more favorable sites exist. This habitat type group is common in the fire plan area. These sites range in elevation from about 2,000 to 5,800 feet and occur on a variety of slopes and aspects but are most common on northerly aspects, toeslopes, and stream terraces.

Potential Dominant Species: In early seral stages, ponderosa pine is common at the warmer extremes, and western larch, Douglas-fir, and lodgepole pine are common on the cooler sites. Douglas-fir and on some sites, Engelmann spruce, dominate later seral stages. Small amounts of subalpine fir are often present on the cooler sites. Douglas-fir is the climax dominant throughout this group, depending on the habitat types.

Huckleberries, mainly dwarf huckleberry, are a major component of most mid to late seral undergrowths and are often accompanied by beargrass, Rocky Mountain maple, common snowberry, twinflower, or occasionally pachistima. A wide variety of early or mid seral shrubs, forbs, and grasses can appear following a major disturbance. For example, ceanothus, Scouler willow, and thimbleberry may develop high coverages following a wildfire. Sitka alder, common brome, and sweet-scented bedstraw can become conspicuous following logging.

Fire scar analysis and structure and composition of older stands suggest that historically, some of these sites experienced predominantly short-interval fires ranging from 17 to 102 years, particularly on the dryer sites. Here the underburns killed the small Douglas-fir and helped prolong the dominance of ponderosa pine, western larch, and even lodgepole pine. But long fire-free intervals also occurred, particularly on the wetter sites, and allowed Douglas-fir to develop dense multilayered overstories. Sites predominantly influenced by long-interval fires would have experienced return intervals ranging

from 100 to 250 years. Under these circumstances, stand-destroying wildfire would have been a normal part of the forest cycle.

Historical patch sizes typically ranged from 5 to 50 acres on the short-interval fire sites and from 20 to 200 acres on the long-interval fire sites. Tree densities ranged from 15 to 60 overstory trees per acre, with more in riparian areas.

4.3.2.5 Warm, Moist Subalpine Fir

Distribution: This group ranges in elevation from about 5,000 to 7,200 feet but may follow cold air drainages as low as 4,500 feet. This habitat type group is common in the fire plan area. These sites are found in moist, protected areas such as stream terraces, toeslopes, and steep, northerly aspects. Soils are variable and range from loess overlaying glacial tills and lacustrine sediments, to alluvial and outwash deposits on terraces.

Potential Dominant Species: Various mixtures of lodgepole pine, western larch, Douglas-fir, and Engelmann spruce comprise the seral tree layers. Any one of these tree species may be dominant, depending on stand history and local site conditions.

Seral shrub layers may be tall and dense, consisting largely of Sitka alder. Lesser amounts of mountain maple, mountain ash, and serviceberry may be present. In late seral and climax stages, menziesia dominates some sites, but usually lower-growing shrubs, such as blue huckleberry and Utah honeysuckle, are more common.

Historically, these sites experienced both short-interval and long-interval severity fires. Estimates of fire frequency range from 38 to 120 years on predominantly short-interval sites and 120-300 on predominantly long-interval sites. Generally, ignitions occurred on adjacent drier sites, and the fire was wind-driven onto these sites. Fire patterns could be small and patchy (100 acres or less) or uniform and extensive (5,000 to 100,000 acres), depending on the burning conditions. Sites influenced by predominantly short-interval (mixed severity) fires resulted in large gaps in the canopy and a mosaic of structures within the stand. The presence of western larch in the canopy is a good indicator of short-interval fires on these sites. Long-interval fires create a mosaic of even-aged structures across stands and are characterized by the presence of both seral and climax species.

4.3.2.6 Warm, Dry Subalpine Fir

Distribution: Warm, dry subalpine fir sites are common in the fire plan area. They are found at elevations between 4,800 and 7,500 feet and represent the warm, dry extremes of the subalpine fir zone. At their lower limits, these sites occur mainly on steep, northerly or easterly aspects but shift to southerly and westerly aspects at their upper limits. Sites at the lower limits are often controlled by cold air drainage and are strongly inter-fingered with Douglas-fir sites.

Potential Dominant Species: Douglas-fir is the predominant seral tree, and small amounts of ponderosa pine may occur on the warmer sites. At the cool, moist extremes, lodgepole pine and Engelmann spruce may appear in varying amounts but seldom dominate.

Tall, dense shrub layers are common, reflecting the relatively warm nature of these sites. Mountain maple and mountain ash are common in near climax stands, while beargrass, serviceberry and Scouler willow are common components of mid-seral grass and shrub layers. Ceanothus and pinegrass can develop high coverages on severely burned sites in early seral stages. The pinegrass can persist indefinitely on many of these sites, often dominating the grass layer.

The historical fire regime consisted of sites influenced by predominantly short-interval fires ranging from 38 to 71 years and long-interval fires ranging from 100 to 500 years. A mixture of short-interval and long-interval fire patterns can create a mosaic of seral stages at the landscape level. Cyclic bark

beetle attacks on dense patches of Douglas-fir, lodgepole pine, and Engelmann spruce can contribute further to this mosaic. The influence of fire regime on the species composition and structure are similar to those exhibited in Warm, Moist Subalpine fir. Historic patch size ranged from 50 to 300 acres on short-interval sites and 5,000 to 100,000 on long-interval sites. However, with a recent history of fire suppression, these sites are losing their mosaic patterns and are becoming more uniform. Unless managed to maintain landscape diversity, these sites will increase their risk of extensive, stand-destroying fire and bark beetle epidemics, providing less opportunities for a mosaic of conditions at the landscape level.

4.3.2.7 Cool, Dry Subalpine Fir

Distribution: These sites are common at mid to upper elevations of the subalpine fir zone. They represent cold, dry subalpine sites and range upwards to 7,800 feet in elevation but are also common down to about 4,500 feet in cold frost-pocket areas. At the lower elevations, these sites usually occur in the dry gentle terrain formed by glacial outwash in broad valleys.

Potential Dominant Species: At upper elevations, whitebark pine may be present in minor amounts, however in recent years its distribution has decreased as a result of mountain pine beetle and whitepine blister rust. In the moister areas, minor amounts of Engelmann spruce are common. At the cold, dry extremes, which are transitional to non-forested systems, lodgepole pine is the only tree present and is considered to be the climax species. Elsewhere, subalpine fir usually appears in varying amounts as the climax indicator species. Alpine larch occurs on rockslides and talus. Douglas-fir, western larch, and western white pine rarely occur on these ecological sites.

Shrub layers are usually sparse and consist mainly of low-growing huckleberries, such as dwarf huckleberry and whortleberry. The sparse low shrub layer reflects the cool temperatures and short growing seasons inherent to these sites.

Stand conditions predominantly influenced by long-interval fire regimes and mountain pine beetle attacks were the normal historical recycling process. Long-interval fires occurred about every 100 to 300 years. Short-interval fires occurred less often and on a frequency of every 35 to 300 years. Minor fire scars in these stands attest to the nature of these low-intensity, short-interval fires. Fires crept through these stands wherever fine fuels would carry a flame and then flared up wherever fuel concentrated in the denser patches of larger trees, usually those greater than eight inches in diameter. When these trees were killed, the beetle population subsided until another group of trees grew into the vulnerable size class. After each beetle event, the dead trees soon fell and provided an opening for more regeneration. In this manner, a mosaic of tree sizes and densities were maintained, which helped reduce stand uniformity and the widespread destruction of crown fires and bark beetle epidemics.

5.0 GENERAL FIRE CONDITIONS

5.1 FIRE WEATHER

Critical fire weather is defined as conditions whose effects on fire behavior make control difficult and threaten firefighter and community safety. Weather patterns common to the fire plan area that contribute to critical fire weather include high afternoon temperatures (mid-80's to high-90's) coupled with low relative humidity (mid-teens to mid-40%). If high temperatures and low relative humidity are further combined with afternoon and evening winds of 10 miles per hour or greater and if this weather pattern persists for several days or more, most forests will rapidly transition from moist fuel conditions to drought-like fuel conditions. During periods of unusually high temperatures, it is also not uncommon to experience thunderstorms that roll through the area with associated lightning and high winds, but very little rain.

5.2 HAZARDOUS FUELS

5.2.1 Forest Cover Types and Fuels

The map of forest cover types for the Fire Plan area was developed from satellite imagery landscape classification coverage obtained from LANDFIRE. This cover was based on Landsat imagery from 2002 and 2003. The coverage was classified by LANDFIRE using a fuel model classification system similar to the one developed for the Clearwater Unit of the DNRC - "Aids to determining fuel models on the Clearwater Unit" (D.M. Geyer, unpublished Report). Each fuel model was given the following rating: FM 1=1, FM 2=3, FM 5=7, FM 6=8, FM 8=8, FM 9=7, FM 10=10. This information was used to develop a fuel hazard map for the Seeley-Swan Fire Plan region (Figure 6).

There are limitations with using satellite imagery for fuel hazard ranking that must be identified. Because satellite imagery classification is based primarily on the overstory vegetation, it is less dependable for identifying structure and understory conditions that heavily influence fuel hazard rankings. For this reason, classification of fuel model categories 8 and 10 were particularly difficult in the fire plan area. In addition, logging history was not available therefore fuel model categories 11, 12 and 13 were not included in the fuel hazard ranking for the Seeley-Swan fire plan region. Future efforts to map fuel hazards should strive to overcome these limitation and deficiencies in existing data.

5.2.2 Fire Regime Condition Class

A fire regime condition class (FRCC) is a classification of the amount of departure from the historical fire regime. This departure results in changes to one or more of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern) and fuel composition, as well fire frequency, severity, and pattern. They include three condition classes based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the historical fire regime. Low departure is considered to be within the historical range of variability, while moderate and high departures are outside.

The identification of FRCC is currently a high priority for determining forest restoration goals on state and federal ownership. Forest stands within the Seeley-Swan Fire Plan area have not been described for FRCC, however, future forest restoration programs will likely emphasize the need for obtaining this information. In addition to identifying FRCC, the specific stand conditions that occurred under historical fire regimes should be identified and used to describe the desired conditions that could be produced through restoration efforts.

5.2.3 Natural Firebreaks

The occurrence of several large lakes represents the primary natural firebreaks within the fire plan area. The Clearwater and Swan Rivers and Highway 83 may also act as firebreaks during mild to moderate weather conditions. However, it is important to note that under more extreme or critical weather conditions (i.e., high temperatures, low humidity, and moderate to high winds), burning embers can be carried long distances and ignite fires on the other side of natural firebreaks such as large lakes. During the Jocko Lakes fire of 2007, fire starts from wind carried embers were noted greater than 1 mile in front of the primary line of fire.

5.3 FIRE HISTORY

Information on fire history for the fire plan area was obtained from the Flathead and Lolo National Forest. Figure 7 identifies the approximate boundaries and years of the historical fires in the region based on field surveys and local knowledge. The largest annual burn extent occurred in 1919 at nearly

Seeley-Swan Fire Plan - Hazardous Fuels

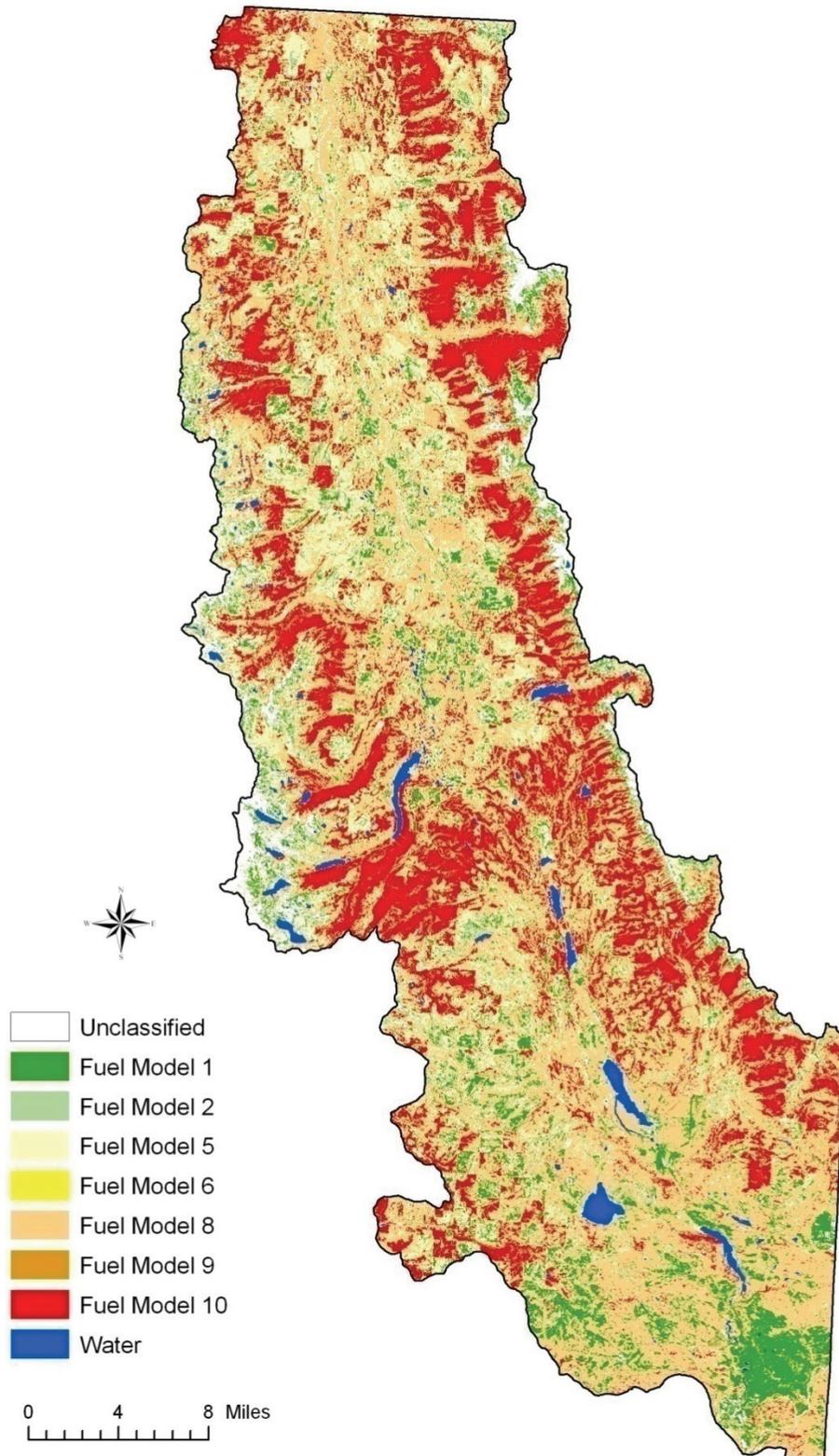


Figure 6. Hazardous fuels in the Seeley-Swan Fire Plan region, as classified using the Geyer Fuel Model.

Seeley-Swan Fire Plan - Fire History

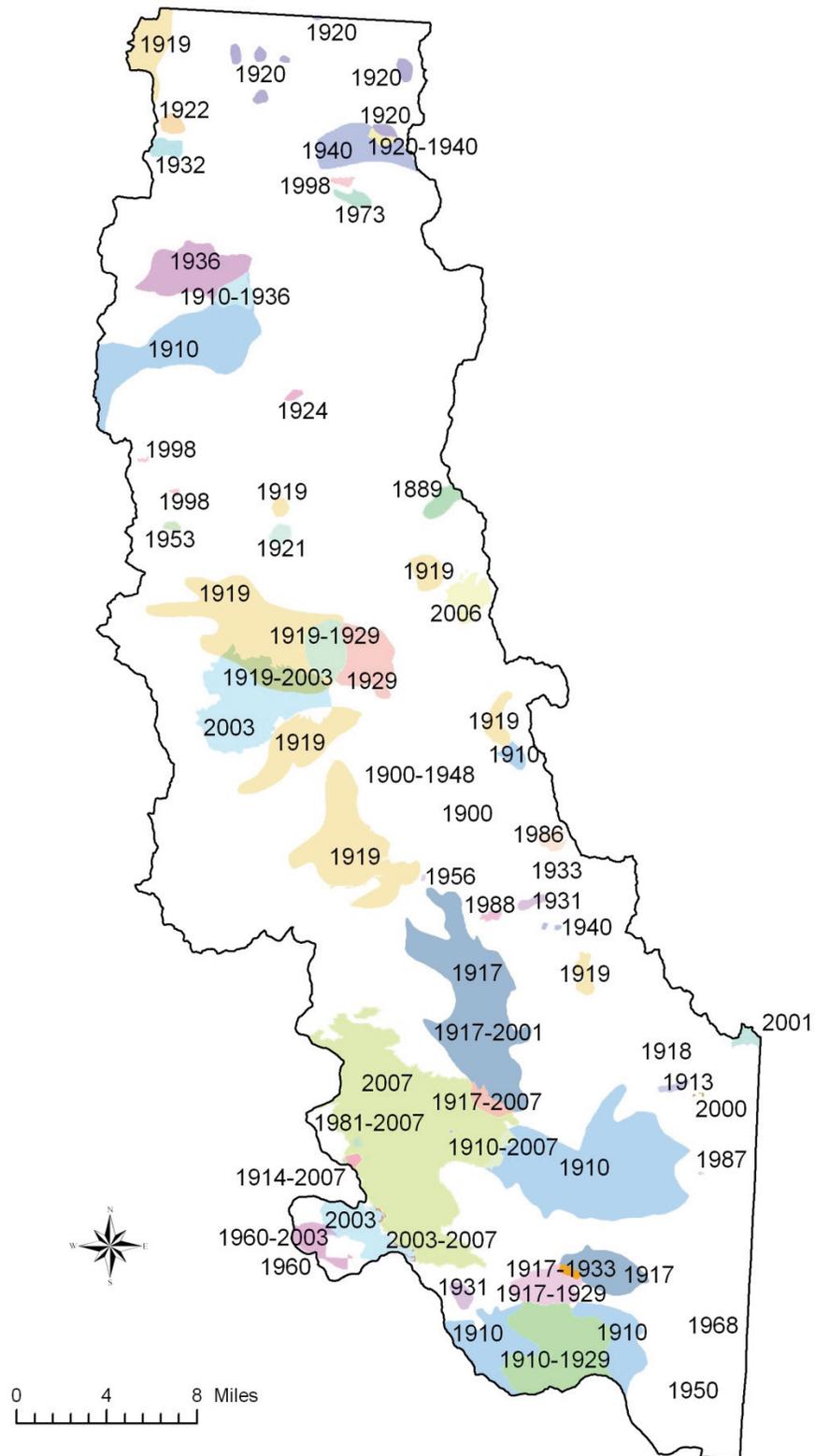


Figure 7. The approximated date and extent of historical fires in the Seeley-Swan Fire Plan region. Source: U.S. Forest Service data.

135,000 acres, followed by 1910 with approximately 53,000 acres. It is interesting to note the pattern of recurrence of fire in many of the previously burned areas.

5.4 FIRE IGNITION HISTORY

Over 3000 wildfires were recorded in the Fire Plan area between 1900 and 2007 (Source: Lolo and Flathead National Forest records). Of these 3000 fires, 83% were lightning caused fires and 17% were human-caused fires. Of the 733 fires recorded by the Flathead National Forest, the following represents the percentage of fires occurring by month:

April	<1%	August	45%
May	2%	September	9%
June	8%	October	4%
July	31%	November	<1%

Patterns of historical fire ignition densities indicate that most of the human-caused fires originated near the most densely populated areas and near high-use recreational areas. Lightning strikes occurred throughout the fire plan region.

5.5 EXPECTED FIRE BEHAVIOR

Fire behavior in the Seeley-Swan Valley is expected to be variable depending on site-specific forest conditions and overall weather patterns. The following provide a general discussion of four levels of fire behavior and how they may relate to vegetative conditions occurring in the fire plan area.

5.5.1 Range of Conditions: Low, Medium, High, Extreme

Low Fire Behavior

The fire may spread rapidly, but is easy to extinguish with average wind conditions.

Fine fuel moisture - above 15%, twigs and branches are readily bendable.

Vegetation - Low density vegetation that may include open conifer stands with less than 35 percent crown cover. Typical vegetation may include grasslands, weeds, brush under two feet tall, aspen, cottonwood or willow trees.

Moderate Fire Behavior

Moderate fire behavior may produce flare-ups many feet above treetops with sparks thrown ahead of the main fire. The fire spread is variable (slow to fast) depending on specific site conditions and can produce considerable heat with average wind conditions.

