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of Agriculture



Forest Service

St. Joe Wildland Fire Use Guidebook 2006



Photo Credit: Jeff Muenster, St. Joe Ranger District, Idaho Panhandle National Forest

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Introduction

The intent of this guidebook is to provide operational decision making guidance under the new Federal Wildland Fire Policy to implement wildland fire use in Management Area 11 (MA-11), proposed wilderness, on the St. Joe Ranger District of the Idaho Panhandle National Forests (IPNF). Authority to manage lightning caused fire across most of the Selway-Bitterroot Wilderness was initiated in 1976. In Region 1, wilderness fire plans have supported wildland fire use to achieve wilderness objectives for several decades in the Selway-Bitterroot, Frank Church River of No Return, Gospel Hump Wilderness, and numerous other wilderness areas within the region and throughout the nation. More recently, wildland fire use of unplanned ignitions has been implemented on lands outside of formally recognized wilderness adjacent to the Selway-Bitterroot Wilderness and within the Clearwater Fire Management Unit which is south of and adjacent to the proposed wilderness on the St. Joe Ranger District.

Following fire management program reviews in 1988 and 1996 the national fire management program identified issues and opportunities to strengthen management decision making for wildland fire use. One output of these reviews was the need to integrate the fire management program objectives with other resource objectives on federally managed lands. The program reviews recommendations have been adopted in the new Federal Fire Policy with the goal of balancing fire suppression objectives with wildland fire use objectives.

The objective of this guidebook is to provide local area information and national standard documentation tools to assist decision makers, from the ignition of wildland fire use fires to their ultimate end over a broad spectrum of complexities. The “Wildland Fire Use Implementation Procedures Reference Guide” (2005 Guide) and past experience provide the foundation upon which sound decision making and subsequent successful management of natural ignitions for resource benefit can occur (USDI/USDA, 2005).

Managing wildland fires for resource benefits requires significant documentation of the decision process used by fire managers and line officers. This evolving documentation process has been the cornerstone of successful implementation of wildland fire use from natural ignitions for the past 30 years. Progressive and archival documentation utilized by the 2005 Guide is found within this guidebook and is designed to better serve line officers and other decision makers and is consistent with the “Federal Wildland Management Policy Review and Update” (USDI/USDA/DOE/DOD/USEPA/ FEMA/NASF 2001) and with the “Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy” (USDI/USDA 2003).

The St. Joe Fire Use Guidebook will facilitate successful navigation of the authority and responsibility to manage wildland fire use on the St. Joe Ranger District of the Idaho Panhandle National Forests. This guidebook will become part of the Forest's Fire Management Plan (FMP), and will follow the "appropriate management response" part of the NWCG policy flowchart. Forms used throughout the process are included, as reproducible copies to assist with consistent implementation of wildland fire policy within proposed wilderness. **Forms and process are also available as part of the WFS Plus (Wildland Fire Situation Analysis) computer**

application (Balanced Technologies, 1998). Key references which support management direction contained in the guidebook are listed in the bibliography.

Chapters, and appendices will blend and integrate the requirements of FSM 5140 (Fire Use) and the Wildland Fire Use Implementation Procedures Reference Guide (USDA/USDI, 2005). This guidebook is intended to be an appendix to the IPNF Fire Management Plan, which is approved annually.

This guidebook focuses on the development of the Wildland Fire Implementation Plan (WFIP) beginning with an introduction including wildland fire use objectives, followed by an area description in Chapter One. Chapter Two introduces the WFIP planning stages and procedures. Chapter Three, the short term implementation plan, explains the use of the Relative Risk Rating Chart, complexity worksheets, and the Stage II Need Assessment Chart. Chapter Four will deal with the Stage III WFIP, the Long Term Implementation Plan. The appendices will cover Risk Assessment, Research Natural Areas, Site Evaluation and Protection, Programmatic Biological Assessment for the Fire Management Program, the Public Information Plan and Skills/Qualifications. A flow chart of Wildland Fire Use Implementation is attached.

This is the first WFU Guidebook ever developed for implementation on the IPNF. Currently there are few if any qualified Fire Use Managers (Type 1 or 2) on the IPNF since WFU is a new option for fire management on the IPNF. Experienced fire managers from the St. Joe Ranger District and elsewhere on the IPNF are ready and willing to implement WFU and have initiated Fire Use Manager Type II position task books. Fully qualified fire use managers will likely have to be ordered through Coeur d'Alene Dispatch in the event of a WFU event that exceeds the complexity analysis for management under an Incident Commander Type 4, which will provide opportunities for local Fire Use Manager Trainees to gain on the job experience. The St. Joe Ranger District and the IPNF are fully prepared and capable of safely and effectively implementing WFU in MA-11 in 2006.

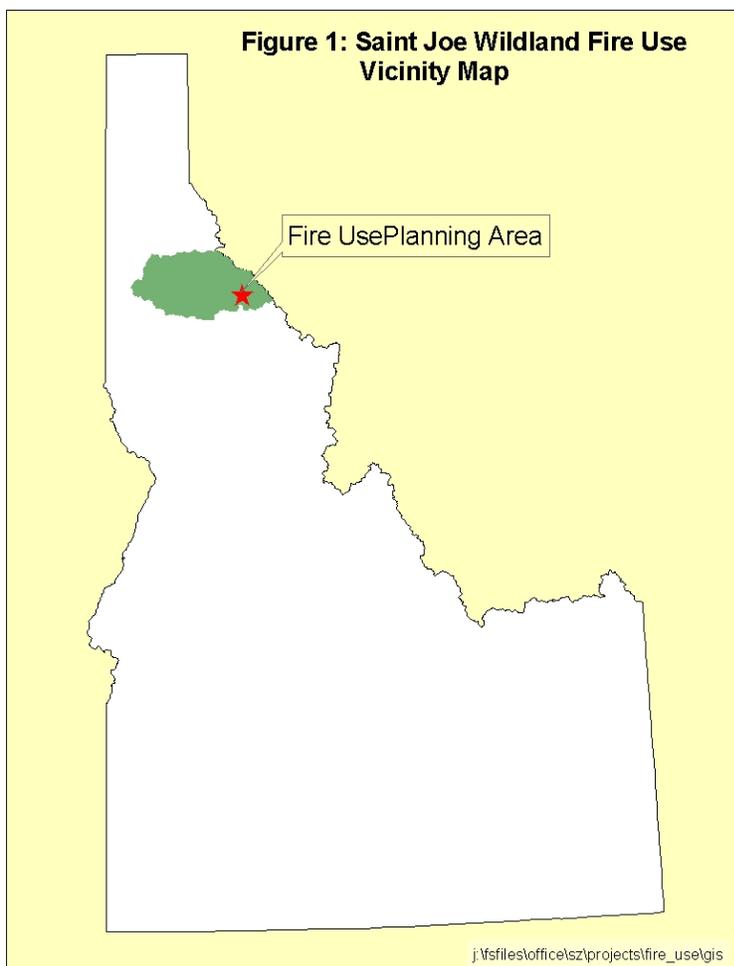
A list of qualified personnel on adjacent National Forests and other jurisdictions is provided in Appendix D. A listing of initial contacts from adjacent National Forests and Districts is also provided. Coordination between the IPNF and adjacent National Forests will be important in determining management direction of WFU fires across administrative boundaries when WFU is an available option for both management units.

CHAPTER 1

Area Description

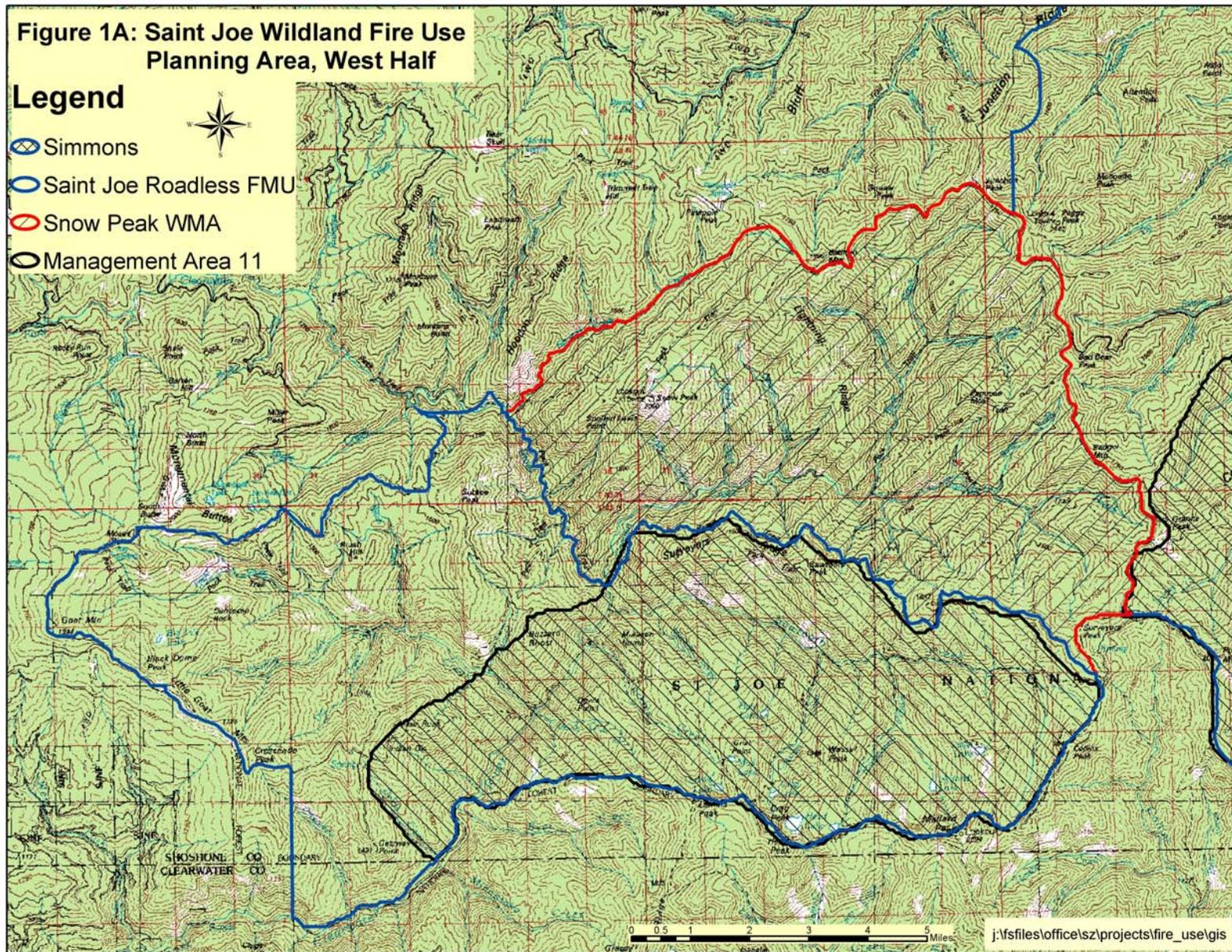
The St. Joe Ranger District of the Idaho Panhandle National Forests is located in the Northern Region (Figure 1). The application of wildland fire use in 2005 is permitted only within Management Area 11, the proposed Mallard-Larkins wilderness. The planning area includes lands of the St. Joe National Forest with limited to non-existent road and timber harvest activities and includes all of the Roadless Fire Management Unit (FMU) located in the south-central and southeastern portions of the district.

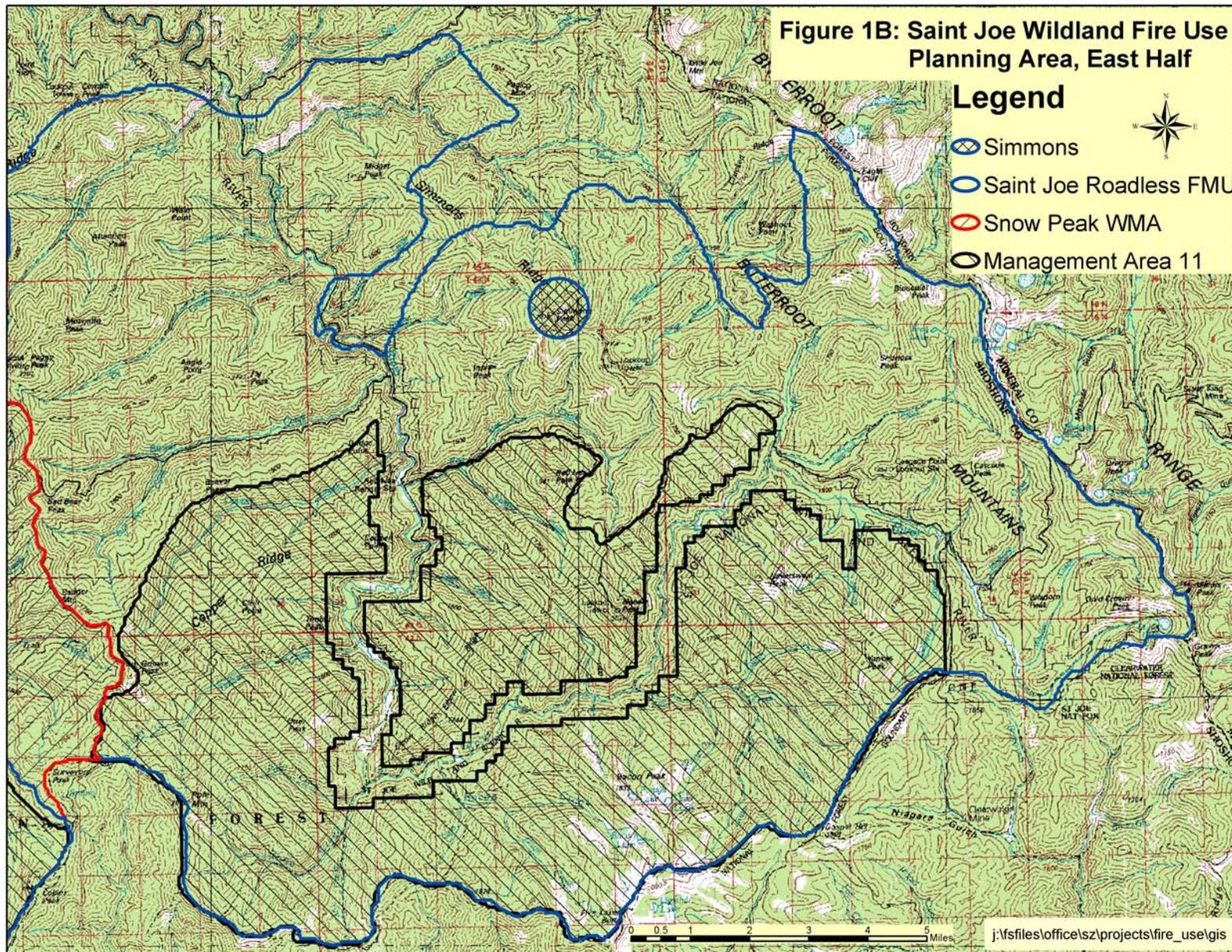
The portion of the Roadless FMU discussed in this Guidebook is much larger than, and completely encompasses IPNF portion of the proposed Mallard-Larkins wilderness. The entire Roadless FMU is included to aid in contingency planning for fires occurring near or approaching the boundary of the proposed wilderness. The Snow Peak Wildlife Management Area, which lies between the two Roadless FMU areas, is also included due to its adjacency, similar unroaded quality, and management direction, making a contiguous planning area of approximately 203,100 acres. The planning area is bordered by two other national forests, to the east the Lolo National