Fine fuel moisture - ranges between 8 to 15%, twigs and branches may snap when bent.

Vegetation - trees with a crown cover of 35-55 percent of the ground area. Usually tree crowns are not touching. Herbage and litter are present with patches of small trees and dead wood.

High Fire Behavior

Frequent flare-ups that go higher than tree tops with "crown" fires possible, sparks can be thrown far in front of main fire with average wind conditions.

Fine fuel moisture - below 8%, twigs and branches instantly snap when bent.

Vegetation influencing high fire behavior includes dense conifer stands with more than 55 percent crown cover, brushy understory or ladder fuels to the canopy. Crowns are usually touching.

Extreme Fire Behavior

Fire conditions exhibiting a high rate of spread, prolific crowning and/or spotting, presence of fire whirls, and/or a strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environment. Fire under these conditions is often described as erratic and very dangerous. This usually implies a level of fire behavior that often precludes actions or methods that would establish direct control.

Vegetation contributing to extreme fire behavior is frequently similar to that described for high fire behavior but with critical weather conditions (high temperatures, low humidity and wind) exacerbating the fire behavior and negatively impacting efforts to control the fire.

6.0 IDENTIFYING ASSETS AT RISK

Assessing risk requires an understanding of the importance of those assets that the community values. While the following sections provide a discussion of the assets identified as important to the community, for the purpose of the risk assessment only human safety and property were considered.

6.1 STRUCTURES/DENSITY

Over 2100 housing units, both permanent and seasonal, are present in the fire plan area according to Missoula, Lake, and Powell county records. Figure 8 represents a map of structure densities for the fire plan area that was developed using county cadastral information from Missoula, Lake, and Powell counties. As evidenced by the density map, the majority of structures within the fire plan area are located near the communities of Seeley Lake and Condon as well as adjacent to the Highway 83 corridor and surrounding several of the major lakes within the region.

Using county tax information from 2007, the estimated taxable value of structures in the Fire Plan area was calculated at approximately \$243,207,587. The estimated value of private land without structures was \$312,681,032. Therefore, the value of privately held assets in the Fire Plan area totaled \$555,888,619. This figure does not include the value of contents or intangibles that could also be lost to wildfire.

6.2 BUSINESSES/COMMERCIAL

Local economic impacts from catastrophic wildfires include disruptions to both sale and production of local goods and services. Immediate effects may include decreased recreation/tourism and timber harvest in the fire region, as well as disruptions from evacuations and transportation delays. Increased use of local goods and services for fire protection also impacts local economies. Other effects include direct property losses (in the form of buildings, timber, livestock, and other capital), damage to human health, and possible changes in the long-term structure of the local economy.

Most businesses and commercial operations are clustered in the two communities of Seeley Lake and Condon. A few additional businesses and commercial operations occur in the Valley, primarily at locations along Route 83. The Seeley/Swan Valley supports a number of forest products companies. These include Plum Creek Timber Company, Pyramid Lumber, Round Wood West, and Alpine Forest Products. In addition, other forest products companies in the surrounding area include Smurfit-Stone. These companies provide a demand for timber or fiber that can help support fuel thinning programs in the fire plan region.

6.3 ECOSYSTEMS AND BIOLOGICAL DIVERSITY

The fire plan area lies within the southernmost portion of the Northern Continental Divide Ecoregion. This ecoregion contains some of the largest blocks of protected land in the U.S. The planning area supports a rich biodiversity of both plants and animals. This area has been identified as bioregionally outstanding,

Seeley-Swan Fire Plan - Density of Structures

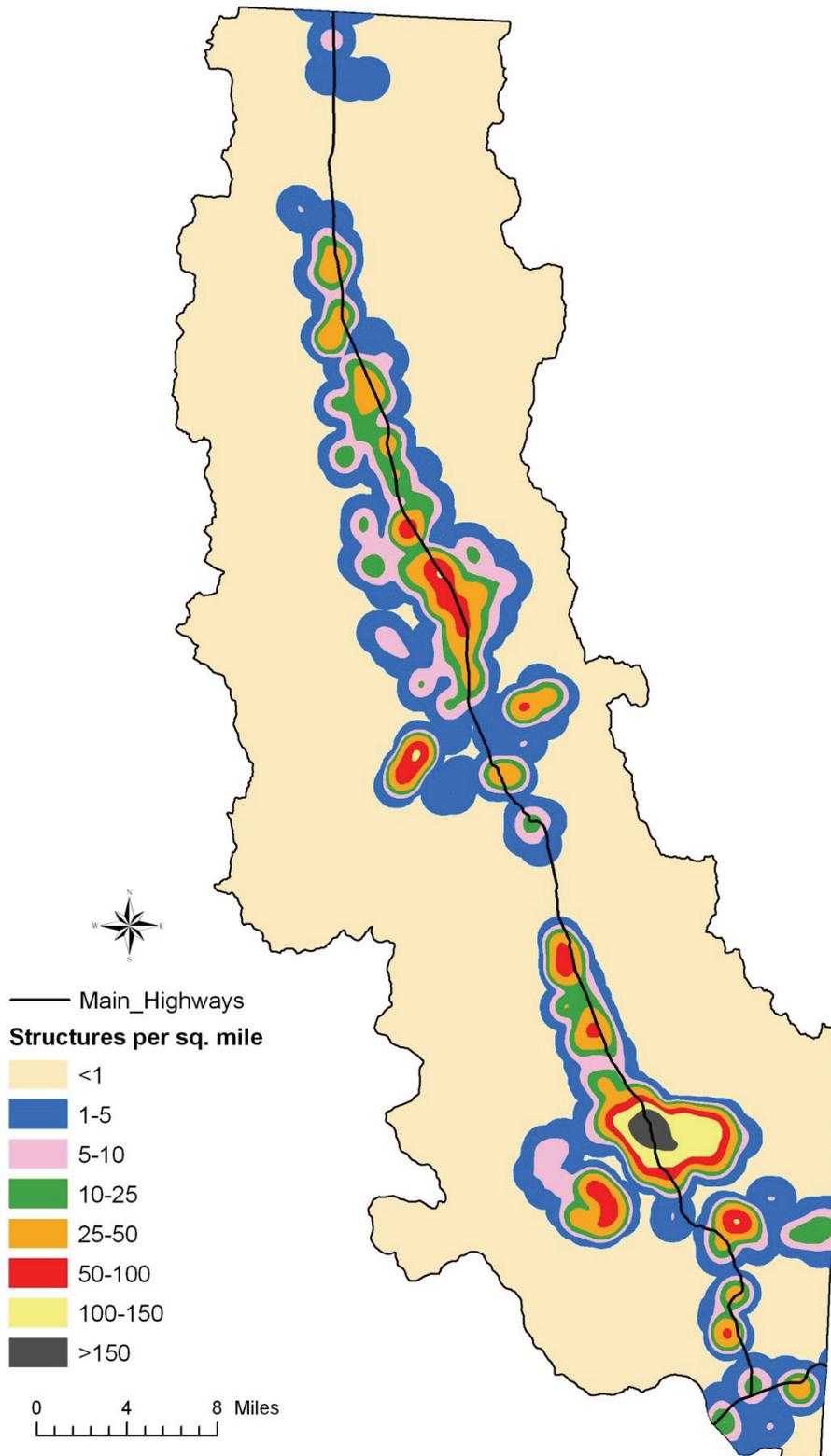


Figure 8. Density of residences per square mile in the Seeley-Swan Fire Plan region.

supporting some 2,203 terrestrial species including an estimated 48 endemics. It is particularly noted for its rich diversity of coniferous forest ecosystems. It also contains some of the most intact watersheds and aquatic ecosystems in the lower 48 states. The area is noteworthy for its populations of large carnivores including wolves, grizzly bears, wolverines, cougar, marten, and lynx, and is one of the few remaining strongholds for the threatened bull trout.

Much of the biological distinctiveness of this region is due to the presence of protected lands. This region maintains populations of a number of species extirpated in most of their former ranges including the above-mentioned carnivores. This landscape also maintains healthy populations of a long list of additional plant and animal species. These species are supported by an array of terrestrial and aquatic ecosystems that still maintain most of their historical ecological processes. This region provides a unique opportunity to maintain the full range of ecosystems and biodiversity that historically occurred in the area.

The region has a conservation status that is among the highest in the U.S. Presently, the forests and watersheds are relatively intact. Some forest ecosystems have undergone changes due to logging, fire exclusion practices, exotic diseases, and exotic species. These changes have produced some habitat loss. Substantial blocks of forest ecosystems still occur but some ecosystems exhibit different structures and species compositions relative to their historical conditions. In addition, this region has maintained relatively high landscape connectivity, which is a primary reason the populations of large carnivores still occur. Developing strategies to reduce the threat and impacts of wildfire on local communities while maintaining ecosystem integrity and biological diversity in this landscape will be critical to the persistence of grizzly bears, lynx, wolverines, and bull trout, as well as the functional ecosystems on which they depend.

While the fire plan region has a high percentage of public land, the major valley bottoms within the area have a significant percentage of private lands and also serve as transportation routes. These valleys include the Clearwater River Valley on the south end and the Swan River Valley on the north end of the fire plan area. Private land ownership consists of two general types: non-industrial private lands, and Plum Creek Timber Company lands (PC). The non-industrial private lands display a wide range of tree sizes, conditions, and purposes. PC has substantial land holdings in the fire plan region. These lands have been managed for commercial timber production, a use that has maintained a forested condition.

Some ecosystems within the fire plan region have lost much of their ecological integrity through either direct or indirect human activities. Low elevation forests in particular, primarily sites that historically supported ponderosa pine and western larch dominated ecosystems, have been altered by a combination of logging and fire exclusion practices. Aspen ecosystems have declined in many areas due to fire exclusion practices. In order to maintain the full complement of biological diversity and ecosystem integrity, restoration of functional processes and conditions for all of these ecosystems should be addressed. In addition, low elevation forests are at risk from catastrophic fires of an intensity and scale that never occurred historically. Concerns over such fires have prompted major Federal spending to protect human lives and property. The integrity of many low elevation forest ecosystems is at risk from both the threat of fire as well as the potential for inappropriate management associated with fuel reduction programs. The incorporation of ecosystem restoration objectives into fire protection plans is needed to assure that ecological objectives are also considered in fire planning efforts. The Landscape Assessment for the Clearwater Valley (www.crcmt.org) describes the ecological values and other characteristics of the Clearwater Valley. The Swan Valley Landscape Assessment describes the ecological values for the north end of the fire plan area (www.swanecosystemcenter.com).

6.4 WATER QUALITY AND WATERSHEDS

The fire plan area represents two primary watersheds: the Clearwater River Basin in the south and the Swan River Basin in the north. The Clearwater River drains from north to south and is a tributary of the Blackfoot River system that flows southwest of the fire plan boundary. The north half of the fire plan area is the headwaters of the Swan River. It is a tributary of the Flathead River system. The Swan River begins in the Mission Mountains Wilderness and flows north into Flathead Lake at Bigfork, Montana. The Mission Mountains cast a rain shadow making the upper valley somewhat drier than the lower valley.

The effects of wildfire on water quality and the watershed within the plan area will depend on several factors including the severity/intensity of the fire, post-fire precipitation, actions taken to control or suppress the fire, and the condition of the watershed pre-fire. Wildfire usually results in the loss of vegetation as well as the reduced capacity for soils to soak up rainwater and snow melt. The result is increased runoff and a greater volume of water reaching streams and lakes in a shorter period of time. Flash flooding is often a major concern following a significant wildfire event within a watershed. In addition, the loss of vegetation can result in increased sediment transport to streams and lakes due to soil erosion, reduced soil infiltration, and increased water volumes and overland flow rates. Water quality impacts frequently observed post-wildfire include increased transport of organic materials, nutrients and chemicals (i.e., fertilizers, herbicides) to surface waters, as well as increased turbidity (i.e., suspended particles) and water temperatures.

6.5 AIR QUALITY

Wildfires are considered a natural source of air pollution and can sometimes cause severe short-term smoke impacts. These smoke impacts can pose a major health risk for some individuals. Symptoms from short-term smoke exposure range from stinging eyes, scratchy throat, cough, irritated sinuses, headaches, and runny nose. Individuals with pre-existing health conditions such as asthma, emphysema, congestive heart disease and other conditions can have serious reactions. The elderly and young children are considered high-risk groups for health complications due to smoke.

6.6 RECREATION

In 2000 and 2003, closure of forest lands severely limited recreational activities in the Seeley/Swan Valleys. In 2003, closure of Plum Creek lands limited some recreational activities, while smoke and the threat of fire turned hundreds of campers and hikers away. In 2007, the entire area was closed for a number of days during the Jocko Lakes Fire to all non-residents. In addition, several lakes were closed to use because of firefighting needs. Campgrounds were also closed during this time, and recreational use of the area was stopped or reduced for most of August. Obviously, severe fire seasons and fire risks have a negative impact on recreational activities.

6.7 NATURAL RESOURCE MANAGEMENT

The fire plan area is predominantly managed as wildlands by the three public agencies (U.S. Forest Service, Montana Fish, Wildlife and Parks, and Montana DNRC). Plum Creek Timber Company has managed its lands in the area primarily as working forest lands, but is increasing its focus on land development. The remaining lands in the Valley are primarily residential, although a few ranches that maintain horses or cattle are present. The U.S. Forest Service lands are administered in the Clearwater River Basin by the Seeley Lake Ranger District of the Lolo National Forest, and in the Swan River Basin by the Swan Lake Ranger District of the Flathead National Forest. These lands include substantial areas of designated wilderness, where management activities are very limited and primarily involve trail maintenance. Other areas of the National Forests are managed for multiple uses, although little timber or fuels management has occurred in the Swan River Basin in the last 10 years. State lands within the Clearwater River Basin are primarily managed by the Clearwater Unit of the Montana DNRC. Lands within the Blackfoot-Clearwater Wildlife Management Area are primarily managed by Montana Fish, Wildlife, and Parks. State lands within the Swan River Basin are managed by the Swan River Unit of the Montana DNRC. Montana DNRC manages its lands for timber production to produce income under its school trust responsibilities. The Blackfoot-Clearwater Wildlife Management Area is primarily managed to maintain its value as big game winter range. Plum Creek Timber Company manages its lands to produce financial returns to the company. This has historically been through forestry operations, but a recent shift has increased emphasis on management for real estate values. As Plum Creek Timber Company increases its sale of lands for "highest and best use" within the Seeley/Swan Valley, expansion of residential properties will increase the overall size of the wildland/urban interface, and increase areas at risk from wildfires. Current efforts to develop and

implement a land use plan by the Seeley Lake Community Council have identified the importance of minimizing the expansion of the wildland/urban interface. The Seeley-Swan Fire Plan will provide critical information for this and other land use planning efforts.

6.8 CULTURAL RESOURCES

The Seeley/Swan Valley supported considerable use by Native Americans prior to Euro-American settlement in the late 1800's-early 1900's. In fact, understanding historical fire regimes in the Valley is also a function of understanding how Native Americans used fire to "manage" their environment for travel and hunting. No map of cultural sites was produced as part of this fire plan.

7.0 RISK EVALUATION: IDENTIFYING AREAS OF GREATEST THREAT

A risk assessment was conducted to evaluate the risk of wildland fire to the communities of Seeley Lake and Condon, Montana. The goal of the risk assessment process is to determine what areas are cumulatively the most vulnerable to wildfire hazards. The risk assessment approach applied in this fire plan uses a Geographic Information System (GIS) and the relevant landscape data to evaluate the vulnerability of people, structures and community assets to potential wildfire. This type of analysis is dependent on the accuracy of the data used. To expedite completion of the plan and reduce overall costs, existing data were used to conduct the risk assessment. Accuracy assessments were not conducted on the existing data, including the new fuels layer developed from the LANDFIRE coverage.

7.1 FUELS AND SLOPE

The fuel hazard ratings results discussed in Section 5.2.1 were further combined with 5 weighted categories of slope (0 to 10°=1, 10 to 20°=2, 20 to 30°=3, 30 to 40°=5, and greater than 40°=10) to assess the overall fuel hazard within the fire plan region. The overall fuel hazard rating was calculated by adding fuel hazard rating to one half the slope rating. Increasing slope can have a chimney effect that increases the overall fire intensity and spread rate within a forest stand.

7.2 STRUCTURE DENSITIES AND EVACUATION ROUTES

Information on structure densities per square mile for the fire plan area was combined with information on primary evacuation routes to produce a weighting prioritizing the vulnerability of the communities to wildfire risk. Evacuation routes were based on a 1.5 mile buffer delineated on either side of Highway 83 and Highway 200. In addition, a separate fuels analysis was conducted for a 0.5 mile buffer on several secondary roads including Jocko Lakes Road, Woodworth/Cottonwood Lakes Road, and Morrell Creek Trailhead Road, but these areas were not included within the WUI. The primary highways were given weightings of 5 within 0.5 mile, 4 within 1.0 mile, and 3 within 1.5 miles. The secondary roads were given a rating of 3. The structure densities per square mile were given weightings based on the following classes: 0=0, >0-1=1, >1-2=2, >2-5=3, >5-10=4, >10-25=5, >25-50=6, >50-100=7, >100-150=8, >150-200=9, >200=10.

7.3 CUMULATIVE EFFECTS – FINAL RISK ASSESSMENT

The fuel hazards/slope information was combined with the structure densities/evacuation route information to produce a map of each stand's cumulative risk to human life or property. This map used the overall fuel hazard rating for each location that ranged from 1-15 based on the amount and type of fuels present as well as the slope. It then combined the fuel hazard with a structure density/evacuation route rating that ranged from 1-15, with 15 being the highest priority areas for human safety and evacuation areas and 1 being wildlands not in proximity to populated locations or evacuation routes. The fuel hazard rating and population/evacuation rating were combined using an

80%/20% split. This means 80% of the final score came from the fuels hazard/slope information and 20% of the final score came from the structure densities/evacuation route information. The resulting map (Figure 9) identifies the combined ratings and identifies forest stands that present the greatest risk to human life or property under their existing conditions. The stands with high ratings can be listed by ownership and prioritized for preventive actions, either by agency management or for possible funding support for fuel thinning on private lands.

8.0 PREPAREDNESS: PLAN AND PRACTICE

8.1 BE PREPARED- IT'S YOUR RESPONSIBILITY TO PROTECT YOUR HOME FROM WILDFIRE!

8.1.1 Defensible Space

Defensible space is often defined as an area around your home or outbuildings, where the flammable vegetation is modified and maintained to slow the rate and intensity of an advancing wildfire. This area would also provide room for firefighters to work to protect your structure from advancing wildfire as well as protect the forest from a structure fire. In practice, "defensible space" is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

There is considerable information available to help homeowners reduce the vulnerability of their homes and property to wildfire. Firewise (www.firewise.org) and Keep Montana Green (<http://www.keepgreen.org/>) are just a few of the many organizations offering information and resources to homeowners in the wildland/urban interface. For more specific actions to create defensible space see Section 11.5.3.

8.1.2 Burn Permits

It is a landowner's responsibility to obtain a burn permit from the appropriate local firefighting agency. Depending on your location within the fire plan area, burn permits can be obtained from the Seeley Lake RFD, Seeley Lake Ranger Station, DNRC Swan Unit, and the DNRC Clearwater Unit. Burn permits are required from March 1 to November 30, each year. Burning is not allowed from December 1 to February 28 due to inversions and the associated air quality problems. Burn permits may be temporarily suspended during high fire risk conditions. Before lighting your fire, you must call the outdoor burning hotline (677-2899) identified on your burn permit after 9:00 AM on the day you wish to burn, for notice of any restrictions in effect. A burn permit is not valid when air quality or fire hazard restrictions are in effect. No fire may be ignited before 9:00 AM or be allowed to burn after 4:00 PM unless an extension is authorized by the fire agency. In the case of logging slash piles that will continue to burn after 4:00 PM, the fire must be attended until it is out or until it no longer poses a threat. On many days afternoon winds are likely, use extra caution and watch wind conditions while burning. No fire may be ignited when wind or other weather conditions make it hazardous to burn. Before lighting your fire, you must take all measures necessary to prevent the fire from spreading and must have sufficient help and equipment at the site to prevent the fire from getting out of control (MCA 50-63-103). You may not burn any man-made materials, trade wastes, or other prohibited materials. Under Montana Law (MCA 50-63-103), the landowner or individual starting a fire is liable for all fire suppression costs and damages resulting from an escaped or uncontrolled fire. A permit must be in the possession of the permittee or his/her representative at the site of the fire at all times. Fire, health and law enforcement officials may access the site of the outdoor burning to ensure compliance with the outdoor burning regulations and permit conditions.