Forest and to the south the Clearwater National Forest. The proposed wilderness area lies entirely within the two portions of Roadless FMU and comprises approximately 85,600 acres, including the portion of the St. Joe Wild and Scenic River corridor within the eastern portion (Figure 1).

To aid in determining the appropriate management response, the planning area was subdivided into three areas based on major tributaries or specific landmarks in the area. A general description of these areas follows. *NOTE:* These written descriptions are general and do not necessarily follow defensible boundaries within the planning area nor do they strictly follow the visible boundaries presented in Figures 1A and 1B.





Mallard-Larkins Area

The Mallard-Larkins Area is the western portion of the planning area and includes, Crescendo, Delate, Calipeen, Stub Toe, Larkins and, Devil's Club creeks, Foehl Creek and all of its tributaries, Sawtooth Creek and all of its tributaries, and numerous smaller creeks that drain directly into the Little North Fork of the Clearwater River. This area is bounded by Forest Service Road 363 on the north and west from Crescendo Peak to the head of Stub Toe Creek; The Little North Fork of the Clearwater River downstream from the confluence of Stub Toe Creek to Forest Service Trail 40 on the North; Forest Service Trail 40 and Forest Service road 395 to the IPNF-Clearwater National Forest Boundary on the north; the ridge line including Collins, Mallard, Hart, Crag, and Larkins Peaks down to the Little North Fork of the Clearwater River on the south and east; the Little North Fork of the Clearwater River downstream to the boundary between the IPNF and Floodwood State Forest on the south; and the Section line from the Little North Fork, approximately two air miles north to its intersection with Forest Road 363 near Crescendo Peak on the west.

The Mallard-Larkins Area includes the Mallard-Larkins portion of MA-11 which is characterized by the headwaters of Devil's Club Creek and Larkins Creek, and all tributaries that flow into Sawtooth Creek north of the Clearwater-St. Joe National Forest Boundary. The entire area is unroaded and is allocated by the Idaho Panhandle Forest Plan (USDA 1987) as Management Area 11 (proposed wilderness) and includes the Mallard-Larkins Pioneer Area.

Lands within the Mallard-Larkins area are very steep and rugged. Habitat types in the area range from Western Red Cedar in the lower stream reaches to high elevation Subalpine Fir and Mountain Hemlock types on the high ridges. Numerous alpine lakes are also included, particularly in the Pioneer Area. Nearly all of the Mallard-Larkins area, excluding approximately half of the Pioneer Area in the upper elevations, burned during the 1910 Great Burn. A substantial portion of the Foehl Creek drainage and the western slope above the Little Northfork of the Clearwater River burned again in multiple events between 1914 and 1922.

Joe's Elbow Area

The Joe's Elbow area includes the upper St. Joe River and all or portions of the following direct tributary watersheds; Mosquito, Walo, Tonto, Simmons, Slide, Fly, Midget, Wahoo, Beaver, Copper, Indian, Bonehead, Red Ives, Line, Color, Game, Scat, Timber, Halm, Pole, Ruby, Bacon, Bean, Broken Leg, Myrtle, Forage, Needle, Agua, Ascent, Heller, Sherlock, Never Sweat, Yankee Bar, Cascade, Bluebells, California, Medicine, Riley, and Wisdom creeks. Numerous alpine lakes also occur within this area including St. Joe Lake, the headwaters of the St. Joe River. This area also includes the entire Wild and Scenic designation of the St. Joe River.

The Joe's Elbow Area lies within the upper portion of the St. Joe River drainage The Joe's Elbow area is generally bounded by Forest Service Road 201 from Table Camp Trailhead to its junction with Forest Service Road 322 on the west; FS road 322 from the junction with FS road 201 to Conrad Peak Lookout on the north; Forest Service trail 42 from Conrad Peak Lookout to the confluence of Mosquito Creek and the St. Joe River on the north; the St. Joe River from the confluence with Mosquito Creek upstream to the confluence with Simmons Creek on the north; Simmons Creek upstream to the junction of FS trail 80 and FS trail 290 on the north; FS trail 290 to the IPNF-Lolo National Forest boundary on the north; the IPNF-Lolo National Forest boundary from FS trail 290 south to the IPNF-Lolo-Clearwater National Forest boundary at

Graves Peak on the east; the IPNF-Clearwater National Forest boundary from Graves Peak to National Forest road 201 at Table Camp Trailhead on the south.

The Joe's Elbow area includes the second portion of MA-11, which straddles a portion of the St. Joe Wild and Scenic River corridor, on the St. Joe Ranger District. This area of proposed wilderness is characterized by rugged mountainous terrain and fast high gradient streams, including the St. Joe River. Habitat types in the area range from Western Red Cedar in the lower stream reaches to high elevation Subalpine Fir and Mountain Hemlock types on the high ridges. Brush fields, lodgepole pine, and mixed larch-grand fir dominated stands occupy much of the mid-elevations. Numerous alpine lakes are also included, particularly in the vicinity of the Five Lakes Butte Research Natural Area. Nearly all of the Joe's Elbow area, including MA-11 burned during the 1910 Great Burn and very little of it has burned since. The entire area is unroaded and is allocated by the Idaho Panhandle Forest Plan (USDA 1987) as Management Area 11 (proposed wilderness). The Wild and Scenic portion of the St. Joe River corridor that lies between the two portions of MA-11 in the Joe's Elbow area is also included in the proposed wilderness area.

Snow Peak Wildlife Management Area

This area lies in the Little North Fork of the Clearwater River drainage between the Mallard-Larkins and Joe's Elbow areas. The area includes the east side of Spotted Louis Creek and all of Canyon Creek and its tributaries including Caribou, Buck, Badger, Triple, Papoose, Bathtub, and Lightning Creeks. The Wildlife Management Area also contains numerous small tributaries to the Little North Fork of the Clear Water River including Culdesac Creek. Snow Peak (6,760 ft), the most prominent landmark, is 18 air miles southeast of Avery, Idaho. The area is bounded on the east and north by Forest Service road 201; Spotted Louis Creek on the north and west; The Little North Fork of the Clearwater River on the west; and Forest Service Trail 40 and Forest Service road 201 on the south. The area is primarily unroaded and is managed as non-motorized year-round.

The Snow Peak Wildlife Management Area (WMA) is managed primarily for big game habitat and contains a healthy population of mountain goats. The WMA is comprised of Forest Service and State lands in an intermingled "checker board" pattern of ownership. Lands immediately north of the WMA are comprised of a checkerboard of Forest Service ownership and private industrial timber lands.

Contingency and Maximum Manageable Area Planning Boundaries

The primary defensible landscape features that could be used as maximum manageable area (MMA) or contingency boundaries within the Mallard-Larkins portion of MA-11 include: Sawtooth Creek, Surveyors Ridge, the Little North Fork Clearwater River, the predominant ridgelines above the river face on the west side of the Little North Fork Clearwater River, and the un-named ridge that is the forest boundary between the IPNF and Clearwater National Forests.

The primary defensible landscape features within the Joe's Elbow portion of MA-11 that could be used as MMA or contingency boundaries include: the St. Joe River and all of the 6th code tributary streams, ridgelines forming boundaries between 6th code watersheds, the 201, 320, and 715 roads, and the un-named ridgeline forming the boundary between the IPNF and Clearwater Forests.

The major landscape features outside of and adjacent to MA-11 that could be used as contingency or MMA boundaries are: Canyon, Bad Bear, Beaver, Red Ives, and Blackburn Creeks; roads 346, 220, 363, 201, and 303. Numerous other trails and natural features inside and outside MA-11 may be identified as viable boundaries at a finer scale during WFIP planning.

Objectives

The IPNF Forest Plan provides direction to manage for benefits from fire in fire dependent ecosystems. "Prescribed fire from planned and unplanned ignitions can be used to achieve many land management objectives." (USDA,1987).

Objectives for the St. Joe Fire Use Area have been developed from meetings and discussions with Idaho Panhandle National Forest managers, to ensure that wildland fire use implementation remains consistent with Forest Plan goals and objectives. These general objectives would be used to guide fire managers and line officers in Stage I of Wildland Fire Implementation Planning (WFIP), also known as the Go - No Go Decision. These objectives should be helpful as the Stage II assessment and implementation plan are developed (short term implementation actions). Additional site specific objectives would be developed by Technical Specialists (resource advisors) for the Long Range Implementation Actions at WIFP Stage III. Protection and/or mitigation measures should be developed with an appropriate resource specialist on a site specific basis to ensure that they will contribute to achievement of the stated objectives of a given wildland fire use event.

Fire Management

The impetus from the IPNF Forest Plan is to utilize ignitions from natural sources in a safe and cost efficient manner to protect or enhance IPNF resources. The IPNF Forest Plan is explicitly permissive in allowing the use of unplanned, natural, ignitions to achieve land management objectives in MA-11 and all of the surrounding management areas within the previously described areas with the exception of MA-12. Fire management direction for MA-12 permits the use of management ignited prescribed fire. Natural ignitions in MA-12 are to be confined, contained, or controlled in accordance with the fire protection standard of the contiguous management area (IPNF Forest Plan, Section III, p. 55).

Consistent with national fire policy, all human caused fires will be suppressed. Fires originating in management area 12 and other management areas adjacent to management area 11 will receive an appropriate management response. Fires not providing resource benefits within MA-11 are considered unwanted wildland fires and will receive an appropriate management response.

It is important to recognize fire as a natural disturbance process, and allow fire to resume its disturbance role in restoring and maintaining ecosystems. Exclusion of fire from the Joe's Elbow and Mallard-Larkins ecosystems may cause undesirable effects to landscape level diversity of forest vegetation and seral stages, fuel profiles and, wildlife habitat amongst many other values. Therefore, the objective of the St. Joe Fire Use Guidebook is to enable the use of lightning caused ignitions to emphasize restoration and maintenance of an historic and natural

disturbance within a desirable subset of historic seasonal climatic conditions to meet a broad range of ecosystem management objectives.

Air Quality

Consider the effects of smoke on populated areas and attempt to minimize impacts; include specific air quality objectives in the development of site specific implementation plans. The entire planning area lies within the southeastern corner of airshed 12B. Airshed 13 is due south and adjacent to the southern boundary of the planning area and airshed 3A is located to the east of the planning area and contains the Missoula non-attainment area. Smoke from WFU fires in the planning area may affect the Missoula impact zone. More information may be found in Appendix D and at the Smoke Monitoring Unit website: <http://www.smokemu.org/>.

Hydrology

Project level standards and guidelines for water quality contained in the Best Management Practices will be utilized to ensure that state water quality standards are met or exceeded and that long-term productivity of water resources are ensured

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Soils

Soil productivity will be maintained. Retain the soil mantle within historic ranges with emphasis on protection of the Mazama ash cap where present and on soil organic matter.

Utilize current mapping of high hazard or moderate hazard landtypes to display risks. See the Hazardous Landtypes Risk Map and discussion in Appendix D. Use Minimum Impact Suppression Tactics (MIST) when applying holding actions to protect high hazard landtypes.

Fisheries

Utilize all applicable INFISH standards and guides. Protect core fish populations of threatened species. Minimize impact to riparian zones for Bull Trout from high intensity and high severity fire effects. Minimize impact to riparian zones for cutthroat trout as the location of core populations are identified.

Long Term Objectives allow natural ignitions to return to riparian areas, specifically those areas exceeding their historic range of fuel loadings. Minimize impact to sensitive stream reaches, which have the potential of providing habitat for bull trout and westslope cutthroat trout from high intensity and high severity fire effects. Use Minimum Impact Suppression Tactics (MIST) when applying holding actions to protect riparian areas.