8.1.3 Neighborhood Preparedness and Emergency Communication

Talk to your neighbors about wildfire safety. Discuss and plan in advance how the neighborhood could work together during a wildfire. Identify phone chains for disseminating critical information. Make a list of your neighbors' skills such as medical or technical. Consider how you could help neighbors who

Seeley-Swan Fire Plan Risk Assessment

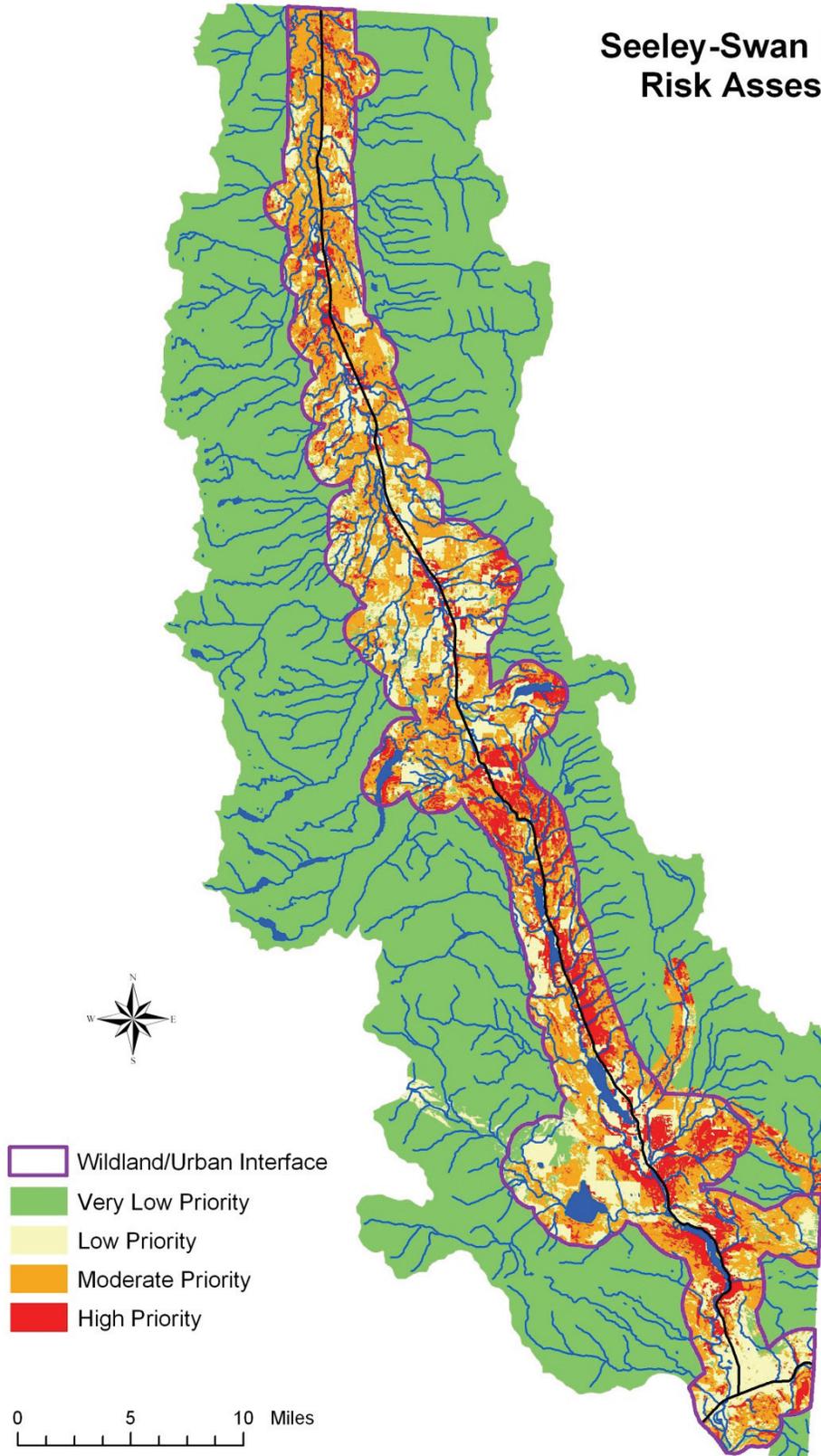


Figure 9. Results of the risk assessment identifying four priority levels for risk in the wildland/urban interface of the Seeley-Swan Fire Plan region.

have special needs such as elderly or disabled persons. Make plans to take care of children who may be on their own if parents can't get home. Identify livestock or pets in the neighborhood that may need to be evacuated.

Families should pre-arrange normal and alternate ways to stay in touch with family members should wildfire strike suddenly. For example, family members might "check in" with a friend or relative in another area as soon as they are able.

8.1.4 Evacuation Routes/Safety Zones

Families should identify in advance, normal and alternate escape routes out of the fire plan area. In addition, they should also identify the locations of and routes to large areas with little or no vegetation or other fuels where they can ride out the fire if it's too late to evacuate. A rule of thumb for choosing a safety zone is the center of the zone should be more than 4 times the expected flame height from the edge of the forest.

8.1.5 Pets and Livestock - Evacuation

Seeley Lake and Condon are rural communities with the typically high number of associated pets and livestock. In addition, both communities have a large number of dog sled racing teams, each with a considerable number of dogs in their kennels. It is the pet and livestock owners' responsibility to be prepared for evacuation well in advance of a wildfire. If you must evacuate your home or property, it is the owner's responsibility to not leave pets and livestock behind. In addition to fighting a wildfire, firefighters should not be additionally burdened with trying to protect or evacuate abandoned pets or livestock.

For public health reasons, many emergency shelters cannot accept pets. Develop a plan in advance and have the necessary phone numbers, pet supplies, and medical records (many boarding facilities require evidence of vaccinations) on hand to take with you on short notice. Arrangements for evacuation of livestock, including routes and host sites, should also be made in advance. Alternate routes should be mapped out in case the planned route is inaccessible. All animals should have some form of identification that will help facilitate their return.

8.1.6 Personal Tools, Equipment, Fire Protection Clothing

A homeowner should NEVER attempt to fight a wildfire to protect their home or property. However, in the event that you have time to prepare your house for a wildfire prior to evacuation, or there is simply no time to evacuate, there are several tools, equipment and clothing you can have on hand to help protect your family and your house from wildfire.

- Hoses and sprinklers can be used to reduce the risk of sparks and embers igniting surrounding vegetation or the roof of the house. If power is lost, however, a gas powered pump (fueled and ready) can be used to extract water from a nearby pond or stream. Pre-connect the hoses to the faucets or pumps.
- Have a ladder, shovels, rakes, chain-saws, and pick-ax on hand to help you reduce the vulnerability of your home to wildfire. However, it is important to note that developing defensible space around your home should be done long before a wildfire is threatening your home.
- Have one or more 5-pound multipurpose type fire extinguishers readily available.
- Protective clothing should be on hand for while you are working to prepare the house for a wildfire or for anyone who is unable to evacuate before the fire arrives. This includes a cotton long-sleeved shirt or jacket and trousers, a handkerchief to provide minimum protection for

the lungs (avoid inhaling smoke or hot gases), leather boots, gloves, a helmet or other head covering, and goggles. Cotton clothing is important as synthetic fabrics can melt onto your skin and cause serious burns.

8.2 THE COMMUNITIES: FIRE PREPARATION

8.2.1 Evacuation Plans

An evacuation plan is in place for Missoula County. Local law enforcement agencies will be in charge of implementing the evacuation plan in the event of a wildfire that jeopardizes human safety. In general, the evacuation plan consists of six stages:

- 1) Pre-evacuation contacts and briefings - contact teams go door-to-door (if possible) to provide information about the emergency and determine any special needs of those contacted.
- 2) Evacuation warning - Residents notified of the high probability of the need to evacuate. Persons with special need will be evacuated at this time.
- 3) Evacuation request - residents of the affected area are asked to leave within a specified time frame by a pre-designated route (dependant on the emergency) and report to the evacuation center.
- 4) Evacuation order - emergency conditions present a clear threat to human safety and residents are ordered to leave.
- 5) Roadblocks - perimeter roadblocks are maintained and the evacuated area(s) are patrolled around the clock. Regular incident status briefings are provided for evacuees.
- 6) Evacuees are allowed to return according to conditions identified by the controlling agency.

8.2.2 Fire Protection Response

8.2.2.1 Ignition Workload Analysis

The following table represents the number of wildfires within the fire plan area that were responded to by firefighting agencies over the past five fire seasons. Data were obtained from Lolo National Forest, Flathead National Forest, and Montana DNRC.

FIRE SEASON	SUPPRESSED	ESCAPED INITIAL ATTACK	TOTAL FIRES
2007	94	1	95
2006	63	2	65
2005	24	0	24
2004	38	0	38
2003	78	2	80

The ratio of successful fire suppression in the fire plan area to the total fire workload during the last five-year period is 98%. The average number of fire responses by MT DNRC in this five-year period decreased 25% over the previous five-year period.

8.2.2.2 Strategic Fuel Breaks

There are several existing fuel breaks within the fire plan area that can serve as strategic fuel breaks for wildfire suppression including the Double Arrow Golf Course and the many large lakes and rivers that occur throughout the fire plan region. In addition, there are several large meadows, both wet and agricultural, that occur along Highway 83 that could also be used strategically to help suppress a wildfire.

Primary lines of defense (PLODs) have been designated within the plan area. PLODs describe a predetermined boundary around a particular area of high values at risk such as residential, recreational or commercial structures. PLOD boundaries are determined by local fire suppression experts with consideration of tactical efficacy, accessibility, ease of identification from the ground or from the air and potential fire fighter safety.

PLODs designated by MT DNRC and USFS in the Swan Valley and by the Seeley Lake Fuels Mitigation Task Force in the Clearwater Valley are shown in Figures 10 and 11.

8.2.2.3 Safety Zones

There are several safety zones identified for the fire plan area including:

- | | |
|--------------------|--|
| Condon Area - | 1) Mission Mountain School - end of Guest Ranch Road |
| | 2) Gordon Ranch - off Holland Creek Road |
| Seeley Lake Area - | 1) Seeley/Swan High School - Airport Road |

8.2.2.4 Fire Engine Pump/Draft Source Sites

The Seeley/Swan Valley has a large number of natural lakes and streams as well as the water system in the town of Seeley Lake. These provide a number of good sources of water for fire fighting. The location and types of equipment that can be served at each draft site is maintained in a GIS and available to firefighting agencies.

8.3 COMMUNITY EMERGENCY RESPONSE TEAMS

A community emergency response team (CERT) is a pre-planned group of people who will coordinate local efforts during a wildfire or other type of disaster. Responsibilities can include communication to agencies and outside entities, ensuring individual safety, and delivery of first aid, or food and water services. The Federal Emergency Management Agency (FEMA) distributes funds for state and local level CERT programs that allow states to fund new programs and expand existing teams. The CERT program is administered in Montana by the Department of Emergency Services.

The CERT training program is a 20-hour course and typically covers disaster preparedness, disaster fire suppression, basic disaster medical operations, light search and rescue, and team operations. The training also includes a disaster simulation in which participants practice skills that they learned throughout the course. The CERT course is taught by a trained team of first responders who have completed a CERT Train-the-Trainer course conducted by their state training office for emergency management, or FEMA's Emergency Management Institute.

There are currently no community emergency response teams in the Seeley Lake or Condon areas but there is considerable interest in establishing CERT in both communities. In Condon, the Swan Ecosystem Center currently provides many of the same benefits of a CERT but is not certified through Montana DES.

8.4 EMERGENCY COMMUNICATION

The Seeley Lake RFD has established an emergency phone number for dissemination of taped information that is updated as needed - 677-NEWS. In addition, the Seeley Lake RFD has established a website for dissemination of important information (www.seeleyfire.org). The Swan Ecosystem Center (754-3137) also provides emergency communication services to Condon area residents. The Lolo (www.fs.fed.us/r1/lolo/fire) and Flathead National Forests (www.fs.fed.us/r1/flathead) maintain websites that also provide information on fires, and have links to national fire information centers. All of these can provide sources for emergency wildfire information.

In the event phone lines are down and cellular service to the area is jammed, the Seeley Lake RFD, Swan Valley VFD, U.S. Forest Service and DNRC all have radio capability to communicate effectively among themselves and with each other, throughout a wildfire emergency.

The establishment of “phone trees”, a pre-established system for networking (telephone, e-mail, or other) between neighbors or within homeowners associations, is encouraged for emergency communication and evacuation purposes. The DNRC Swan Unit is in the process of dividing up all of the Condon area communities into “neighborhoods”. Typically, these neighborhoods are characterized by similar access and egress routes for evacuation and phone trees provide an effective mechanism to ensure all residents are contacted in the event of an emergency. Pre-evacuation plans will be available for all homes within a neighborhood and maintained at the DNRC Swan Unit. Figure 10 depicts the neighborhoods in the Swan Valley and Figure 11 provides an overview of Clearwater Valley. Within the Seeley Lake area, a phone tree is currently being developed for the Placid Lake Homeowners Association. Phone trees are particularly important for the elderly, small children or handicapped when planning an evacuation.

8.5 AGENCY FIRE PLANS

The DNRC has developed the Southwestern Land Office Mobilization Plan to provide the necessary guidance to insure that state fire resources are in an appropriate state of readiness to deal with actual fire suppression situations and to guide the mobilization of additional resources to accomplish this task. The Mobilization Plan contains information on communications, fire mobilization, aircraft, manpower and equipment.

Each of the Lolo and Flathead National Forests prepare an annual Fire Management Plan that outlines programs to provide flexible wildfire preparedness, suppression, prevention and fire use options that meet interdisciplinary goals, objectives and move towards the desired conditions.

The Seeley Lake Fuels Mitigation Task Force was established in 2004 to implement the Seeley/Swan Fire Plan. The Task Force has acquired fuels mitigation funding for private landowners, and has hired a fuel mitigation coordinator through a cooperative arrangement with Bitter Root RC&D. The Task Force maintains a list of companies in the area that are available to assist landowners with fuel mitigation work.

Seeley Lake and Condon support a number of companies that conduct work in logging and excavating. This list will be updated annually prior to the onset of the fire season, and made available to all fire fighting agencies in the fire plan area. The Seeley Lake RFD and Swan Valley VFD will assume lead responsibility for this annual task within their respective communities.

Each year the DNRC and US Forest Service seek contractors that would like to sign-up their equipment to be used in fire suppression efforts. This sign-up period is usually done in May before fire season. Once an Emergency Equipment Rental Agreement (EERA) is signed by a certified contracting officer, the copy of the EERA and the type of equipment is kept at the various dispatch centers in a Resource Ordering and Supply (ROSS) database so dispatch can mobilize equipment to the fire line when requested. The US Forest Service and DNRC use an Interagency Fire Business Management Manual and abide by the same standards for equipment sign-up. All equipment is inspected prior to mobilization on a fire line.

8.6 TRAINING, CERTIFICATION, AND QUALIFICATIONS

The local state and federal firefighting agencies are members of the National Wildfire Coordinating Group (NWCG). The NWCG was developed to provide a formalized system to agree upon standards of training, equipment, qualifications, and other operational functions. The NWCG has developed interagency fire training and certification programs and fitness qualifications for fire-fighting personnel, as well as standards for equipment, programs, and operating procedures.

Seeley-Swan Fire Plan Swan Valley

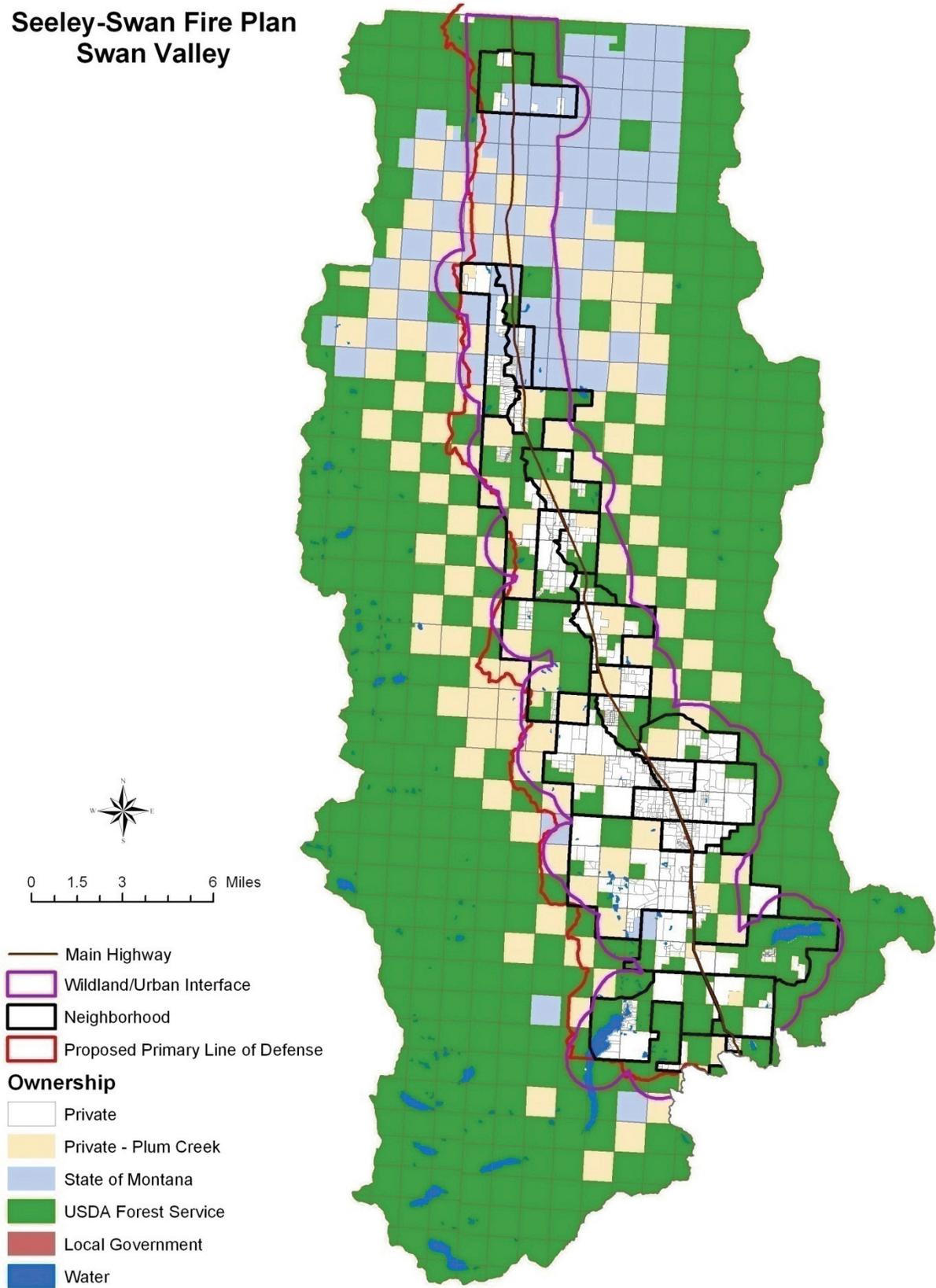


Figure 10. Overview of the Swan Valley with neighborhood boundaries.