Vegetation

Protect timber values on Management Areas with timber production standards. Emphasize protection and maintenance of natural seed sources. Minimize the potential for high severity fire effects in early seral stands. Utilize fire ignitions to promote diversity of successional stages (utilize current data sources to display and evaluate vegetation patterns).

Protect sensitive plant populations from high intensity high severity fire effects. Utilize current sensitive plant population maps to display risks (Appendix D). Coordinate protection measures with an appropriate resource specialist. *Note:* some plants such as *Cornus nuttallii* are expected to have a positive response to fire.

Wildlife

Maintain habitat quality, quantity, distribution, and patch sizes within the natural range of variability for the Rocky Mountains, in both upland and riparian areas. Allow non-lethal and mixed-lethal fires to the extent which provide wildlife habitat benefits even within old forest. Creation of mosaic patterns that provide forage and cover in juxtaposition are beneficial. Creation of snags within the burn pattern mosaics would be beneficial. Create or maintain shrub forage with fire intensities that burn brush back to the root crowns while maintaining soil productivity.

Threats to Threatened, Endangered, and Sensitive species (TE&S) should be assessed for the initial Go - No Go decision and at each stage of wildland fire use implementation (Appendix D).

Research Natural Areas (RNA)

The Five Lakes Butte Research Natural Area (RNA) lies within the Joe's Elbow portion of the proposed Mallard-Larkins Wilderness (MA-11). IPNF Forest Plan direction states that the Five Lakes Butte RNA is included in the proposed wilderness and is therefore managed as part of MA-11 rather than MA-14, which includes most of the other RNA's on the forest. Management direction for MA-11 therefore applies in the Five Lakes Butte RNA, including wildland fire use. The establishment record for the Five Lakes Butte RNA is available at the St. Joe Ranger District office.

Old Growth

The forest-wide fire management standard for old growth states (IPNF Forest Plan, p. II-38): "The appropriate suppression response for designated old growth stands in all management areas except in wilderness will result in preventing the loss of old growth. Fire policy in relation to old growth within wilderness will be provided in specific management direction developed for each wilderness area."

MA-11 is proposed wilderness. The management goal for proposed wilderness is (IPNF Forest Plan, p. III-48): "Manage those lands proposed for wilderness to protect their wilderness characteristics pending a Congressional decision..."

Fire management standards within MA-11 state (IPNF Forest Plan, p. III-51): "Allow fire to play a natural role in the wilderness ecosystems – consistent with any applicable language in the enabling legislation."

Recreation and Visuals

Protect capital investments. Protect travel way structures such as bridges. Assess the risk to high value recreation areas and protect them to meet Forest Plan objectives, specifically the St. Joe River corridor, lake basins, and main travel corridors. Utilize maps to display these sensitive resources (Appendix D). Maintain wilderness character in Management Area 11 (proposed wilderness) including minimizing the effects of fire suppression through the use of minimum impact suppression tactics (USDA, 1998).

Heritage Resources

Protect identified prehistoric sites. Protect historically significant buildings and structures. Protect those culturally significant sites currently identified and in use. Utilize maps to display these sensitive resources as appropriate. See Appendix E for the Improvements Map and site protection guidelines.

Monitoring

Wildland Fire Use implementation will require program monitoring for program effectiveness within the proposed wilderness as well as site specific monitoring of individual fires. Specific program monitoring features are in Chapter 6.

Fire History

Prior to the onset of effective fire suppression and extensive timber harvest, wildfire was one of the primary processes controlling landscape structure within the Mallard-Larkins Proposed Wilderness area. Records indicate that thousands of acres of forest burned during the drought years of 1889, 1910, and, 1919 with other smaller fires occurring throughout the 1920's and early 1930's. The current fire history map for the St. Joe Ranger District does not show any significant fires after the 1930's, which is probably due to the advent of effective fire detection and suppression. The great fires of 1910 were responsible for burning approximately three quarters of the Roadless FMU.

Fire history in the Cook Mountain area (Barrett 1982) on the Clearwater Fire Management Unit of the Clearwater National Forest (just south of the Mallard-Larkins proposed wilderness area), revealed that large stand replacing fires exceeding 1000 acres occurred at a frequent rate within the study area, about every 10 years from 1680 to 1928. Many of the large fires were reburns. Even more remarkable, fires over 10,000 acres occurred every 25 to 31 years during the same period within the study area. This area represents the most profoundly fire influenced ecosystem in the Northern Rocky Mountains. The predominant habitat types and fire groups found in the Cook Mountain study area are also predominant in the St. Joe Roadless FMU and within Management Area 11 and exhibit a similar historic fire regime according to records available on the St. Joe Ranger District.

Fuels/ Fire regimes

Historical landscape patterns consisted of a diverse, complex patchwork of stand structures and species compositions. Existing structure is the result of stand development patterns from past fires, and highly effective fire exclusion over the last 70 years. Fire reacts to different vegetation with varying frequencies and intensities. The following discussion of fire regimes present within the planning area describes how fire typically interacts with the vegetation. The four predominant Fire Groups within the planning area are presented below. Other Fire Groups may exist in the planning area but occur in such small amounts that they are typically subjected to the fire regimes of the predominant surrounding Fire Groups. Further discussion of Fire Groups is available in Forest Ecology of the Forest Habitat Types of Northern Idaho (Kapler-Smith and Fischer, 1997).

Dry Subalpine Fir / Mountain Hemlock (ABLA/TSME) Fire Group 4

The ABLA/TSME fire group generally occurs on cold, dry habitat types typically found from 4000-6500 ft. elevation within the planning area. The ABLA/TSME fire regime has two distinct response patterns to fire. A lethal, uniform spread pattern resulting in stand replacement is found in mature lodgepole pine stands. These stands have a return interval for fire of 155 years (Barrett 1993). Lodgepole pine usually dominates the early seral stages of these stands and is generally maintained over time through stand replacing fire that often results from the deterioration of overmature lodgepole pine stands. Subalpine fir and mountain hemlock may be components within the early seral stages within these stands and are the climax tree species in the absence of fire. On drier, less steep sites with exclusively lodgepole pine, "under burning" with a mixed severity, non uniform spread pattern may occur. Barrett and Arno (1991) reported a 43 year return interval for these types of stands. Mean fire intervals (MFI) as short as 20 to 47 years have been reported in the subalpine habitat type in the Cook Mountain area on the Clearwater National Forest (Barrett 1982).

Moist Subalpine Fir / Mountain Hemlock (ABLA/TSME) Fire Group 5

The ABLA/TSME fire group generally occurs on cold, moist northwest to east aspects, typically between 5000-6500 feet elevation within the planning area. This fire group is most commonly found along the southern edge of the planning area in the Mallard-Larkins Pioneer Area and along the north side of the divide between the St. Joe River and North Fork Clearwater River drainages.