Seeley-Swan Fire Plan - Clearwater Valley

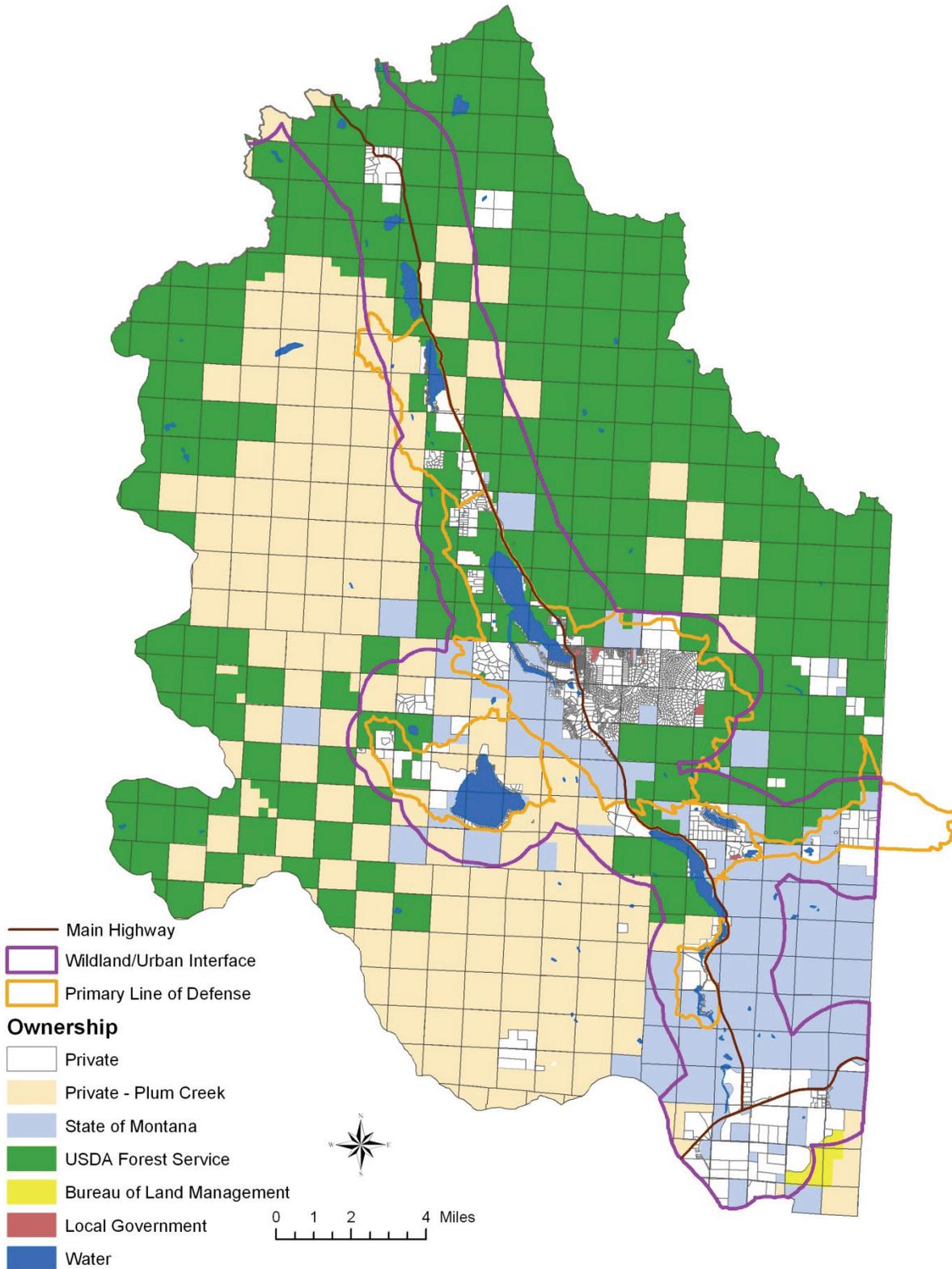


Figure 11. Overview of the Clearwater Valley.

9.0 REGULATORY COMPLIANCE

9.1 ADMINISTRATIVE BARRIERS WILDFIRE MITIGATION

9.1.1 Legal Mandates

Potential legal barriers to implementing various aspects of wildfire mitigation plans on National Forest lands include National Environmental Protection Act (NEPA) and Endangered Species Act (ESA) regulations and compliance issues, as well as potential citizen or organizational intervention (legal challenges) to proposed mitigation actions. Also, agency priorities for ongoing projects and potential agency funding restrictions for new projects have the potential to act as barriers to implementing mitigation actions identified and deemed necessary by the community.

At the federal level, NEPA concerns address threatened and endangered species and potential impacts that mitigation efforts will have on these. In the Seeley/Swan community fire plan area, existing threatened and endangered species include the grizzly bear, Canada lynx, and bull trout. All three species are listed as threatened under the ESA. Both state and federal land management is influenced by ESA.

It is recommended that policies and guidelines concerning considerations for threatened and endangered species and other species of concern be developed for fuel thinning projects occurring on Federal and State lands within the WUI. In particular, where such lands occur along the primary or secondary evacuation routes, with no structures close by, the level of fuel mitigation needed in proximity to the route could have some flexibility. Determining these policies and guidelines through a coordinated process prior to project implementation should produce better and more consistent implementation of fuel thinning for public lands, and be better understood and more defensible to the public.

Potential citizen intervention in the form of legal challenges to mitigation efforts, while always a potential, are unlikely to come from the communities affected by this fire plan. Recent large wildfire events in the valley have resulted in heightened wildfire hazard awareness among community members. As a result of this, there is overwhelming consensus among community members that mitigation action to reduce the threat of catastrophic losses due to wildfires is an urgent priority.

The Healthy Forest Restoration Act (HFRA) alleviates some potential barriers in the short term. Specifically, the HFRA has its own abbreviated appeal process and allows agencies to propose one alternative action treatment, as opposed to multiple alternatives. In the event of legal challenges to proposed actions, the HFRA also gives the courts direction as far as considering the effects and potential catastrophic outcomes of no action being taken.

In addition to the ESA, potential legal barriers to implementing various aspects of wildfire mitigation plans on state lands include the Federal Enabling Act of 1889 and the Montana Environmental Policy Act. The Enabling Act granted sections 16 and 36 to the State of Montana and provided that proceeds from the sale and permanent disposition of any of the trust lands, or part thereof, shall constitute permanent funds for the support and maintenance of the public schools and the various state institutions for which the lands had been granted. The Montana Constitution provides that these permanent funds shall forever remain inviolate, guaranteed by the State of Montana against loss or diversion. The department's obligation is to obtain the greatest benefit for the school trusts. The greatest monetary return must be weighed against the long-term productivity of the land to ensure continued future returns to the trusts. The State Forest Land Management Plan (SFLMP), approved by the State Land Board in June 1996, guides the management of the forested trust lands. This guidance is provided in the form of general management philosophy and specific resource management standards. In February 2003, the State Land Board approved new Forest Management Administrative Rules that provide programmatic direction for the Forest Management Program. These rules are written in

support of the resource management standards contained within the State Forest Management Plan. These new rules apply to all timber management activities initiated as of the date of acceptance of these rules by the State Land Board.

The second legal mandate influencing fuels mitigation on state lands consists of the Montana Environmental Policy Act (MEPA). MEPA was enacted by the 1971 Legislature and provides a public process that assures Montana's citizens that before state government makes a decision that could have significant impacts on the human environment; a deliberate effort is made to identify those impacts. The concept is that the decision maker and the public should be well informed of the environmental impacts of the decision before the decision is made. In order to learn the most about what the environmental impacts of a significant state action might be, agencies are directed to obtain the input of others. This is important because state government often makes decisions that can impact the environment or affect personal property rights or quality of life, and no one decision maker has all the answers.

There are two basic types of state government activities that most commonly require a MEPA review of possible impacts on the human environment. The first type of activity is an agency-sponsored proposal to implement a program or project or to undertake an activity on its own or in concert with other agencies. This may include local projects if they are funded by the state. Examples include timber sales on state lands or the construction of a road or a state recreation area. The second type of activity includes a decision by the state to grant to an applicant a license, permit, lease, or other state authorization to act. Examples of this type of action include permits for mines, air or water quality discharges, surface or ground water use, mineral leasing, and many others.

MEPA requires agencies to prepare a written environmental review that is available to the public. This review may be a simple checklist environmental assessment (EA), a more comprehensive EA, or a more detailed environmental impact statement (EIS). MEPA requires that the level of analysis and the degree of public involvement increase, depending on the significance of the potential or identified environmental impacts.

9.1.2 Fire and Building Codes

Missoula County recently adopted building codes that apply to the fire plan area. At present, fire prone materials are sometimes used on the exterior of residences in the wildland/urban interface, making them more susceptible to ignition by wildfires. Some homeowners associations in the area have specified fire resistant materials for some exterior materials. Another hindrance to reducing wildfire risk is the inclusion of restrictions on cutting trees in the covenants of some homeowner association's deed restrictions. A number of these restrictions have been changed in recent years by some of the homeowner's associations.

9.2 ADMINISTRATIVE SOLUTIONS

9.2.1 Interagency Collaboration

The Seeley Lake RFD, Swan Valley VFD, Lolo and Flathead National Forests, and DNRC Swan and Clearwater Units have worked together over the past 20 years to ensure interagency coordination and collaboration relative to wildfire prevention and suppression in the fire plan area. To aide in this regard, these agencies have developed mutual aide agreements and a six-party federal and state agreement. They also revise operating plans with dispatch centers and county cooperative agreements on an annual basis. At the local level, all firefighting agencies are committed to meeting bi-annually to discuss opportunities for improving coordination and collaboration. Interagency meetings will be scheduled for the spring (pre-season) and fall (post-season) to provide updates on new or on-going programs, introduce new personnel, discuss equipment needs and ways of obtaining new equipment, and discuss problems encountered during the previous fire season.

The ability to plan and implement mitigation treatments across jurisdictional boundaries will require close cooperation between the U.S. Forest Service, The Montana Department of Natural Resources and Conservation, and affected private landowners. The Seeley Lake Fuels Mitigation Task Force was established to help provide this cooperation and coordination. Addressing areas of multi-ownership will be addressed initially through public meetings, and public education efforts to identify and make known those priority areas identified by the community and in the Community Fire Plan. Consequent efforts between the USFS and DNRC will require close interagency cooperation and coordination to implement mitigation project areas with joint boundaries. Both agencies are committed to work together to implement mitigation efforts identified by the community as priority areas.

9.2.2 Coordinated Resource Management Plans

The Clearwater Resource Council has prepared a Landscape Assessment of the Clearwater Valley. This assessment pulls together ecological information for the Valley including distributions of various listed species, species of concern or special interest, riparian and wetland areas, and other data. This assessment has provided information for use in land use planning discussions. It would also provide information of use in designing fuel mitigation projects. It can be viewed at <http://www.crcmt.org>. The Swan Valley Landscape Analysis is a coordinated resource management plan developed for the upper Swan Valley region. This community-based assessment crosses all land ownerships for an ecosystem view of the landscape. The assessment's maps and documents were developed to help the federal and state land managers, the timber industry, and private landowners better manage the natural resources of the Swan Valley. The Swan Valley Landscape Assessment can be viewed at - <http://www.swanecosystemcenter.com/>.

10.0 ACTION PLAN

10.1 DESIRED FUTURE CONDITIONS

The analyses conducted for this fire plan highlighted the fuel loadings within the wildland/urban interface and evacuation routes. Areas with high fuel loadings, particularly on steep slopes, occurring within this interface represent significant risk to human life and property. A first priority for desired future conditions is to reduce these fuel loadings to safer levels. This will be an on-going process, as the favorable forest productivity of the Seeley/Swan Valley means that additional fuels are added each year, and will accumulate to undesirable levels without continued fuel reduction programs.

10.2 MITIGATION GOALS

The results of the Seeley-Swan Fire Plan risk assessment identified 32,681 acres in the category of high risk from wildfire. An additional 100,320 acres were identified for the moderate risk category. The following table identifies the number of high and moderate risk acres by the landowner category within the WUI and secondary evacuation routes.

Priority Acres within the Wildland/Urban Interface

North Fire Plan Area

Landowner	Priority Level	
	High	Moderate
Flathead National Forest	6,403	24,997
MT DNRC – NWLO	1,838	8,826
MT FWP – Region 1	87	686
MT Dept of Transportation	2	3
Missoula County	14	6

Plum Creek Timber Co.	597	11,972
Private	3,826	13,282
Other	40	90
Total	12,807	59,862

South Fire Plan Area

Landowner	Priority Level	
	High	Moderate
Bureau of Land Management	115	164
Lolo National Forest	9,274	17,375
MT DNRC – SWLO	3,499	8,594
MTFWP – Region 2	900	1645
MT Dept of Transportation	0	2
Missoula County	25	39
Plum Creek Timber Co.	1,058	5,378
Private	4,866	7,098
Other	137	163
Total	19,874	40,458

Additional Acres within Evacuation Routes (outside WUI)

South Fire Plan Area

Landowner	Priority Level	
	High	Moderate
Lolo National Forest	1,422	4,236
MT DNRC – SWLO	1	4
Plum Creek Timber Co.	38	474
Private	55	198
Total	1,516	4,912

Mitigation goals for the fire plan region are to reduce the number of acres in the high priority category by at least 10% of the total each year. This will require treatment of approximately 3,300 acres of high priority fuel hazard conditions each year for the next ten years. Additional acres within the moderate risk category will be treated as additional resources become available.

10.3 MITIGATION PROGRAMS

Program: Rural Fire Assistance
Source: National Fire Plan - Department of Interior
Description: Provides funds to rural fire departments for wildfire fighting; also provides wildland fire equipment, training and/or prevention materials.
More info: <http://dnrc.mt.gov/forestry/fire/grants/default.asp>

Program: State Fire Assistance
Source: US Forest Service
Description: USFS grants to state foresters through state and private grants, under authority of Cooperative Forestry Assistance Act. Grant objectives are to maintain and improve protection efficiency and effectiveness on non-federal lands, training equipment, preparedness, prevention and education.

More Info: www.forestsandrangelands.gov; Paula Rosenthal, MT DNRC

Program: State Fire Assistance Hazard Mitigation Program
Source: National Fire Plan
Description: These special state Fire Assistance funds are targeted at hazard fuels treatment in the wildland-urban interface. Recipients include state forestry organizations, local fire services, county emergency planning committees and private landowners.

More Info: www.forestsandrangelands.gov , www.fs.fed.us/r1-r4/spf/fire_assist.html and www.dnrc.mt.gov/forestry/fire/default.asp

Program: Volunteer Fire Assistance
Source: US Forest Service
Description: Provides funding and technical assistance to local and volunteer fire departments for organizing, training and equipment to enable them to effectively meet their structure and wildland protection responsibilities. Provided to state foresters through state and private grants under the authority of Cooperative Forestry Assistance Act.

More Info: www.fs.fed.us/fire/partners/vfa and www.dnrc.mt.gov/forestry/fire/default.asp

Program: Forest Land Enhancement Program
Source: US Forest Service
Description: The 2002 Farm Bill repealed the Forestry Incentives Program (authorized in 1978) and Stewardship Incentive Program (1990) cost share programs and replaced it with a new Forest Land Enhancement Program (FLEP). FLEP purposes include 1) Enhance the productivity of timber, fish and wildlife habitat, soil and water quality, wetland, recreational resources, and aesthetic values of forest land through landowner cost share assistance, and 2) Establish a coordinated, cooperative federal, state and local sustainable forestry program to establish, manage, maintain, enhance and restore forests on non-industrial private forest land.

More info: www.usda.gov/farmland

Program: Federal Excess Property
Source: US Forest Service
Description: Provides assistance to state, county and local governments by providing excess federal property (equipment, supplies, tools) for wildland and rural community fire response.

More info: www.fs.fed.us/fire/partners/fepp/

Program: Economic Action Program
Source: US Forest Service
Description: A USFS, state and private program with involvement from local Forest Service offices to help identify projects. Addresses long-term economic and social health of rural areas; assists the development of enterprises through diversified uses of forest products, marketing assistance, and utilization of hazardous fuel byproducts.

More info: www.fs.fed.us/r1-r4/spf/montana/

Program: Forest Stewardship Program
Source: US Forest Service
Description: Funding helps enable preparation of management plans on state, private and tribal lands to ensure effective and efficient hazardous fuel treatment.

More info: www.fs.fed.us/r1-r4/spf/montana/

Program: Rural Community Assistance
Source: US Forest Service
Description: USFS provides funds to recipients with involvement of local Forest Service offices for the development of community strategic action and fire risk management plans to increase community resiliency and capacity.

More info: Dean Graham, Regional RCA Coordinator at 406-329-3230

Program: Firefighters Assistance
Source: Federal Emergency Management Agency and US Fire Administration Program
Description: Financial assistance to help improve fire-fighting operations, services and provide equipment.

More info: www.usfa.fema.gov/

Program: Montana Forest Stewardship Program
Source: Montana Department of Natural Resources and Conservation
Description: Montana's Forest Stewardship Program assists nonindustrial private forest landowners in meeting the demand for wood products and providing high quality management of their resources. This program helps Montanans perform forestry work that results in a healthy and sustainable environment, and economic benefits for the landowner and surrounding business community.

More info: www.fs.fed.us/r1-r4/spf/montana/

Program: Community Facilities Loans and Grants
Source: Rural Housing Service (RHS) U. S. Dept. of Agriculture
Description: Provides grants (and loans) to cities, counties, states and other public entities to improve community facilities for essential services to rural residents. Projects can include fire and rescue services; funds have been provided to purchase fire-fighting equipment for rural areas. No match is required.

More info: www.rurdev.usda.gov/; or local county Rural Development office.

Program: Sale of Federal Surplus Personal Property
Source: General Services Administration
Description: This program sells property no longer needed by the federal government. The program provides individuals, businesses and organizations the opportunity to enter competitive bids for purchase of a wide variety of personal property and equipment. Normally, there is no use restrictions on the property purchased.

More info: www.gsa.gov

Program: Reimbursement for Firefighting on Federal Property
Source: U. S. Fire Administration, Federal Emergency Management Agency
Description: Program provides reimbursement to fire service organizations that have engaged in firefighting operations on federal land. Payments for direct expenses and direct losses.

More info: www.fema.gov/

Program: Fire Management Assistance Grant Program
Source: Readiness, Response and Recovery Directorate, FEMA
Description: Program provides grants to states, tribal governments and local governments for the mitigation, management and control of any fire burning on publicly (nonfederal) or privately owned forest or grassland that threatens such destruction as would constitute a major disaster. The grants are made in the form of cost sharing with the federal share being 75 percent of total eligible costs. Grant approvals are made within 1 to 72 hours from time of request.

More info: www.fema.gov/

Program: Hazard Mitigation Grant Program
Source: Federal Insurance and Mitigation Administration, FEMA
Description: Provides states and local governments with financial assistance to implement measures to reduce or eliminate damage and losses from natural hazards. Funded projects have included vegetation management projects. It is each State's responsibility to identify and select hazard mitigation projects.

More info: www.fema.gov/

10.4 FUEL MITIGATION PROJECTS

Various fuel mitigation efforts have occurred in the Valley over the past 5 years. Figure 12 displays the fuel mitigation projects completed by the different agencies, Plum Creek Timber Company, or on private lands in the Clearwater Valley. Figure 13 displays the same information for the Swan Valley. The Plum Creek information displays harvested areas, that while not completed specifically as fuel mitigations, do result in a reduction in current fuel levels.

The Seeley Lake Fuels Mitigation Task Force has provided one-stop-shopping for landowners interested in funding or grants for conducting fuel mitigation on their property in the Clearwater Valley. Since its inception, the Task Force has obtained over \$300,000 in fuel mitigation funds from a number of sources, and has treated over 450 acres of private lands. In the Swan Valley, MT DNRC working with the Swan Ecosystem Center have assisted private landowners in completing the fuel mitigation work displayed in Figure 13.

The U.S. Forest Service, Seeley Lake Ranger District, Lolo National Forest, has completed several hazardous fuel reduction projects through its timber sales program including:

Seeley Fuels Timber Sale - 2004	1600 acres, 5 mmbf volume
Double Arrow Fuels - 2007	60 acres
Hidden Fuels - 2007	238 acres, 1.3 mmbf volume

The Seeley Lake Ranger District is also using the Healthy Forest Initiative Categorical Exclusions to reduce approximately 250 acres of hazardous fuels near ranching residents in the Monture area.

The U.S. Forest Service, Swan Lake Ranger District, Flathead National Forest, has completed the following hazardous fuel reduction projects through its stewardship program including:

Holland Pierce Timber Sale - 2007	2000 acres treated, 5.5 mmbf volume
Condon Fuels Timber Sale - 2007	249 acres treated, 2 mmbf volume
Meadow Smith Timber Sale - 2006	839 acres to be treated, 3.5 mmbf volume
Cooney McKay (sell 2009) - 2008	983 acres to be treated, 3.2 mmbf volume

The Swan Lake Ranger District has also been using ecosystem burning to reach mitigation goals. The mid to upper mountain slopes in the lower Swan Range have historically experienced infrequent moderate-intensity natural fires, and forest ecosystems have adapted to that fire regime. However, modern-day fire suppression activities have prevented or minimized fires within these landscapes. For example, forests once dominated by fire-dependent open-grown stands of fire resistant species have now developed to forests dominated by dense, less fire resistant species. Fire suppression has caused a change in species composition as well as increased stress and disease levels, accumulations of woody material, and an increased risk of stand-replacing fires. Introduction of fire will improve forest health and reduce the likelihood of intense wildfire. Some of the decadent brush and understory conifers have been slashed to rearrange fuel components.