Historic fires were less frequent and less uniform in Fire Group 5 than in Fire Group 4 because of the cool moist nature of the aspects and broken rocky topography it is found on. Mean stand replacement fire intervals for this Fire Group are around 170 to 180 years but often exceed 250 years in very wet locations such as in the Mallard-Larkins Pioneer Area. In fact, the only large contiguous area that was apparently spared from the Great Burn of 1910 and other recent significant fire events in the St. Joe Roadless FMU is located in the upper elevations of the Mallard Larkins Pioneer Area where this Fire Group predominates. Fires in occurring in this Group are often of mixed severity and are generally small in size due to discontinuity of fuels. Stand replacing fires in this Fire Group usually originate in drier adjacent fire groups during drought years and are often very large (>5000 acres).

Moderate and Moist Grand Fir (ABGR), Fire Group 7

Habitat types in Fire Group Seven occur on dry to wet sites generally in the mid elevations but may be found up to 6500 feet and in drainage bottoms. Grand fir is the climax species in this Fire Group and may co-dominate with subalpine fir. Douglas-fir, western larch, lodgepole pine, and western white pine may mix to varying degrees in the early seral stage on moderate sites while Englemann spruce may dominate on moist sites. Fire regimes are highly variable in this Group. Frequent high severity stand replacement burns have occurred in some areas resulting in persistent seral brush fields, (Barrett, 1982) while evidence of fire is difficult to find in other areas within the Fire Group. Fires occurring in Fire Group Seven are usually of mixed to high severity but low severity burns do occur. Low and mixed severity burns favor maintenance of early seral tree species, particularly western larch, but large lethal burns are inevitable because of the productivity of the habitat types.

In the Cook Mountain study the moist grand fir habitat types showed two types of fire patterns: severe surface fires that left few surviving trees and stand replacing crown fires. Grand fir habitat occurs at mid-elevations and is often associated with the "thermal belt" where the most severe burning conditions may exist. The MFI was 19 to 46 years in this habitat with a high potential for reburning (Barrett 1982).

Moderate and Moist Western Redcedar / Western Hemlock (THPL/TSHE), Fire Group 8

The THPL/TSHE group is characterized by lethal, non uniform, stand replacement fires at generally long intervals with relatively frequent low to mixed severity fires occurring between stand replacement intervals. Grand fir, western larch, western white pine, Douglas fir and Engelmann spruce are major components with western redcedar and/or western hemlock predominating as climax tree species. In the North Fork Coeur d'Alene River basin, mean intervals between stand replacement events occurred as short as 18 years and as long as 452 years were recorded (Brown et. al, 1994 and Zack and Morgan 1994 *in* Kapler-Smith and Fischer, 1997). Many of the drier western red cedar stands also show evidence of non lethal ground fires. This regime typically occurs on the cool, very moist creek and valley bottoms within the planning area.

In the Cook Mountain riparian and upland zones having redcedar habitat, three fire patterns are evident: low to moderate severity burns leaving a substantial number of trees scarred but surviving, severe underburns with few trees surviving, and stand replacing crown fires. Fires from surrounding drier habitats often burn into and through moist riparian areas. Rare ignitions in the redcedar habitat probably set inconsequential creeping duff fires. The MFI was 24 to 76 years in this moist habitat (Barrett 1982). Fire intervals of less than 140 years favor dominance of early seral western white pine, western larch, Douglas-fir and grand fir.

CHAPTER 2: Wildland Fire Implementation Plan

Specific planning and documentation requirements exist for management of wildland fires where resource benefits are a primary objective. The full planning process used for wildland fire use events is uniquely different from the processes used for management of unwanted wildfires.

Figure 1 illustrates the basic wildland fire use planning process.

A standard wildland fire implementation plan (WFIP) has been developed. The complete WFIP consists of three stages and is prepared progressively. Each individual stage constitutes a stand alone implementation plan and specific forms and formats are available for each stage.

Progression from one stage to the next is dependent upon fire activity, potential duration, and relative risk as it relates to the incident. As each progressive stage is prepared, it is attached to the previous stage and becomes the guiding document until management of the fire accomplishes resource objectives or progression to a higher stage occurs.

Since each stage can be completed individually and used as a stand-alone plan, it is possible that an individual fire will be managed under only Stage I for its duration. Some fires will progress to Stage II and some will progress to Stage III. Thus, the overall objectives for managing individual fires can be accomplished through successful implementation of any or all of the stages, as illustrated by the left portion of Figure 1.

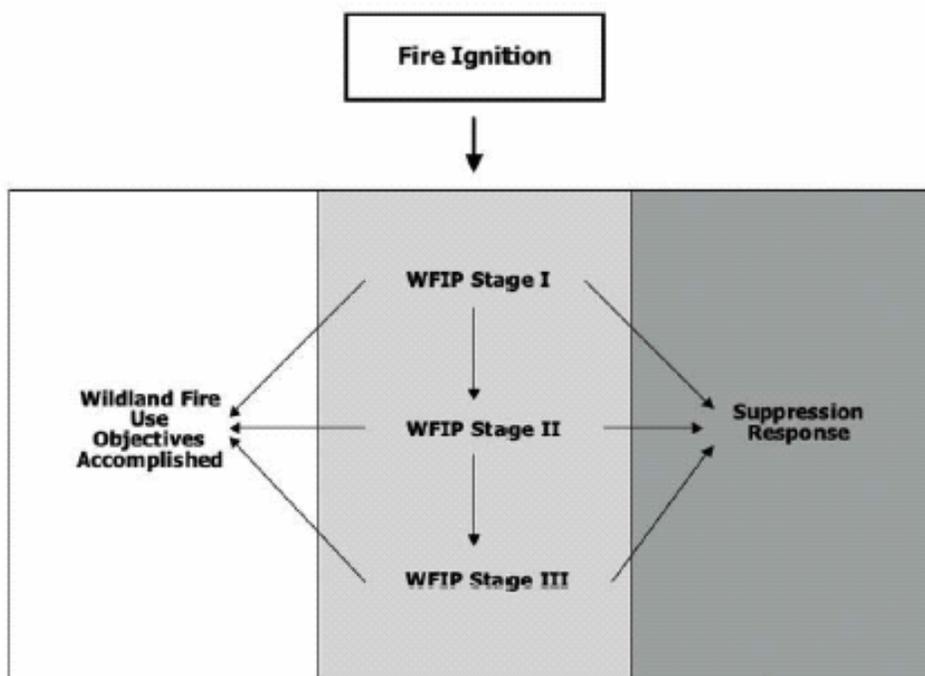


Figure 1. Generalized flow of wildland fire implementation plan showing progression of stages and points of movement to a suppression response.