The objective of proposed prescribed burning on public lands is to re-introduce fire to stands which have experienced moderately frequent mid-to-high elevation fires. These projects are designed to reduce the density of the vegetation, change species composition to favor fire resistant trees, rejuvenate fire-dependent vegetation, and reduce long-term insect and disease risk.

The DNRC - Clearwater Unit is working in several different areas to mitigate fuel hazards on state land adjacent to private property. In Seeley Lake, the "Good Neighbor" grant projects are getting underway to reduce fuel on state lands, creating fuel breaks between dense stands of timber and residential areas. Some of the areas that have already, and will be included in these projects include

portions of the Double Arrow subdivision, the west side of the Clearwater River on Riverview/Snowmass Drive, and directly west of the Seeley Lake airport (between the High School and the airport).

Plum Creek Timber Company has conducted timber harvests on many of its lands in the past 5 years. These have totaled some 27,000 acres of harvest. While not targeting fuel mitigation per se, these harvests have reduced fuel loads on these acres.

Mitigation Acres within the 2003 Seeley-Swan Fire Plan Boundary

North Fire Plan Area

Landowner	Fuels Reduction Treatments				Wildland Fires			
	Priority Level				Priority Level			
	High	Moderate	Low	Very Low	High	Moderate	Low	Very Low
Flathead National Forest	495	1458	487	346	0	1	75	10598
MT DNRC - NWLO	3	167	21	476	0	0	0	4
MT FWP	0	17	65	160	0	0	0	0
Plum Creek Timber Co.	197	931	1326	4122	0	0	11	2180
Private	1563	4134	2585	496	0	0	0	0
Other	23	34	12	6	0	0	0	0
Total	2281	6741	4496	5606	0	1	86	12782

South Fire Plan Area

Landowner	Fuels Reduction Treatments				Wildland Fires			
	Priority Level				Priority Level			
	High	Moderate	Low	Very Low	High	Moderate	Low	Very Low
Lolo National Forest	1093	1427	491	254	30	521	848	11426
MT DNRC - SWLO	471	160	78	7	1	36	597	1541
Plum Creek Timber Co.	688	1956	2991	14191	94	877	2045	17247
Private	384	167	71	55	3	37	342	208
Missoula County	33	0	16	3	0	0	0	0
Other	4	5	2	0	0	0	0	0
Total	2673	3715	3649	14510	128	1471	3832	30422

Seeley-Swan Fire Plan Completed Mitigation Clearwater Valley

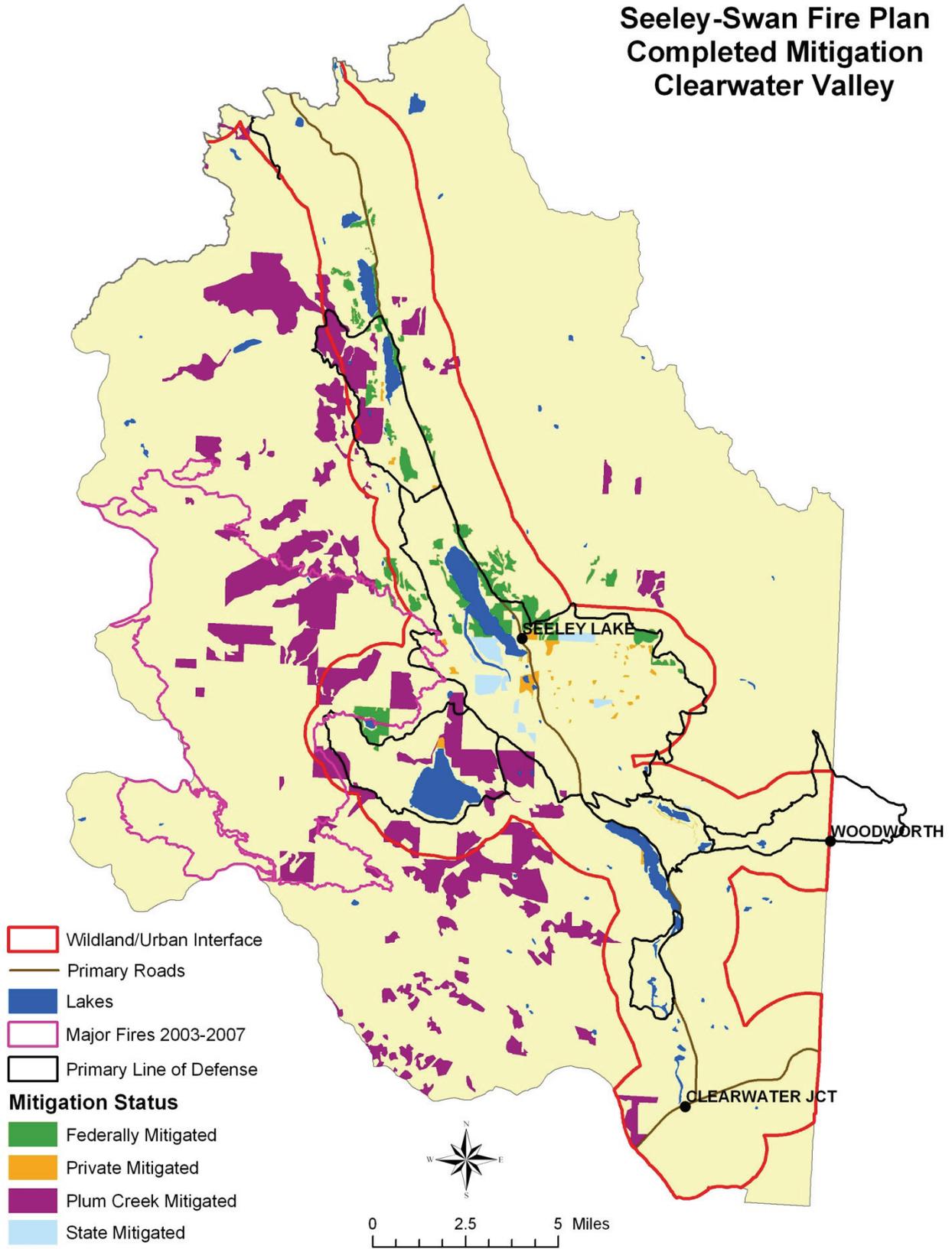


Figure 12. Fuel mitigation projects completed in the Clearwater Valley.

Seeley-Swan Fire Plan Completed Mitigation Swan Valley

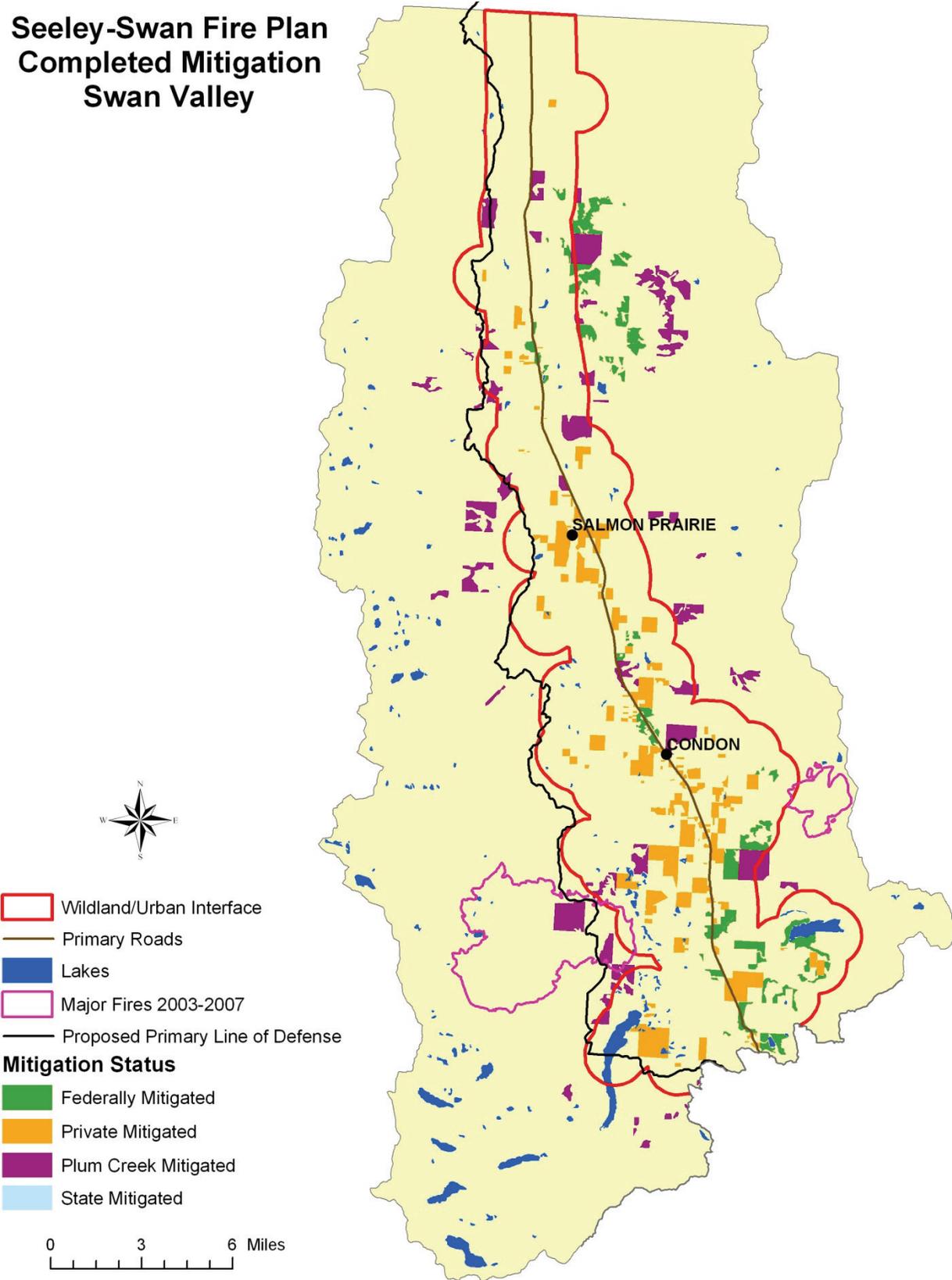


Figure 13. Fuel mitigation projects completed in the Swan Valley.

10.5 PRIORITIZATION PROCESS

Federal and state agencies will use the results of the risk assessment to give highest priority to projects within the high and moderate risk categories. All projects implemented to meet the objectives of the Seeley-Swan Fire Plan will be identified in public announcements and scoping documents.

Federal and state grant programs to assist fuel reduction actions on private lands will also give highest priority to projects within the high and moderate risk categories of the risk assessment. However, all landowners are encouraged to conduct fuel mitigation work around their homes and other structures. The Seeley Lake Fuels Mitigation Task Force is seeking funds on a continuing basis, and allocating these funds to landowners who meet the requirement for each source. Landowners only need to complete an application to be considered for fuel mitigation assistance from the Task Force. Applications are available from the Seeley Lake Rural Fire Department, or at <http://www.seeleyfire.org>.

10.6 POSSIBLE ACTIONS

10.6.1 Infrastructure Improvements

Infrastructure improvements planned for the fire plan area include building a new volunteer fire station in Salmon Prairie. The Seeley Lake Rural Fire Department is seeking funds to build a new fire station or expand the existing structure in Seeley Lake.

10.6.2 Defensible Space

The following guidelines were adapted from the 1993 publication "Fire protection guidelines for wildland residential interface development" (MT Department of State Lands and MT Department of Justice). These guidelines apply to all development within the wildland/urban interface including residential, commercial, and recreational structures on private, State, and Federal lands. These guidelines should be used in conjunction with local fire authorities to safeguard homes and developments in a specific locale.

10.6.2.1 Building Materials/Fire Wise Construction

- 1) Roofs should be constructed with only Class A or B fire-rated roofing materials and where practical, build all roofs with the minimum of a 4 in 12 pitch.
- 2) Protect the exposed underside of all eaves, balconies, and unenclosed roofs, decks, and floors with one-hour fire-resistant materials.
- 3) Protect all supporting beams and posts, in stilt or cantilevered construction, with one-hour fire-resistant materials.
- 4) Attic openings, soffit vents, foundation louvers, or other direct openings in outside walls, overhangs, or roofs should be no larger than 144 square inches.
- 5) Cover all openings in outside walls, overhangs, or roofs with a ¼-inch non-combustible, corrosion-resistant metal mesh.
- 6) Install only an approved spark arrester around the mouth of the chimney, stovepipe, or vent of any heater, stove, or fireplace.
- 7) Clean spark arrester regularly to remove deposits.
- 8) Build exterior walls out of one-hour fire-resistant materials. Do not use shingles, shakes, or rough-cut wood siding to sheath outside walls.
- 9) Close off the spaces between outside rafters, wall plates, and the underside of the roof sheathing with wood at least two inches thick or equivalent solid blocking.
- 10) Wildfire can radiate through windows, heating the interior of houses to combustion temperature. It can heat, crack, and break the windows, letting in burning particles.

- a. Keep window surface area to a minimum. In particular, since fire usually travels uphill, minimize window surface area on downhill-facing walls.
- b. Build several small windows instead of one large window, as large windows are more vulnerable to fire damage.
- c. Screen all windows.

10.6.2.2 Roads and Driveways

In an emergency, all road systems should provide for unobstructed traffic circulation for residents, firefighters, and fire equipment. This requires wide, well-constructed roads with sufficient turnarounds to prevent getting stuck off the road, and to allow simultaneous access by emergency vehicles and escape by local residents. Turns must be designed and hill grades established with truck traffic in mind. Fire trucks must be able to drive close to residences. Narrow, private roads, while picturesque and inexpensive to build, reduce access and limit the ability of emergency vehicles to respond quickly or in some instances, at all.

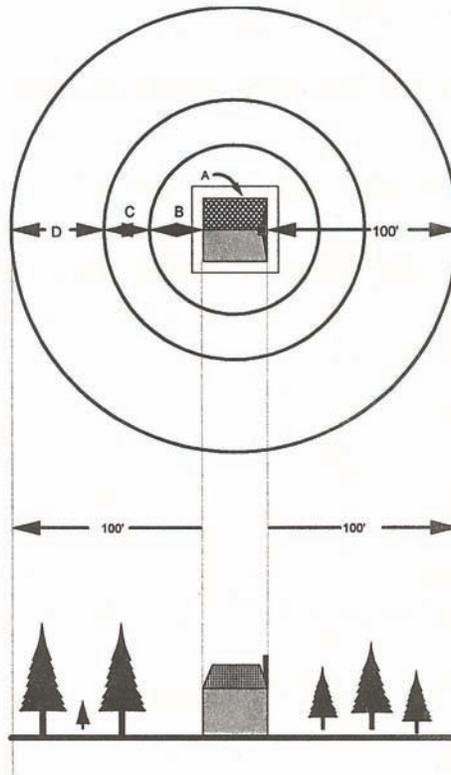
Driveways should be constructed with a minimum unobstructed driving surface of 12 feet and a vertical clearance of 15 feet for driveways less than 300 feet and a 16 foot driving surface for any driveway over 300 feet. Maintain a minimum of a 4-foot wide zone of reduced vegetation on each side of the driveway surface. A turnaround space should be provided at all building or structure sites on driveways over 300 feet in length. A 90-foot diameter area is required as a turnaround for emergency vehicles. Driveways should not exceed grades of steeper than 10%.

10.6.2.3 Fire Resistant Landscaping

Trees, brush, and dense undergrowth are primary fire hazards. This vegetation can ignite readily, burn with intense heat, and promote rapid spread of fire. Vegetation must be managed so as to reduce exposure of structures to flames and radiant heat during a wildfire. The reduction of flammable vegetation and other hazards around buildings provides a "defensible space" for firefighters and residents. As a minimum, landowners should:

- 1) Determine the slope of the building sites and use the following diagrams and guidelines to reduce and remove vegetation around each building according to the appropriate slope. Single ornamental trees need not be removed as long as all vegetation near them is reduced according to the guidelines. Ornamental trees and shrubs should not touch any buildings.
- 2) When planting, select trees, shrubs, and other vegetation that limit or retard fire spread.
- 3) Montana Fire Hazard Reduction Law requires that any person who creates a slash fire hazard as a result of logging or thinning must reduce or manage the hazard.

Vegetation Reduction Guidelines - 0% to 10% Slope



A = 3 foot buffer

- Maintain area of non-combustible material - flowers, plants, concrete, gravel, mineral soil, etc.

B = 10 foot buffer

- Remove all trees and downed woody fuels

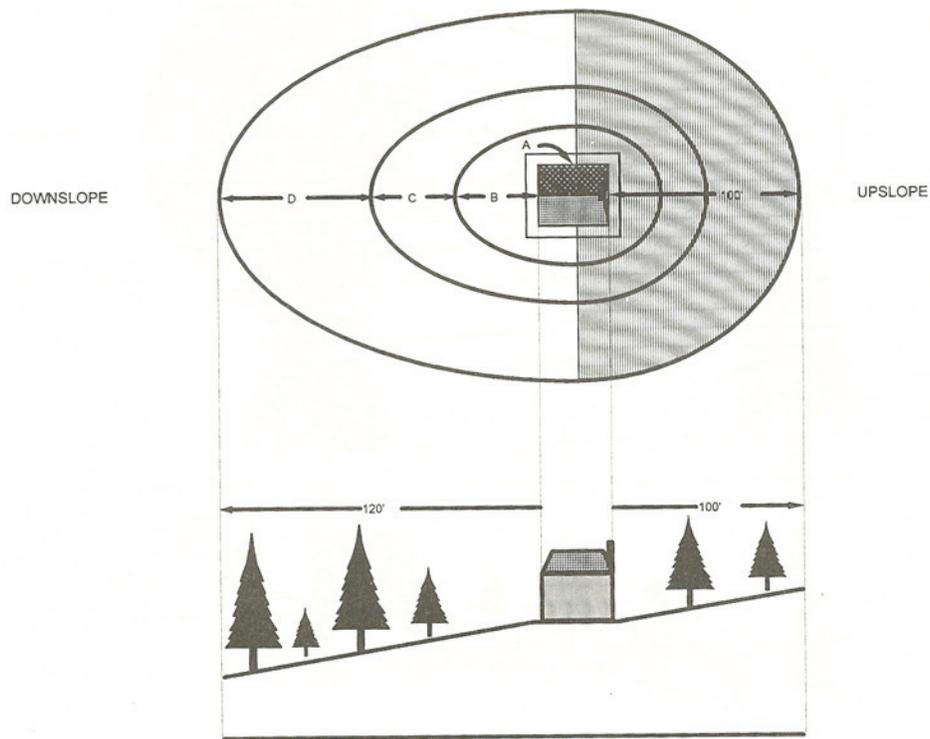
C = 20 foot buffer

- Thin trees to 10 feet between crowns.
- Prune limbs of all remaining trees to 15 feet or one-third the total live crown height, whichever is less.
- Maintain surface vegetation at 3 inches or less.
- Remove all downed woody fuels.

D = 70 foot buffer

- Thin trees to 10 feet between crowns.
- Prune limbs of all remaining trees to 15 feet or one-third the total live crown height, whichever is less.
- Remove all downed woody fuels more than 3 inches in diameter.

Vegetation Reduction Guidelines - 10% to 20% Slope



A = 3 foot buffer

- Maintain area of non-combustible material - flowers, plants, concrete, gravel, mineral soil, etc.

B = 15 foot buffer

- Remove all trees and downed woody fuels

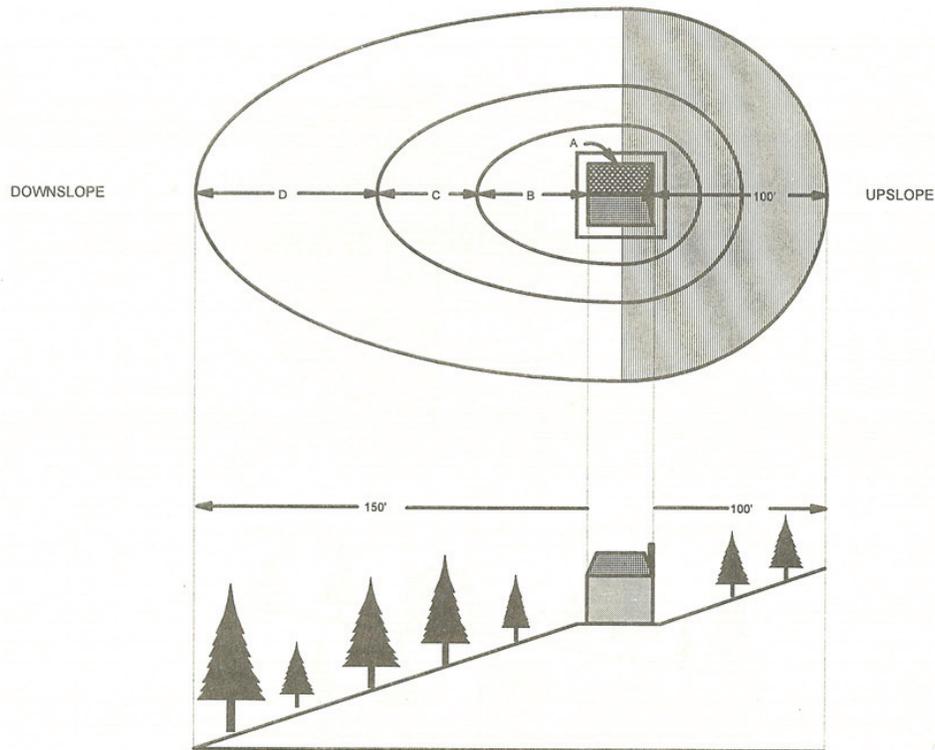
C = 25 foot buffer

- Thin trees to 10 feet between crowns.
- Prune limbs of all remaining trees to 15 feet or one-third the total live crown height, whichever is less.
- Maintain surface vegetation at 3 inches or less.
- Remove all downed woody fuels.

D = 80 foot buffer

- Thin trees to 10 feet between crowns.
- Prune limbs of all remaining trees to 15 feet or one-third the total live crown height, whichever is less.
- Remove all downed woody fuels more than 3 inches in diameter.

Vegetation Reduction Guidelines - 20% to 30% Slope



A = 3 foot buffer

- Maintain area of non-combustible material - flowers, plants, concrete, gravel, mineral soil, etc.

B = 20 foot buffer

- Remove all trees and downed woody fuels

C = 30 foot buffer

- Thin trees to 10 feet between crowns.
- Prune limbs of all remaining trees to 15 feet or one-third the total live crown height, whichever is less.
- Maintain surface vegetation at 3 inches or less.
- Remove all downed woody fuels.

D = 100 foot buffer

- Thin trees to 10 feet between crowns.
- Prune limbs of all remaining trees to 15 feet or one-third the total live crown height, whichever is less.
- Remove all downed woody fuels more than 3 inches in diameter.

10.6.2.4 Relocation of Flammable Materials

- 1) Dispose of all slash and debris left from thinning by chipping, hauling away or piling and burning.
- 2) Stack firewood uphill or on a contour and at least 15 feet from your home.

- 3) Clean roof and gutters of pine needles and leaves to eliminate an ignition source for firebrands, especially during the hot, dry weather of the fire season.
- 4) Locate propane tanks a minimum of 15 feet from buildings or any flammable materials.

10.6.3 Fire Safe Inspection Program

A home fire audit is a tool to help landowners identify any potential areas of concern in terms of fire risks on their property. The Seeley Lake and Condon Fire Departments can assist in lining up fire audits for landowners. Fire audits have been conducted on over 300 homes in the Fire Plan area. Home fire audits may be offered on a voluntary basis to any interested homeowner. It is the goal of both the Swan Valley VFD and the Seeley Lake RFD to inspect all homes within their jurisdiction over the next five years provided the appropriate resources are available.

10.6.4 Education

The Seeley Lake RFD has produced a video using funds provided by a grant from Montana Department of Commerce that discusses the importance of reducing wildfire threats on property owned by absentee landowners.

Public education regarding wildfire risk is a high priority for all fire fighting agencies within the fire plan region. Agency personnel provide presentations to local organizations and audiences when provided the opportunity and additional educational material and programs will be developed as resources become available.

10.6.5 Senior/Disabled Assistance

People with limited physical abilities, such as senior citizens and disabled persons, will need special attention and support when it comes to wildfire prevention and emergency response. They often will need assistance in creating defensible space around their homes and evacuating in the event of a wildfire. To help in that regard, Missoula Aging Services initiated a project in 2003 called Neighbor to Neighbor. Volunteers will locate and collect information from senior citizens and disabled persons that will be used by area emergency responders to help those in need. More information regarding this program can be obtained by contacting Missoula Aging Services at 1406-728-7682 or visiting their website at <http://www.missoulaagingservices.org/>. In addition, the Seeley Lake Senior Center recently purchased a small bus to provide emergency transportation for the elderly and disabled in the event of an emergency.

10.7 PRIORITIZED ACTIONS, IMPLEMENTATION TIMELINE

10.7.1 Short Term (<1 year), Planning

Over the next year, the Seeley Lake Fuels Mitigation Task Force will develop policies and guidelines for ecological considerations within the WUI. The purpose of this is to identify where within the WUI considerations for lynx habitat, grizzly bear habitat, bull trout habitat, linkage zones, and other such considerations should be factored into fuel mitigation plans, especially for state and Federal lands. These recommendations should allow future fuel mitigation planning and implementation to include these ecological considerations in an efficient and effective manner without potentially slowing up future fuel mitigation projects. Considering these needs up front, from a watershed perspective will reduce and improve the planning conducted at the project level.

10.7.2 Medium Term (1-10 years), Fuel Hazard Reduction Treatments

Fuel hazard reduction projects will be implemented over the next 10 years with the goal of reducing hazardous fuels on at least 10% of the acres in the high-risk category each year. Collectively, the goal

is to treat at least 3300 acres per year. For many lands, especially private lands around dwellings, fuels reduction may cost over \$1000 per acre. With a goal of treating at least 10% of the private high-risk lands per year, this would mean treating approximately 800 acres per year, with an estimated cost of approximately \$800,000 per year. Additional acres within the moderate risk category should also be treated, increasing the desired level of treatment and associated costs per year. A goal of acquiring \$1 million per year for the next ten years for fuel treatments on private lands seems prudent.

10.7.3 Long Term (10+ years), Treatment and Maintenance

Fuel hazard reduction will require a long-term commitment from landowners within the Seeley-Swan Fire Plan region. Those high and moderate risk forest stands that are not treated within the first 10 years will require emphasis in the second ten-year period. Forest stands that are currently categorized as low risk will be adding additional growth and fuels each year, and moving many low risk stands toward the moderate risk category and moderate risk stands that have not been treated toward the high risk category.

11.0 PLAN MONITORING AND REVIEW

11.1 PROCESS AND MEASURES

This plan has several components that should be reviewed and monitored on an annual basis. Considerable data and mapping information was compiled to facilitate firefighting capabilities as well as to identify and prioritize fire hazard areas for treatments. These data and information should be examined and updated on an annual basis. New houses need to be added to the database and maps. Roads, water sources, helipads, and hazard areas need to be reviewed and updated annually. Available contractors and equipment, as indicated in the plan, should be listed annually. Potential new information on fuel loadings should be incorporated as it becomes available. Thus, this plan should be viewed as a working document and associated data and maps, and should be updated in a systematic manner to maintain its currency and utility to fire prevention and fire fighting capability.

The plan should be monitored in several ways. The Seeley Lake Fuels Mitigation Task Force should compile data and maps of treated areas to document accomplishments. The Task Force should also update the data base relative to information needed for effective fire suppression activities. In addition, an annual report should be made to the community with each agency reporting on its annual accomplishments in the following:

- Equipment or infrastructural improvements acquired or completed,
- Funds or grants applied for/obtained for educational or home inspection activities,
- Funds or grants applied for/obtained for fuel thinning programs,
- Types and numbers of educational programs conducted,
- Treated acres for fuel reductions and their risk category,
- Improvements in agency coordination/cooperation,
- Public communication programs, and
- Fire response statistics.

This plan should be reviewed and updated no later than 5 years from this revision, or sooner if conditions or perceived needs indicate. This revision should involve revisiting and updating all aspects of the plan, including a critical look at the action steps and accomplishments.

12.0 ADDITIONAL INFORMATION NEEDS

As identified in this plan, three remaining information needs have been identified and should be addressed as soon as practical. These three information needs are:

- Determining the accuracy of the Landfire fuels map for the Swan and Clearwater Valleys,

- Defining FRCC and historical reference stand conditions, and
- Determining policies and guidelines for incorporating additional ecological considerations for fuel thinning within the WUI.

The fuels layer developed for the 2004 Fire Plan was replaced by the Landfire information developed by the USFS. The reason for the change is that the Landfire is a consistent region-wide layer, not developed specifically for the Seeley-Swan Fire Plan. It is used by the USFS and other agencies, so these agencies are familiar with the data in this coverage. This is important in fire suppression efforts, particularly if support teams from outside this area are brought in during a fire incident. These teams will be used to working with Landfire, where they would need to develop familiarity with an independently generated fuel layer. Also, use of these data will be recognized and supported by any funding sources in seeking fuel mitigation funding. However, unlike the fuels layer in the 2004 Plan, the accuracy of the Landfire data for this area has not been ground-truthed. It is recommended that these data be checked, so that it will be understood which fuel categories have a high confidence in their accuracy, and which will require better site evaluations to be sure of the actual fuels at the site. As with all satellite imagery, understory fuels tend to be poorly assessed, so the extent of this problem for the Landfire coverage for the Plan Area needs to be assessed.

The Fire Regime Condition Class (FRCC) has not been determined for the Seeley-Swan Fire Plan area. While Landfire provides an estimate of this, the underlying habitat type map used in Landfire is not designed to be accurate at the scale of the local fire plan. In addition, the specific stand conditions that occurred under historical fire regimes need to be identified and described for this area. This information would be extremely valuable for planning forest management, particularly for the USFS and MT DNRC. It would provide stand and landscape descriptions that could be used for setting restoration objectives. It would also allow for the determination of where fuels mitigation objectives and restoration objectives would overlap, and where they need to be recognized as different goals. The Landscape Assessment for the Clearwater Valley produced by the Clearwater Resource Council (www.crcmt.org) contains an initial description of historical ecosystem diversity of forest ecosystems in the Valley under historical disturbance regimes, but needs specific development to provide the information needed for identification of desired future conditions.

Within the WUI, fuel mitigation treatments may overlap with ecosystem restoration goals in some areas, particularly in the low-severity, short fire-return interval areas of the Plan Area. In the mixed-severity and high-severity fire regimes, fuel mitigation may differ from historical stand conditions. In these areas, additional considerations may be required to provide for the habitat needs of various species of concern, in particular Canada lynx and grizzly bears. Policies and guidelines for fuel mitigation treatments in such areas should be developed. For example, policies might set distances from homes where fuel mitigation needs would override habitat concerns. But at some distance from existing residences, additional considerations for the habitat needs of species of concern could be applied. The specific guidelines as to what should be provided need to be determined, combining the input of fuel specialists, fire response personnel, and biologists. Setting up these criteria as a consistent set of policies and guidelines for the Plan Area could speed up the processing of individual projects by both the USFS and MT DNRC.

APPENDICES (PROVIDED SEPARATELY ON COMPACT DISC)

- Data: GIS layers, tabular data, etc.
- Maps

MISSOULA COUNTY
Community Wildfire Protection Plan (CWPP)

APPENDIX

Items

Project Leadership List

- *Development Group/Team Members*
- *MCFPA Members*

Project & Priority Assessment Maps

- *Wildland/Urban Interface (Map B)*
- *Fire Districts/Communities (Map C)*
- *Priority Assessment (Map D)*
- *District Priority Areas (Maps E-K)*

Mitigation Projects & Egress Areas

Public Outreach Materials

Defining Our Terms Glossary

Suggested Readings & Websites List

Missoula County CWPP PROJECT LEADERSHIP

Development Group Members

The following is a partial list of folks who helped develop this Community Fire Protection Plan. It is a partial list because, by project's end, it was difficult to keep track of all who provided input during different stages of its development. Accordingly, if your name is not listed here, we apologize and thank you for your efforts to live Firewise.

Paula Rosenthal, Montana Department of Natural Resources and Conservation
Steve Holden, Montana Department of Natural Resources and Conservation
Jamie Rosdahl, SW Land Of., MT Dept. of Natural Resources and Conservation
Chuck Stanich, Lolo National Forest, USDA Forest Service
John Waverek, Missoula Ranger District, Lolo National Forest
Tim Love, Seeley Lake Ranger District, Lolo National Forest
Laura Ward, Ninemile Ranger District, Lolo National Forest
Shelly Witt, Confederated Salish & Kootenai Tribes
Byron Bonnie, Bitter Root Resource Conservation & Development
Frank Maradeo, Seeley Lake Rural Fire District
Jeff Cyr, Clinton Rural Fire District
Bob Rajala, Missoula Fire Department
*Jason Diehl, Missoula Fire Department**
George Hirschenberger, USDI Bureau of Land Management
Shelagh Fox, USDI Bureau of Land Management
Jake Krellick, National Forest Protective Alliance

Development Team Members

The following folks provided the principal input to development of this CWPP:

Jane Ellis, Missoula County Office of Emergency Services (Project Leader)
Scott Waldron, Chief, Frenchtown Rural Fire District
Bill Colwell, Deputy Chief, Missoula Rural Fire District
Glenda Wallace, Writer/Editor, Independent Contractor
Sonja Reeves, GIS Specialist, Missoula County and Frenchtown Rural Fire District
Bob Reid, Missoula County Office of Emergency Services

Missoula County Fire Protection Association (MCFPA) Members

www.mcfpa.org

Arlee Rural Fire District
Clinton Rural Fire District
East Missoula Rural Fire District
Florence Rural Fire District
Frenchtown Rural Fire District



Greenough/Potomac Volunteer Fire Department
Missoula Fire Department
Missoula Rural Fire District
Seeley Lake Rural Fire District
Swan Valley Volunteer Fire Company

Montana Department of Natural Resources and Conservation
Southwestern Land Office

- **Anaconda Unit**
- **Missoula Unit**

USDA Forest Service
Lolo National Forest

- **Missoula Ranger District**
- **Ninemile Ranger District**
- **Seeley Lake Ranger District**

Affiliated Agencies

Missoula County Office of Disaster and Emergency Services

Missoula City/County Health Department

Confederated Salish and Kootenai Tribes

Bitter Root Resource Conservation & Development Council

USDI Bureau of Land Management

*Special thanks to the National Weather Service,
Missoula Station*

Missoula County
Current/Completed Federal Fuel-Reduction Projects
As of June 2005

USDA Forest Service Missoula Ranger District

Projects that are done:

- Northside Fuels Units* – Evaro area
- Blue Mountain PCT**
- Deep Gilman EMB*** - Deep Creek area
- Iris Point EMB – Clinton/Rock Creek area
- Johnson EMB – Evaro area
- Northside EMB – Snobowl and Evaro area
- O’Keefe EMB – Evaro area

Ongoing Projects:

- Pattee Blue Fuels Units – Pattee Canyon & Blue Mtn
- Pattee PCT

Not Sure of Status:

- Rattlesnake EMB’s
- Rattlesnake Proposed EMB’s

USDA Forest Service Ninemile Ranger District

Ongoing Projects:

- Frenchtown Face

USDI Bureau of Land Management (BLM)

The BLM has a number of small fuels reduction projects that are ongoing within the Blackfoot River Corridor.

Confederated Salish & Kootenai Tribes (CSKT)

The Confederated Salish & Kootenai Tribe has a few fuels-reduction projects going as well.

* Fuels Units = Commercial Thin and/or Understory Slashing

** PCT = Pre-Commercial Thin (includes Douglas-fir understory slashing as part of ponderosa pine thinning).

*** EMB = Understory Burn

Missoula County
CRITICAL EGRESS AREAS

GLACIER DRIVE (CONDON)
GUEST RANCH ROAD
RUMBLE CREEK
CRESCENT MEADOWS
DOUBLE ARROW
PLACID LAKE
KRAMER CREEK
BEAVERTAIL HILL
WEST OF ROCK CREEK
SCHWARTZ CREEK
WALLACE CREEK
KENDALL CREEK
DONOVAN CREEK
HOLE IN THE WALL (POTOMAC)
MARCO FLATS (PRIVATE)
TROUT LANE (BLACKFOOT)
BEAR CREEK
NINEMILE
SIXMILE
HOULE CREEK
SORREL SPRINGS
MILL CREEK (FRENCHTOWN)
BUTLER CREEK
GRANT CREEK
RATTLESNAKE VALLEY
SHERMAN GULCH
HORSEBACK RIDGE
O'BRIEN CREEK
PATTEE CANYON
MILLER CREEK
MILL CREEK (LOLO)
SLEEMAN GULCH
BALSAMROOT
MORMON CREEK
BITTERROOT VALLEY S OF LOLO
PETTY CREEK
DEER CREEK

Missoula County
PUBLIC OUTREACH MATERIALS

MISSOULA COUNTY
Community Wildfire Protection Plan

2005 Public Outreach Meeting Schedule+

- **Frenchtown** RFD Board Mtg.* – **March 14** @ 7:00 pm – Frenchtown Fire Station #1
- **County/City** Mtg. – **March 31** @ 3:00 pm – County Courthouse Rm. 201
- **Greenough/Potomac** FAA Board Mtg.* – **April 5** @ 7:30 pm – Potomac Station
- **Missoula City** FD Mtg. – **April 11** @ 7:00 pm – Holiday Inn Express, Missoula
- **Missoula Rural** FD Board Mtg.* – **April 12** @ 7:00 pm – Missoula Rural Station #1
- **Clinton** RFD Board Mtg.* – **April 13** @ 7:00 pm – Clinton Fire Station
- **Stakeholders** Mtg. – **April 21** @ 3:00 pm – Come-On Inn, Missoula

+ All meetings open to general public
* Plan is first item on the agenda

Community Wildfire Protection Plans must be developed by local and state government representatives in consultation with federal agencies and other interested parties....

– Healthy Forests Restoration Act of 2003

Missoula County
FIRE PROTECTION
ASSOCIATION **NEWS Release**

For Immediate Release (March 7, 2005)

Contact: Glenda Wallace, Plan Coordinator 406.240.6718 / 722.5397
Jane Ellis, County Emergency Services Director 406.258.3448

Public Meetings Set for County Wildfire Protection Plan

Missoula (MT). – Seven public meetings have been scheduled for citizens interested in discussing development of a Community Wildfire Protection Plan for Missoula County.

Most will occur (see attached schedule) in the evening hours during fire district Board of Directors' meetings. Two will occur during the daytime: one to update county/city officials and the other for private land stewards, business owners, conservation and environmental groups. Each meeting will feature preliminary results from a countywide wildfire-risk assessment. All are open to the public. The first meeting is scheduled to occur in Frenchtown (March 14). Written comments will be accepted until May 1.

According to Missoula County Office of Emergency Services Director Jane Ellis, the Community Wildfire Protection Plan (mandated by the Healthy Forests Restoration Act of 2003) will help enhance public safety and prevent wildland fire losses. She says the public meetings will help project leaders identify protection areas and recommend ways to reduce hazardous fuels and the ignitability of homes. She explains that communities with approved plans can compete for federal funding to implement fuels reduction projects.

Ravalli County and the Seeley-Swan area have already developed a Community Wildfire Protection Plan. Flathead, Lake, Mineral, Sanders, Granite and Powell counties are developing them. The Missoula County plan is expected to be completed this spring.

The Missoula County Fire Protection Association (MCFPA) is spearheading the project, which is funded by a Bureau of Land Management grant. MCFPA members include the municipal fire department and rural fire districts, the state of Montana, the USDA Forest Service, and various Missoula County offices, including Emergency Services.

For more information about this project, contact the Plan Coordinator Glenda Wallace at (406) 240-6718. To learn more about MCFPA or living with fire, visit www.mcfpa.org with its link to www.firewise.org.

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CoF

For Immediate Release (August 2005)

DRAFT
7/28/05

Contact: Glenda Wallace, Plan Coordinator
Jane Ellis, County Emergency Services Director

406.240.6718 / 722.5397
406.258.3448

Missoula County Completes Community Wildfire Plan

Missoula (MT). – Officials of Missoula County have recently published a nationally mandated Community Wildfire Protection Plan (CWPP) that identifies more than 22,000 acres of land around Missoula County (excluding the Seeley/ Swan area) as needing **High Priority** attention to reduce the risk of catastrophic wildfire to nearby residents. The document identifies another 334,000 acres as having a Moderate Priority for Fuel Reduction work.

Director of the Missoula County Office of Emergency Services Jane Ellis says the assessment results—created using such data as vegetative fuel loads, slope, and population densities—produced no surprises.