WFIP Stage I documents the fire situation, agency administrator decision, management actions, and sets the initial periodic assessment schedule. This stage is the initial stage of the planning

process. Given suitable circumstances, it can be used to manage a fire with low potential for spread and negative impacts. Components of WFIP Stage I include:

- Strategic Fire Size-Up (documents fire situation, including fire location and cause). A Strategic Fire Size-Up is completed for all wildland fires and provides information necessary to decide whether to implement a wildland fire use or a suppression response. All wildland fires naturally caused and in a fire management unit approved for wildland fire use become wildland fire use (WFU) candidates. For fires not meeting these criteria, WFIP planning stops at this point and a suppression action is initiated. For wildland fires meeting these criteria (WFU candidate), planning continues into the Decision Criteria Checklist.
- Decision Criteria Checklist (documents the decision to manage the fire for resource benefits or initiate a suppression action).
- Management Actions (identifies management actions).
- Periodic Fire Assessment (sets assessment frequency, confirms decision to continue with WFU, identifies planning stage needs and implementation qualification levels). A Periodic Fire Assessment is completed as part of each stage on a schedule determined by managers. Completing this step in Stage I provides direction to move to Stage II, remain with Stage I, or initiate a suppression response.

The Strategic Fire Size-Up, Decision Criteria Checklist, and Periodic Fire Assessment are points in WFIP Stage I where a suppression response could be indicated (Figure 1), although the agency administrator can decide to suppress a fire at any time.

WFIP Stage II defines management actions required in response to a changing fire situation as indicated by monitoring information and the Periodic Fire Assessment completed as part of Stage I. Stage II is used to manage larger, more active fires with greater potential for geographic extent than in Stage I. Under suitable circumstances and fire situations, this stage could represent the end point in WFIP planning and be used to manage a fire through its duration.

Components of WFIP Stage II include:

- Objectives
- Fire Situation
 - Current and predicted fire behavior
 - Current and predicted weather
 - Threats
 - Safety considerations
 - Environmental concerns
 - External concerns
- Management Actions (include description of action and expected duration)
- Estimated Costs

- Periodic Fire Assessment. Completing this step in Stage II provides direction to move to Stage III, remain with Stage II, or initiate a suppression response.

WFIP Stage III defines management actions required in response to an escalating fire situation, potential long duration, and increased need for management activity, as indicated by the Periodic Fire Assessment completed as part of Stage II. It addresses management objectives and constraints in detail, describes the maximum area that the fire may be managed within (Maximum Manageable Area or MMA), identifies foreseeable threats and concerns, provides a quantitative long-term risk assessment, identifies management actions to mitigate or eliminate threats, provides cost estimates, and documents a periodic assessment of the situation. This stage constitutes a substantial planning effort but some of the information used in this stage can be preplanned or completed prior to fire ignition if the administrative unit desires to do so. Such preplanning is strongly encouraged. Additional information on preplanning is provided in Appendix B.

Components of WFIP Stage III include:

- Objectives and Risk Assessment Considerations
 - Natural and Cultural Resource Objectives
 - Management Constraints
- Maximum Manageable Area (MMA) Definition and Maps
- Weather Conditions and Drought Prognosis
- Long-term Risk Assessment (describe techniques and outputs, include maps as appropriate)
- Threats
 - MMA
 - Public Use and Firefighter Safety
 - Smoke Dispersion and Effects
 - Other
- Monitoring Actions (actions, frequency, and duration)
- Mitigation Actions (describe management actions, management action points that initiate these actions, and key to map if necessary)
- Resources Needed to Manage the Fire
- Contingency Actions (describe actions necessary when mitigation actions are unsuccessful)
- Information Plan
- Estimated Costs
- Post-burn Evaluation

- Signatures and Date
- Periodic Fire Assessment

Wildland Fire Implementation Plan Completion Timeframes

Specific completion timeframes have been established for each stage of the WFIP. Table 1 shows maximum completion timeframes for WFU planning tasks. Units may accelerate planning timeframes to facilitate implementation of management actions.

Table 1. WFIP completion timeframes

WFIP Stage	Maximum Completion Timeframe
WFIP Stage I	8 hours after confirmed fire detection and Strategic Fire Size-Up
WFIP Stage II	48 hours after need indicated by Planning Needs Assessment
WFIP Stage III	7 days after need indicated by Planning Needs Assessment
Periodic Fire Assessment	As part of all stages and on assigned frequency thereafter

CHAPTER 3: Wildland Fire Implementation Plan - Stage I

WFIP Stage I establishes the information base for managing the fire. It documents the current and predicted situation, all appropriate administrative information, and aids managers by providing them with information to make an initial decision to continue management of the fire for resource benefits or to take suppression action. It also allows the manager to select and document a recommended response action. Stage I consists of four specific components: Strategic Fire Size-Up, Decision Criteria Checklist, Management Actions, and Periodic Fire Assessment (an element of all stages). The information shown in the box below illustrates all WFIP Stage I elements. The four Stage I components are described in detail in the following sections. Advancement in the planning process above Stage I is determined by the Periodic Fire Assessment indicating a higher stage is needed or the agency administrator directing a higher stage be initiated.

Strategic Fire Size-Up

All reported wildland fires receive a size-up. The Strategic Fire Size-Up consists of a standard information set (refer to Incident Response Pocket Guide or Interagency Standards for Fire and Fire Aviation Operations or locally developed operating guidelines and forms) needed for the duty officer to determine if the fire meets the requirements for WFU management. The duty officer is responsible within his/her delegated authority for determining if the fire meets minimum WFU requirements and keeping the agency administrator informed of

WFIP Stage I Content	
<input type="checkbox"/> Strategic Fire Size-Up	<input type="checkbox"/> Decision Criteria Checklist
<ul style="list-style-type: none">• Fire name• Fire number• Administrative unit(s)• Start date/time• Discovery date/time• Current size• Fuel model(s)• Current weather• Observed fire behavior• Location• Fire management unit• Cause	<input type="checkbox"/> Management Actions <ul style="list-style-type: none">• Forecasted weather• Forecasted fire behavior• Hazards and safety concerns• Management actions• Availability of resources <input type="checkbox"/> Periodic Fire Assessment

the situation. Two key pieces of information collected for the Strategic Fire Size-Up will help the duty officer make this determination. These are fire location in regard to the fire management plans fire management unit (FMU) and the cause of the fire. Location of the fire in an FMU not approved for wildland fire use or being human-caused is reason to initiate a suppression response. If the fire is located in an FMU approved for wildland fire use and naturally ignited, it becomes a WFU candidate and the planning process continues into the Decision Criteria Checklist. This determination is noted at the bottom of the Strategic Fire Size-Up form (Figure 2 shows that portion of the Strategic Fire Size-Up). The entire form is available in Appendix A. The appropriate information is circled and the person preparing this form initials and dates after completion.