“Early on in the development process,” she says, “we surveyed our local fire chiefs about their known wildfire risks and, sure enough, their findings are reflected in our assessment results.”

The Healthy Forests Restoration Act of 2003 asked communities to assume a greater role in identifying lands for priority fuel-reduction treatment and to recommend ways to do that and to reduce the ignitability of homes.

“This fire plan is a good starting point...a good strategy document...in terms of improving community safety from wildfire,” says Ellis. “But the real work is still to come. Reducing the fuel loads in priority areas will demand new micro-level partnerships, between community members, agency representatives, business leaders and other stakeholders, in affected areas. And, as we can see from this fire season, that work can’t be done soon enough.”

Ellis explains that Missoula communities are eligible for priority, federal, fuel-reduction funding under the new Missoula County CWPP. She notes that the Seeley/Swan Fire Plan, created in 2004, covers the communities of Seeley Lake and Condon, and that their fire plan is now a companion document to the County CWPP. She points out that a mitigation plan for the Blackfoot/ Clearwater area is underway and that it, too, will provide fuel-reduction recommendations for that specific area.

Ellis further explains that all of the counties around Missoula County are in the process of developing or have developed community fire protection plans. Mineral County, currently experiencing the I-90 fires, released its plan earlier this year. Powell County is set to release its CWPP later this month.

- more -

The Missoula County Community Fire Protection Plan (CWPP) was developed by a diverse group of people, including many Missoula County Fire Protection Association (MCFPA) members. They utilized national guidelines and input from a series of public meetings held this past spring to do so. MCFPA members include a municipal fire department and rural fire districts, the state of Montana, the USDA Forest Service, and various Missoula County offices, including Emergency Services.

For more information about the Missoula County CWPP project, contact the County Office of Emergency Services (OES) or your local fire district. Copies of the Missoula County CWPP can be downloaded from the Missoula County website (Emergency Services homepage).

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Community Wildfire Protection Plan
Stakeholder Meeting Invitees
(April 21, 2005 – C' Mon Inn)

Tony Tacki, Safety Officer/Arvid Hiller, Mgr.
Mountain Water Company

Tara Comfort, Director
Missoula Conservation District

Bryon Bonnie, Community Forester
Bitter Root RC&D

Tony Harwood Program Manager
CSKT Fire Management

Robin L. Childers, Executive Director
Montana Nursery and Landscapers Association

Ellen Engstedt, Ex. VP
Montana Wood Products Association

Betty Kuropat, Pres.
Montana Native Plan Society

Harold McGaughey
Earth & Wood Craftsmen Inc.

Matt Arno, Pres.
Woodland Restoration. Inc.

Steve Hays, Forester
Plum Creek Timber

Dick Shimer, Env. Mgr.
Stimson Lumber Company

Rick Franke, Forester
Stone Forest Products

Angelo Veris, Forester
Tricon Timber

Bob Oldenberg, Mgr.
Pyramid Mountain Lumber

Bridgette Evans, Dir.
Missoula BIA Local # 2788

Anita Maxwell , Program Director
Montana Natural History Center

Michael Garrity, Ex. Director
Alliance for the Wild Rockies

Mathew Koehler, Dir.
Native Forest Network

Peter J. Dart President/Chief Ex Officer
The Rocky Mountain Elk Foundation

Adam Riessen/Bob Clark
Sierra Club – Bitterroot Mission Group

Anne Dahl, Ex. Dir.
Swan Ecosystem Center

Caryolyn Byrd, Director
The Nature Conservancy MT Field Office

Bob Conway, President
Five Valleys Audubon Society

Jake Kreilick, Ex. Director
National Forest Protection Alliance

Jeff Juel, Director
The Ecology Center, Inc.

Debbie Fasnacht, Ex. Dir.
Watershed Education Network

Bob Bruh, Chair
Ninemile Watershed Group

Mae Hassman, Executive Officer
Missoula County Association of REALTORS®, Inc.

Sheri Taylor, Montana ARC BOD President
American Red Cross Western Valleys District

Jim Mihan Chapter President
American Society of Landscape Architects
Idaho/Montana Chapter ASLA President

Marion Shore, Ex. Dir.
INDEPENDENT INSURANCE AGENTS OF MONTANA

Public Safety Director
Department of Transportation

Field Office Manager
BPA District Office

Dan Palmquist, Op. Manager
Montana Power Company

Robert Walker, Mgr.
Missoula Rural Electric Coop?

Pete Lawrenson, Safety Dir.
Montana Rail Link

Rich Clough, Field Manager
Fish, Wildlife & Parks

David Claman.
Missoula Parks & Recreation

Scott Stringer, Forester.
Missoula City

Missoula County
Community Wildfire Protection Plan
Stakeholders (Public) Meeting

*April 21, 2005
C'mon Inn, Missoula
3 pm*

Agenda

- CWPP Development - *Glenda Wallace*
- Risk Assessment Criteria/Results - *Sonja Reeves*
- Questions & Answers & General Discussion - *All*

Invited:

*Mountain Water Company
Missoula Conservation District
Bitter Root Resource Conservation & Development
Montana Nursery and Landscapers Association
Montana Wood Products Association
Montana Native Plant Society
Montana Logging Association
Plum Creek Timber
Stimson Lumber Company
Tricon Timber
Pyramid Mountain Lumber
Missoula Building Industry Association
Montana Natural History Center
Alliance for the Wild Rockies
Native Forest Network
The Rocky Mountain Elk Foundation
Sierra Club
The Nature Conservancy - Montana Field Office
National Forest Protection Alliance
The Ecology Center
Watershed Education Network
Missoula County Association of Realtors
American Red Cross - Western Valleys District
American Society of Landscape Architects Idaho/Montana Chapter
Independent Insurance Agents of Montana.
Montana Power Company
Missoula Rural Electric Coop
Bonneville Power Administration
Montana Rail Link*

Missoula County Community Wildfire Protection Plan Stakeholders Public Meeting **HANDOUT**

April 21, 2005 – C'mon Inn, Missoula –3 pm

Project Purpose:

- To meet the mandate of the Healthy Forests Restoration Act (2003)
- To enhance the safety of Missoula County communities
- To reduce wildfire risks to humans, structures, and watersheds
- To bring priority funding status to communities for hazardous fuels reduction projects

Project Goals:

- Create a baseline map of communities, infrastructure, fire jurisdictions, values at risk, etc.
- Assess the county's wildfire risk (exception is Seeley Lake, which created a fire plan in 2004).
- Identify and prioritize the county's wildfire risk areas in terms of High, Moderate, or Low Risk.
- Gain community input on scope of wildland/urban interface, priority protection areas, and preferred treatment methods and fuel disposal.
- Help prepare communities for wildfire, i.e. reduce the ignitability of structures.

Wildfire Assessment Status:

- Assessment criteria identified.
- Data collection/mapping in progress.
- Contact Sonja Reeves at 626-5791 for results.

Project Deadlines:

- Public meetings completed by late April 2005.
- Follow-up/written comments preferred by May 10, 2005.
- Finished plan in June 2005.

Initial Project Team:

- Jane Ellis, Director, Missoula County Office of Disaster Emergency Services (Project Leader)
- Scott Waldron, Chief, Frenchtown Rural Fire District
- Bill Colwell, Deputy Chief, Missoula Rural Fire District
- Sonja Reeves, GIS Coordinator, Frenchtown RFD, Missoula County OES
- Glenda Wallace, Writer/Editor/Designer, Independent Contractor

Project Development Group:

- Paula Rosenthal, Montana Department of Natural Resources and Conservation
- Steve Holden, Montana Department of Natural Resources and Conservation
- Jamie Rosdahl, SW Land Office, MT Dept. of Natural Resources and Conservation
- Tom Carlsen, SW Land Office, MT Dept. of Natural Resources and Conservation
- Chuck Stanich, USDA Forest Service, Lolo National Forest
- John Waverek, Missoula Ranger District, Lolo Forest
- Laura Ward, Ninemile Ranger District, Lolo Forest
- Tim Love, Seeley Lake Ranger District, Lolo Forest
- Frank Maradeo, Seeley Lake Fire District
- Todd Scott and Jason Diehl, Missoula City Fire Dept.
- Shelly Witt, Confederated Salish & Kootenai Tribes
- Byron Bonnie, Bitter Root Resource Conservation & Development
- Jeff Cyr, Clinton Rural Volunteer Fire District
- George Hirschenberger, Bureau of Land Management

Community Wildfire Prevention Plan (CWPP) **Minimum Requirements**

The CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment.

- Society of American Foresters
Handbook on Preparing CWPPs

Community Wildfire Prevention Plan

A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.....

Healthy Forests Restoration Act

For more information on the CWPP, contact
Glenda Wallace at 406.722.5397 (gswrite@blackfoot.net)

Questions for the Public:

- 1) The national (default) definition of the wildland/urban interface is a mile and half from structures. Would you suggest any changes?
- 2) What types of hazardous fuel treatment methods would you suggest be used on federal ground? (see *Treatments Handout*)
- 3) What types of fuel disposal methods would you suggest for private ground?
- 4) What are your areas of geographic concern?
- 5) What do you think is the highest priority area within your fire district?
- 6) What, if any, regulatory approaches do you think the County should support in reducing the risk of wildfire to local communities?

Missoula County Fire Jurisdictions & Their Communities
Clinton Rural Fire District <ul style="list-style-type: none">➤ Clinton➤ Lower Rock Creek +
East Missoula Rural Fire District <ul style="list-style-type: none">➤ East Missoula
Frenchtown Rural Fire District <ul style="list-style-type: none">➤ Evaro➤ Frenchtown➤ Huson/Ninemile➤ Petty Creek➤ The Wye
Greenough/Potomac Fee Protection Area <ul style="list-style-type: none">➤ Greenough➤ Potomac
Missoula Rural Fire District <ul style="list-style-type: none">➤ Lolo➤ Milltown/Bonner/Piltzville/Akerville➤ Pine Grove/W. Riverside➤ Southside of The Wye➤ Turah
Missoula City Fire <ul style="list-style-type: none">➤ Missoula
Seeley Lake Rural Fire District* <ul style="list-style-type: none">➤ Seeley Lake
Swan Valley Fire Company* <ul style="list-style-type: none">➤ Condon
<p>— + In process of joining Clinton District. * See Seeley/Swan Fire Plan.</p>

CWPP Benefits
<p>The Healthy Forests Restoration Act (HRFA) is “landmark legislation [that] includes the first meaningful statutory incentives for the USFS and BLM to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects.</p> <p>HFRA...gives priority to projects and treatment areas identified in a CWPP by directing federal agencies to give specific consideration to fuel reduction projects that implement those plans. If a federal agency proposes a fuel treatment project in an area addressed by a community plan but identifies a different treatment method, the agency must also evaluate the community’s recommendation as part of the project’s environmental assessment process.”</p> <p>From: PREPARING A COMMUNITY WILDFIRE PROTECTION PLAN: A Handbook for Wildland-Urban Interface Communities</p> <p>Sponsored By: Communities Committee Society of American Foresters National Association of Counties National Association of State Foresters Western Governors' Association</p>

Websites of Interest:

- <http://www.safnet.org/policyandpress/cwpp.cfm>
- <http://www.healthyforests.gov/>
- <http://www.bitterrootfireplan.org/>

POSSIBLE FUEL-REDUCTION TREATMENTS

HANDOUT

The following are treatment methods for hazardous fuels reduction and the descriptions for federally managed lands within the wildland urban interface.

Slashing and Underburning

Trees less than six inches in diameter are felled with mechanized equipment, left on site to cure and the area is underburned. Access with existing roads is usually required.

Slashing and Pile Burning

Trees less than six inches in diameter are felled with mechanized equipment, piled on site by hand or with equipment and then the piles are burned. Access with existing roads is usually required.

Commercial Harvest with Ground Based Systems and Underburning

Trees of merchantable diameter would be harvested and whole tree yarded with ground based equipment or skyline systems and remaining activity fuels could be underburned. Access with existing roads is required, short temporary roads allowed.

Commercial Harvest with Ground Based Systems and Chipping

Trees of merchantable diameter would be harvested and yarded with ground based equipment or skyline systems, utilization specifications would have unmerchantable material yarded to landing and chipped. Access with existing roads is required, short temporary roads allowed.

Commercial Harvest with Ground Based Systems and Pile Burning

Trees of merchantable diameter would be harvested and yarded with ground based equipment or skyline systems and remaining activity fuels would be piled by hand or with mechanized equipment and burned. Access with existing roads is required, short temporary roads allowed.

Commercial Harvest with Ground Based Systems and No Fuels Treatment

Trees of merchantable diameter would be harvested and whole tree yarded with ground based equipment or skyline systems and remaining activity fuels would be left on site to decompose. Access with existing roads is required, short temporary roads allowed.

Thinning

Area would be (pre-commercially or commercially) thinned to spacing and species specifications to improve conditions for growth of remaining trees. Thinned trees would remain on the site to decompose. Access with existing roads is required. Access by hiking reasonable distances is adequate.

Thinning with Underburning

Area would be thinned to spacing and species specification to improve conditions for growth of remaining trees. Thinned trees would be left on site to drop needles then the stand would be underburned. The right tree species is required for underburning. Access with existing roads and access by hiking reasonable distances is adequate.

Prescribed Fire

Area would be treated with hand ignition or an aerial ignition method to reduce stand density, reduce ground fuels and reduce ladder fuels. Access can be limited.

Commercial Harvest with Helicopter Yarding and Underburning

Trees of merchantable diameter would be harvested and yarded with helicopters and remaining activity fuels would be underburned by hand or aerial ignition. Access can be limited. Helicopter landings need to be accessed by existing roads and within short turn around distances from harvest areas.

Commercial Harvest with Helicopter Yarding and Utilizations Specifications for Chipping at Landings:

Trees of merchantable diameter would be harvested and whole tree yarded with helicopters, included in the yarding would be smaller diameter trees for chipping at the landing site. Access can be limited. Helicopter landings need to be accessed by existing roads and within short turn around distances from harvest areas. These landings would need to be large to accommodate chipping operations. The market for chips would drive the feasibility of this option.

Commercial harvest with Helicopter Yarding and No Fuels Treatment:

Trees of merchantable diameter would be harvested and whole tree yarded with helicopters. The activity fuels generated would be left on site to decompose. Access can be limited. Helicopter landings need to be accessed by existing roads and within short turn around distances from harvest areas.

Missoula County CWPP Public Meeting Sign-In Sheets

**Missoula County Community Wildfire Protection Plan
Frenchtown Community Meeting
Monday March 14, 2005**

#	Name	Address	Telephone #
1.	Steve Roy	8845 Indreland Rd.	Omitted for Privacy Reasons
2.	SCOTT WALDRON	18895 NINE MILE RD	
3.	DAN PATTEE	17780 4down Ln	
4.	Tom Mahlum	10955 HWY 93 N.	
5.	Sandra Tocci	PO BOX 1 Alberton	
6.	MIKE BOSE	P.O. Box 147 Frenchtown	
7.	Kylee Seitz	610 Montana Ave Missi	
8.	Marty R Meeks	8902 western farms Rd mtk	
9.	ADRIANE MILLER	Box 40209 Hesper Mt	
10.	Cindy Griffiths	90 Plateau Rd.	
11.	Dennis Davis	19025 Arabian Ln	
12.	Troy Monroe	6005 W. BETTY CREEK	
13.	John D Murray	76928 River Run	
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Missoula County Community Wildfire Protection Plan
Missoula County/City Presentation
Thursday March 31, 2005

Name	Address	Telephone #
1. Tom Steenberg	625 E Pine, Missoula 59802	Omitted for Privacy Reasons
2. Jason Diao	"	
3. Jean Ellis	Missoula Co 200 W Broadway	
4. Nancy Heil	office of Planning & Grants Missoula	
5. Tom Carlsen	M50 Unit, DNRC	
6. David Claman	City Parks	
7. Jean CURTISS	County Commission	
8. TERINA MULLEN	BLM	
9. Jamie Kosdahl	DNRC - 6210	
10. Heidi Kendall	City Council - 435 Ryman	
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**Missoula County Community Wildfire Protection Plan
Greenough/Potomac Presentation
Tuesday April 5, 2005**

Name	Address	Telephone #
1. Tom Carlsen	Missoula Unit - DNRC	Omitted here for Privacy Reasons
2. Bud Pile	Potomac	
3. Frank Mams	Greenough/Potomac	
4. HEATH HANSON	GREENOUGH-POTOMAC VFD	
5. Lep Hyalop	Potomac MT	
6. Matthew Knox	Greenough	
7. Brad Hall	Potomac	
8. Shane Warehime	Potomac	
9. Doug Hall	RPVFD	
10. Pele Kay Loren Sels	Potomac	
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**Missoula County Community Wildfire Protection Plan
Missoula City Fire Presentation
Monday April 11, 2005**

Name	Address	Telephone #
1. Tom Carlsen	MSO Unit - DNRC	Omitted here for Privacy Reasons
2. Jason Diehl	MSLA City Fire	
3. Todd Scott	MSLA CITY FIRE	
4. Chad Nicholson	MSLA CITY FIRE	
5. Bill Colwell		
6. Jane Ellis		
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Missoula County Community Wildfire
 Protection Plan (CWPP)
 Missoula Rural Fire District Board
 Tuesday, April 12, 2005

<u>NAME</u>	<u>ADDRESS</u>	<u>Tel. #</u>
1. Hugh A. JASSE	5857 KAREN, MDA	Omitted for Privacy Reasons
2. Dan Corti	11285 Oldaven cu Rd	
3. LARRY HANSON	Box 1712 Lolo	
4. Cheryl Hanson	Box 1712 Lot 0	
5. Bill Lindstrom	3521 S. AVE. W., MISSOULA	
6. Tina Phillips	2521 S. Ave W, Mda	
7. Dale Golden	3521 S. Ave. W.	
8. Curt Belts	" " "	
9. Tad Kolomicz	DNRC-SWLD 1401 21 st Ave Mda	
10. Bob Peit	4 September Drive, Mda.	
11. Tom Carlsen	M50 Unit - DNRC	
12. Richard Brisken	6230 GRANT CREEK	
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**Missoula County Community Wildfire Protection Plan
 Clinton Rural Fire Presentation
 Wednesday April 13, 2005**

Name	Address	Telephone #
1. Rick Hagen	Box 134 Clinton MT	
2. Bob Sears	22155 Wallace Ck Rd, Clinton	Omitted for Privacy Reasons
3. Emmitt Tucker	19850 Hwy 6 E Clinton MT	
4. Larry McGraw	25274 Bonita Ranger Sta. Rd.	
5. PAUL TUCKER	19950 Hwy 10 E Clinton MT	
6. Bryce Rieger	Box 133 Clinton	
7. Tom Carlson	MSO Unit DNRE	
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**Missoula County Community Wildfire Protection Plan
Stakeholders Presentation
Thursday April 21, 2005**

Name	Address	Telephone #
1. JIM LOWMY	1505 ASPEN DRIVE	729-1702
2. JOHN WAVEREK	Blpg 24A, Fort Missoula	Omitted here for Privacy Reasons
3. Chuck Seeley	PO Box 929 Frenchtown, 59834	
4. Mark M. Jolly	3174 HW 935 Star	
5. Paul Lachapelle	1505 Pattee Canyon Miss	
6. Charlie Vandam	1120 Cedar	
7. Sheri Taylor	1500 W. Broadway Suite E 5980	
8. Bob Clark, Sierra Club	PO Box 9283 Msl. 59807	
9. Jason Diehl	625 E. Pine (Msl. Fire)	
10. Craig Thomas	4188 Kinkadee Star	
11. TAD KOLWICZ	2705 Spurgin Rd Msl	
12. Jake Krelick	1260 Bench Rd. Msl. MT 59808	
13. Shelagh Fox	3255 FT Missoula Rd Msl. MT 59804	
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Missoula County CWPP
NOTES From PUBLIC OUTREACH MEETINGS
As captured by Plan Coordinator

March 14, 2005 – Frenchtown Rural Fire District Board of Directors/Public Meeting

There is community support for fuel mitigation. Where possible, we're asked to create fuel treatment projects that generate a profit, i.e. local byproducts go to local markets.

Email Response after Meeting: "Because of its proximity to two local mills, it is economically viable to transport wood products from fuel treatments performed in the Frenchtown district WUI. The USFS should consult with the Smurfit-Stone or Tricon mills when designing fuel treatment projects in this district. Rather than fire or burning, these projects should wherever possible produce wood products (trees and/or chips) that can benefit these mills" - John Q. Murray

March 31, 2005 – Missoula City/County Officials/Public Meeting

The Office of Planning & Grants (OPG) would like to identify areas for future development, i.e. Plum Creek Timberlands. OPG is also interested in helping define WUI boundaries and knowing if there are areas where the County shouldn't be approving more development. One city council representative wants to know what to tell her constituents about "what to do" if a fire comes too close. A county commissioner asked about adopting tougher subdivision laws or development fees similar to those used in the Frenchtown Rural Fire District. Attendees also discussed "conditions for approval" for areas outside jurisdictional boundaries that want to join existing fire protection districts.

April 5, 2005 – Greenough/Potomac Fire District Board of Directors/Public Meeting

Board members want the County's help in "ground truthing of data." They also want County help in motivating local homeowners toward more fire preparedness via fuel-reduction projects. They indicate public confusion about project funding. The contractor/writer of the Seeley/Swan plan was at the Greenough/Potomac meeting to explain work underway on a new local project: the Blackfoot Fuels Corridor Analysis and Fire Plan). He told the group that the task force allows "one stop shopping," which can limit public confusion. Board members expressed interest in the community forester position created via the Seeley/Swan Fire Plan and the Bitter Root Resource Conservation District. The District has had limited success fielding local mitigation crews, primarily due to a lack of local interest.

April 11, 2005 – Missoula City Fire Department Public Meeting

The attendees wanted to know how to get commercial work done, meaning funding opportunities. They also discussed Open Space management, wildlife, and the after-effects of fire. They mentioned the increased building in the South Hills and the effect of slope on wildfire. They discussed the option of chipping to dispose of biomass.

April 12, 2005 – Missoula Rural Fire District Board of Directors/Public Meeting

Board members were concerned about growth in the wildland/urban interface and how volunteer districts with limited daylight response affect nearby paid districts. They discussed ways to keep the District's fuel-reduction crews working through grant-funded opportunities. They discussed current mitigation work underway in Hays Creek and

Pattee Canyon and biomass disposal options, i.e. the use/purchase of chippers. They discussed the need for ongoing education (“ways to get information to the public”).

April 13, 2005 – Clinton Rural Fire District Board of Directors/Public Meeting

Board members were interested in funding opportunities for fuel-reduction work, and methods for creating a work crew utilizing volunteer firefighters. Specifically, they were concerned about limits on paying volunteer staff. The DNRC clarified that fuel-reduction work was different from a firefighting assignment, and therefore would not cause a problem with current policies. They suggested this crew could help identify grant opportunities as well as execute on the ground change. They requested being “kept in the loop” of County fuel-reduction project funding opportunities and new mitigation projects.

April 21, 2005 – Missoula County Stakeholders/Public Meeting

There was considerable discussion about the definition of the wildland/urban interface. Some attendees thought the 1.5 mile from structures was “too simplistic.” They recommend 400 meters, which allows for more focused ground truthing (i.e., “150 feet from the home to the ridgetop”) and concentrated/more effective investment/treatment. Attendees discussed the fact that “we don’t have to treat every acre...break the fuel in central places...to get a lot of return on investment.” The group also discussed targeted homes in ponderosa pine sites with egress problems.

They recommend that treatments be “disciplined.” A diameter limit for tree cutting was suggested (“nothing bigger than 5 feet”). They mentioned leaving legacy trees and concentrating work on lower hillsides, on slopes and canyons where fire could be funneled to structures.

Under treatment during the biomass disposal stage was also suggested. Chipping and leaving the biomass on site was offered as an option (“it could work in wetter areas”), but the consensus was that leaving chips onsite could contribute to a surface burn leading to structures. A suggestion was made for “a common sort yard” for unwanted vegetation from fuel-reduction projects. The Fuels for Schools program was also mentioned.

Regulation on building in high fire areas, similar to flood plain policies, was mentioned.

Attendees discussed the need for someone “to chase lots of grant dollars...who could collectively go after funding for MCFPA members.”

Email Response after Meeting: In terms of the criteria used in the Assessment, the only one that we take issue with is the insect and disease mortality (both of which are a natural part of forest succession) and would have used that 10% to give more weight to the human factors: population density and egress areas. This would enable the county to better identify the priority areas for fuel reduction treatments.

As far as the questions posed at last week's public meeting, here are NFPA's specific comments.

1. NFPA advocates using a 400 meter Community Protection Zone (CPZ) to establish a practical boundary for treatments in the wildlands-urban interface. We believe that using a mile and a half from structures is not grounded in fire science (i.e. is not effective in protecting homes and communities from wildfires), and will waste precious federal dollars. Once we have done all the work in the CPZ, then we can talk about treatments outside of the 400 meter zone but the reality is that we will have to be back in treating previously thinned areas in the CPZ on a regular basis (5 to 7 years).

2. NFPA would like to see as many of the treatment methods as possible avoid using heavy equipment, particularly tracked vehicles, to ensure that soils are protected and erosion doesn't occur. Ideally, we'd like to see local

contractors hiring local people to do the thinning, brush removal and burning. We don't want these fuel reduction activities to result in further degradation to already stressed, out of whack forest ecosystems caused by a century of fire suppression and commercial logging and road building.

For the most part, we also believe that these treatments are largely non-commercial meaning that, while some commercial by-products may be produced, these treatments should not be offered as timber sales. Some materials certainly could be sold but these treatments are not about board feet and should emphasize the quality of the job. Again, ecology will take a back seat during these treatments inside the CPZ but it's still important to leave some stand structure and to be cognizant of aesthetic values.

3. Primarily, hand piling and burning and chipping and removing off site.

4. I think the CWPP should focus a lot of geographic attention on high-density [vegetation] clusters in the WUI and egress areas with moderate to high population densities.

5. Grant Creek and Butler Creek [are areas of geographic concern].

6. Both landowners who are developing private property and real estate developers need to bear a certain level of the responsibility for home and community wildfire preparedness. NFPA would support county government efforts to enact defensible space codes and to provide certain incentives to landowners and developers who agree to incorporate this into their property development. Obviously, the insurance industry can have some influence on this as well but the county needs to create some regulations so other taxpayers aren't left holding the bag.

This is also where joint educational efforts could go a long ways to facilitating greater awareness and participation in fuel reduction efforts in the county. We talked about helping to organize more community meetings/forums, field trips, Parade of fire-safe homes, etc. at the meeting and NFPA would be willing to help the Project Team organize such events.

- Jake Kreilick, National Forest Protection Association (NFPA)

Missoula County CWPP
DEFINING OUR TERMS

Excerpted/modified from the Firewise Glossary on the Firewise website

Arson Fire A wildfire willfully ignited by anyone to burn, or spread to, vegetation or property without consent of the owner or his/her agent.

Burning conditions The state of combined, environmental factors that affect fire behavior in a specified fuel type.

Canopy The stratum containing the crowns of the tallest vegetation present (living or dead), usually above 20 feet.

Closure Legal restriction, but not necessarily elimination, of specified activities such as smoking, camping or entry that might cause fires in a given area.

Catastrophic Fire A raging, destructive fire. Often used to describe a fire burning under extreme fire weather. The term is also used when a wildland fire burns into a wildland/urban interface, destroying many structures.

Crown fire A fire that advances from top to top of trees or shrubs more or less independent of a surface fire.

Debris burn (also called a debris burning fire) In fire suppression, a fire spreading from any fire originally ignited to clear land or burn rubbish, garbage, crop stubble, or meadows (excluding incendiary fires).

Defensible space An area, typically a width of 30 feet or more, between an improved property and a potential wildfire where the combustibles have been removed or modified.

Escape Route Route away from dangerous areas on a fire; should be preplanned.

Evacuation The temporary movement of people and their possessions from locations threatened by wildfire.

Exposure (1) Property that may be endangered by a fire burning in another structure or by a wildfire. (2) Direction in which a slope faces, usually with respect to cardinal directions.

(3) The general surroundings of a site with special reference to its openness to winds.

Extreme fire behavior A level of fire behavior characteristics that ordinarily precludes methods of direct control. One or more of the following is usually involved: high rates of speed, prolific crowning and/or spotting, presence of fire whirls, a strong convection column. Predictability is difficult because such fires often exercise some degree of influence on their environments and behave erratically, sometimes dangerously.

Fine Fuels Fast-drying dead fuels, generally characterized by a comparatively high surface area-to volume ratio, which are less than 1/4-inch in diameter. These fuels (grass, leaves, needles, etc.) ignite readily and are consumed rapidly by fire when dry.

Fire behavior The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire department Any regularly organized fire department, fire protection district or fire company regularly charged with the responsibility of providing fire protection to the jurisdiction.

Fire front That part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified it is assumed to be the leading edge of the fire perimeter.

Fire hazard A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control.

Fire prevention Activities, including education, engineering, enforcement and administration, that are directed at reducing the number of wildfires, the costs of suppression, and fire-caused damage to resources and property.

Fire protection The actions taken to limit the adverse environmental, social, political and economical effects of fire.

Fire regime Periodicity and pattern of naturally occurring fires in a particular area or vegetative type, described in terms of frequency, biological severity, and area extent. For example, frequent, low-intensity surface fires with one to 25-year return intervals occur in the southern pine forests of the Southeastern United States, the sawgrass everglades of Florida, the mixed conifer forests of the western Sierras of California, and so forth.

Fire-resistant roofing The classification of roofing assemblies A, B or C as defined in the Uniform Building Code (UPC) Standard 32.7.

Fire-resistant tree A species with compact, resin-free, thick corky bark and less flammable foliage that has a relatively lower probability of being killed or scarred by a fire than a fire sensitive tree.

Fire season (1) Period(s) of the year during which wildland fires are likely to occur, spread, and affect resources values sufficient to warrant organized fire management activities.

(2) A legally enacted time during which burning activities are regulated by State or local authority.

Firestorm Violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface indrafts, near and beyond the perimeter, and sometimes by tornado-like whirls.

Fire triangle Instructional aid in which the sides of a triangle are used to represent the three factors (oxygen, heat, fuel) necessary for combustion and flame production; removal of any of the three factors causes flame production to cease.

Fire weather Weather conditions which influence fire starts, fire behavior or fire suppression.

Firebrand; Burning Ember Any source of heat, natural or human made, capable of igniting wildland fuels. Flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels. Examples include leaves, pinecones, glowing charcoal, and sparks.

Firebreak A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Firefighter A person who is trained and proficient in the components of structural or wildland fire.

Firewise construction The use of materials and systems in the design and construction of a building or structure to safeguard against the spread of fire within a building or structure and the spread of fire to or from buildings or structures to the wildland/urban interface area.

Firewise landscaping Vegetative management that removes flammable fuels from around a structure to reduce exposure to radiant heat. The flammable fuels may be replaced with green lawn, gardens, certain individually spaced green, ornamental shrubs, individually spaced and pruned trees, decorative stone or other non-flammable or flame-resistant materials.

Flame A mass of gas undergoing rapid combustion, generally accompanied by evolution of sensible heat and incandescence.

Flammability The relative ease with which fuels ignite and burn regardless of the quantity of the fuels.

Fuel condition Relative flammability of fuel as determined by fuel type and environmental conditions.

Fuel load The volume of fuel in a given area generally expressed in tons per acre.

Fuel modification; mitigation, reduction Any manipulation or removal of fuels to reduce the likelihood of ignition or the resistance to fire control.

Fuels All combustible material within the wildland/urban interface or intermix, including vegetation and structures.

Fuelbreak An area, strategically located for fighting anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel breaks divide fire-prone areas into smaller areas for easier fire control and to provide access for firefighting.

Greenbelt A fuel break designated for use other than fire protection.

Ground fuels All combustible materials such as grass, duff, loose surface litter, tree or shrub roots, rotting wood, leaves, peat or sawdust that typically support combustion.

Hazard The degree of flammability of the fuels once a fire starts. This includes the fuel (type, arrangement, volume and condition), topography and weather.

Hazardous areas Those wildland areas where the combination of vegetation, topography, weather, and the threat of fire to life and property create difficult and dangerous problems.

Hazard reduction Any treatment of living and dead fuels that reduces the threat of ignition and spread of fire. (see modification, mitigation; maybe use this there?)

Human-caused fire Any fire caused directly or indirectly by person(s).

Initial attack The actions taken by the first resources to arrive at a wildfire to protect lives and property, and prevent further extension of the fire.

Ladder fuels Fuels that provide vertical continuity allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease.

Mitigation Action that moderates the severity of a fire hazard or risk.

Natural barrier Any area where lack of flammable material obstructs the spread of wildfires.

Overstory That portion of the trees in a forest that forms the upper or uppermost layer.

Preparedness (1) Condition or degree of being ready to cope with a potential fire situation.

Prescribed fire (also called prescribed burning) Controlled application of fire to wildland fuels in either their natural or modified state, under specified environmental conditions, which allows the fire to be confined to a

predetermined area, and to produce the fire behavior and fire characteristics required to attain planned fire treatment and resource management objectives.

Property protection To protect structures from damage by fire, whether the fire is inside the structure or is threatening from an exterior source. The municipal firefighter is trained and equipped for this mission and not usually trained and equipped to suppress wildland fires. Wildland fire protection agencies are not normally trained nor charged with the responsibility to provide structural fire protection but will act within their training and capabilities to safely prevent a wildland fire from igniting structures.

Protection area That area for which a particular fire protection organization has the primary responsibility for attacking an uncontrolled fire and for directing the suppression action. Such responsibility may develop through law, contract, or personal interest of the fire protection agent. Several agencies or entities may have some basic responsibilities without being known as the fire organization having direct protection responsibility.

Response Movement of an individual firefighting resource from its assigned standby location to another location or to an incident in reaction to dispatch orders or to a reported alarm.

Risk The chance of a fire starting from any cause.

Rural fire district (RFD) An organization established to provide fire protection to a designated geographic area outside of areas under municipal fire protection. Usually has some taxing authority and officials may be appointed or elected.

Rural fire protection Fire protection and firefighting problems that are outside of areas under municipal fire prevention and building regulations and that are usually remote from public water supplies (can we lump into above?).

Slope The variation of terrain from the horizontal; the number of feet rise or fall per 100 feet measured horizontally, expressed as a percentage.

Structure fire Fire originating in and burning any part of all of any building, shelter, or other structure.

Structural fire protection The protection of a structure from interior and exterior fire ignition sources. This fire protection service is normally provided by municipal fire departments, with trained and equipped personnel. After life safety, the agency's priority is to keep the fire from leaving the structure of origin and to protect the structure from an advancing wildland fire. (The equipment and training required to conduct structural fire protection is not normally provided to the wildland firefighter.) Various taxing authorities fund this service.

Suppression The most aggressive fire protection strategy, it leads to the total extinguishment of a fire.

Surface fuel Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.

Uncontrolled fire Any fire which threatens to destroy life, property, or natural resources, and (a) is not burning within the confines of firebreaks, or (b) is burning with such intensity that it could not be readily extinguished with ordinary, commonly available tools.

Understory Low-growing vegetation (herbaceous, brush or reproduction) growing under a stand of trees. Also, that portion of trees in a forest stand below the overstory.

Volunteer fire department (VFD) A fire department of which some or all members are unpaid.

Volunteer firefighter Legally enrolled firefighter under the fire department organization laws who devotes time and energy to community fire service without compensation other than Worker's Compensation or other similar death and injury benefits.

Wildfire An unplanned and uncontrolled fire spreading through vegetative fuels, at times involving structures.

Wildland An area in which development is essentially non-existent, except for roads, railroads, power lines, and similar transportation facilities. Structures, if any, are widely scattered.

Wildland fire Any fire occurring on the wildlands, regardless of ignition source, damages or benefits.

Wildland fire protection The protection of natural resources and watersheds from damage by wildland fires. State and Federal forestry or land management agencies normally provide wildland fire protection with trained and equipped personnel. (The equipment and training required to conduct wildland fire protection is not normally provided to the structural fire protection firefighter.) Various taxing authorities and fees fund this service.

Wildland/Urban Interface (also called **Urban interface**) Any area where wildland fuels threaten to ignite combustible homes and structures.

Missoula County CWPP

Suggested Readings

Missoula County Plans:

- *Missoula County Pre Disaster Plan (2004)*
- *Missoula County Interface Fire Plan (1998)*
- *Project Analysis of the Foothills Wildland/Urban Interface & portions of Frenchtown Face EIS (1998)*
- *A Framework for Collaboration in the Wildland/Urban Interface of the Missoula and Bitterroot Valleys*

Other Community Fire Plans:

- *Seeley/Swan Fire Plan (2003)*
- *Bitterroot (MT) Community Wildfire Protection Plan (2004)*
- *Mineral County Community Wildfire Protection Plan (2005)*
- *Lake County Community Wildfire Protection Plan (2005)*
- *Flathead County Community Wildfire Protection Plan (2005 pending)*
- *Granite County Community Wildfire Protection Plan (2005 pending)*
- *Powell County Community Wildfire Protection Plan (2005 pending)*
- *Sanders County Community Wildfire Protection Plan (2005 pending)*
- *Mineral County Interface Fire Plan (1998)*
- *Ravalli County Interface Fire Plan (1999)*

National Documents on Community Fire Protection Planning:

- *The National Fire Plan (2000)*
- *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy (2001)*
- *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-year Comprehensive Strategy – Implementation Plan (2002)*
- *The Healthy Forests Restoration Act of 2003*
- *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland/Urban Interface Communities (2004)*

Pertinent Federal Plans:

- *Lolo National Forest Plan*
- *Lolo National Forest Fire Management, Aviation and Air Quality Plan*
- *Bureau of Land Management Resource Management Plan*

Pertinent State Plans:

- *State of Montana DNRC Fire & Aviation Program Strategic Action Plan (2003)*
- *Montana Wildland/Urban Interface Guidelines (pending 2005)*

Other Community Protection-Related Documents:

- *The Rattlesnake and Grant Creek (MT) Fuel Mitigation Projects Report (2004)*
- *Native Forest Network documents pertaining to wildfire/fuel reduction*

Other Good Reading:

- *Preventing Wildland-Urban Fire Disasters, Jack D. Cohen, USDA Forest Service, Gen. Tech. Rpt. (CD-ROM)*
- *Tending Fire: Coping with America's Wildland Fires, Stephen J. Pyne; Island Press 2004*
- *Mimicking Nature's Fire, Steve Arno and Carl E. Fiedler, Island Press 2005*

- *Flames in Our Forests: Disaster or Renewal*; Stephen F. Arno and Steven Allison-Bunnell, Island Press (2002)
- *Year of the Fires; The Story of the Great Fires of 1910*; Stephen J. Pyne, Penguin Books 2001
- *World Fire: The Culture of Fire On Earth*; Stephen J. Pyne, Henry Holt & Company 1995
- *Fire Ecology of Western Montana Forest Habitat Types*; William C. Fischer and Anne F. Bradley (1987)

Good Websites

Local Links

- Missoula County Office of Emergency Services www.missoula.co.mt.us/des/
- Missoula County Fire Protection Association www.mcfpa.org
- Lolo National Forest www.fs.fed.us/r1/lolo/
- Montana Department of Natural Resources and Conservation www.dnrc.state.mt.us
- Missoula Fire Department www.ci.missoula.mt.us/fire/
- Missoula Rural Fire District www.mrfdfire.org/
- Frenchtown Rural Fire District www.frenchtownfire.org
- Seeley Lake Rural Fire District www.seeleyfire.org
- Bitter Root Resource Conservation and Development Council www.bitterrootcd.org
- Confederated Salish & Kootenai Tribes www.cskt.org

National and State Links

- *The National Fire Plan* www.fireplan.gov
- *Federal Agency Implementation Guidance for Healthy Forests Initiative and the Healthy Forests Restoration Act* www.fs.fed.us/projects/hfi/field-guide/
- *Field Guidance for Identifying and Prioritizing Communities At Risk:* www.stateforesters.org/reports/COMMUNITIESATRISKFG.pdf
- Western Governors Association www.westgov.org
- Society of American Foresters (CWPP Handbook) www.safnet.org/policyandpress/cwpp.cfm
- National Firewise Communities Program www.firewise.org
- Fire Safe Councils: www.firesafecouncil.org
- National Interagency Fire Center www.nifc.gov
- National Weather Service www.wrh.noaa.gov
- National Fire Protection Association www.nfpa.org
- International Code Council www.iccsafe.org
- National Database of State and Local Wildfire Hazard Mitigation Programs www.wildfireprograms.com
- Montana Natural Resource Information System www.nris.state.mt.us.com