FMU (circle appropriate FMU situation)	WFU Approved	WFU Not Approved		
	Natural Ignition	Human-caused Ignition		
Cause (circle fire cause)				
Suitability for Wildland Fire Use (circle situation, initials of person preparing, date/time)	Wildland Fire Use Candidate – Continue with Decision Criteria Checklist	Suppression	Initials	Date/Time

Figure 2. Location, cause, and WFU suitability portions of Strategic Fire Size-Up.

Decision Criteria Checklist

The Decision Criteria Checklist consists of three sections: decision elements, approved response

Decision Criteria Checklist

Decision Element

	Yes	No
Is there a threat to life, property, or public and firefighter safety that cannot be mitigated?		
Are potential effects on cultural and natural resources outside the range of acceptable effects?		
Are relative risk indicators and/or risk assessment results unacceptable to the appropriate agency administrator?		
Is there other proximate fire activity that limits or precludes successful management of this fire?		
Are there other agency administrator issues that preclude wildland fire use?		

The Decision Criteria Checklist is a process to assess whether or not the situation warrants continued wildland fire use implementation. A "Yes" response to any element on the checklist indicates that the appropriate management response should be suppression-oriented.

Approved Response Action (check one)	Signature/Position	Date
Suppression Response		
Wildland Fire Use Response		

Justification for Suppression Response:

action, and justification for suppression response (Figure 3). The decision elements are five questions the agency administrator must answer. This process allows the agency administrator to gain better situational awareness and helps evaluate if the current wildland fire should be managed under a WFU response. These questions assess threats from the fire, potential effects of the fire, risk from the fire, effects of other fire activity on management capability, and allows the agency administrator to consider external or other unanticipated issues.

Figure 3. Decision Criteria Checklist (a standard size reproducible copy of the checklist is included in Appendix A).

To complete the checklist, the agency administrator answers the decision elements, based on input from his/her staff, and determines if the fire should receive a WFU management response or a suppression response. **A “Yes” response to any of the five elements indicates that management should take a suppression response. All “No” answers to the decision elements indicate that the fire is a viable candidate to be managed as a WFU.**

Detailed Explanations of Decision Elements

The first decision element involves the relative threats to life and property. If known threats cannot be adequately mitigated (i.e., “yes” answer), managing the fire as a WFU has potential concerns due to fire location, serious threats to firefighter and public safety, and potentially significant consequences.

The second decision element involves objectives and resource conditions for wildland fire management as stated in the FMP. Potential outcomes and desired effects are closely correlated with burning conditions and fire behavior. Objectives and constraints include air quality and effects on natural and cultural resources, as applicable. References for objectives and constraints include the unit FMP, unit land management plan, and agency administrator input.

The third decision element involves a relative assessment of the risk for the fire. Since the decision to suppress or manage the fire is time constrained (8-hour decision space), it may not be possible to complete a long-term risk assessment. In lieu of the quantitative long-term risk assessment, a qualitative assessment process has been developed to provide the agency administrator with a quick but comprehensive assessment of the relative risk of the fire. Input information for this decision element is acquired by completing the Wildland Fire Relative Risk Assessment (Figure 4). This assessment must be completed to support the Decision Criteria Checklist in Stage I, and is reevaluated during each Periodic Fire Assessment. Neither a high nor low relative risk rating necessarily predisposes a “yes” or “no” answer on the Decision Criteria Checklist. The agency administrator must still decide what level of risk is acceptable. A description of the Wildland Fire Relative Risk Assessment is provided in the following section (Wildland Fire Relative Risk Assessment).

The fourth decision element pertains to other local and regional fire activity, commitments of unit and cooperator resources, specific unit FMP limitations on fire numbers, and availability to fill special skill positions from local resources for this fire. If current fire activity precludes the ability to manage the fire with adequate resources and skill mixes, then the response to this element will be “Yes” and a suppression response is indicated.

The final decision element allows agency administrator discretion in the event there are other issues which were unknown to the fire staff and must be considered as part of the decision to manage the fire for resource benefits. Agency administrators will document other issues that precluded management of the fire for resource benefits.

Once the Decision Criteria Checklist is complete, the agency administrator decides whether to initiate actions to manage the fire as a WFU or manage it under a suppression response. At the bottom of the Decision Criteria Checklist is a check box for the approved response action followed by the agency administrators (or other delegated individuals) signature and date. If a suppression response is selected, the agency administrator must include a justification for this selection at the bottom of the page.

Wildland Fire Relative Risk Assessment

The Federal Fire Policy requires that sound risk management be a foundation for all fire management activities. Recent reviews and audits have also stressed the need for risk management. In fact, risk management is rapidly becoming a cornerstone phrase associated with fire management. A report by the National Academy of Public Administration (NAPA) (2001), “stresses the role of risk reduction in wildlands as a critical mitigation approach to improve community protection.” The Government Accountability Office (USGAO 2004) completed a report on risk assessment associated with the fuels treatment program. This report also stresses the importance of risk assessment in fire and fuels management.

Using fire to meet resource objectives contains an inherent level of risk given that we are dealing with a number of unknowns and uncertainty in what the future will bring. The relative risk rating is intended to characterize the general magnitude of risks associated with implementing a wildland fire use incident as a snapshot in time. It is an attempt to qualify the level of uncertainty regarding the eventual outcomes of the fire in relation to management objectives and other mandates. The relative risk rating is a direct input into the Decision Criteria Checklist, Wildland Fire Use Management Assessment, and Periodic Fire Assessment.

The Wildland Fire Relative Risk Assessment provides the agency administrator with a quick but comprehensive assessment of the relative risk of the fire. This is a qualitative process that can be completed in less time than a quantitative, long-term risk assessment. The relative risk rating produced from this assessment is a decision support aid for the agency administrator in answering Decision Criteria Checklist elements and during the Periodic Fire Assessment.

The relative risk assessment chart uses three risk components: values, hazard, and probability. Each of these components is assessed in an independent step. Then, the three outputs are evaluated in a final step that provides the relative risk for the fire. Each risk component is defined by three variables. One variable is located on the right and one on the left side of the box and the third variable is defined by three interior lines extending from top to bottom (Figure 4).

Values: Values are those ecologic, social, and economic resources that could be lost or damaged because of a fire. Ecologic values consist of vegetation, wildlife species and their habitat, air and water quality, soil productivity, and other ecologic functions. Social effects can include life, cultural and historical resources, natural resources, artifacts, and sacred sites. Economic values make up things like property and infrastructure, economically valuable natural and cultural resources, recreation, and tourism opportunities.

Hazard: The hazard in wildland fire is made up of the conditions under which it occurs and exists, its ability to spread and circulate, the intensity and severity it may present, and its spatial extent.

Probability: Probability refers to the likelihood of a fire becoming an active event with potential to adversely affect values.

The Wildland Fire Relative Risk Assessment Chart is shown in Figure 4. Four steps are

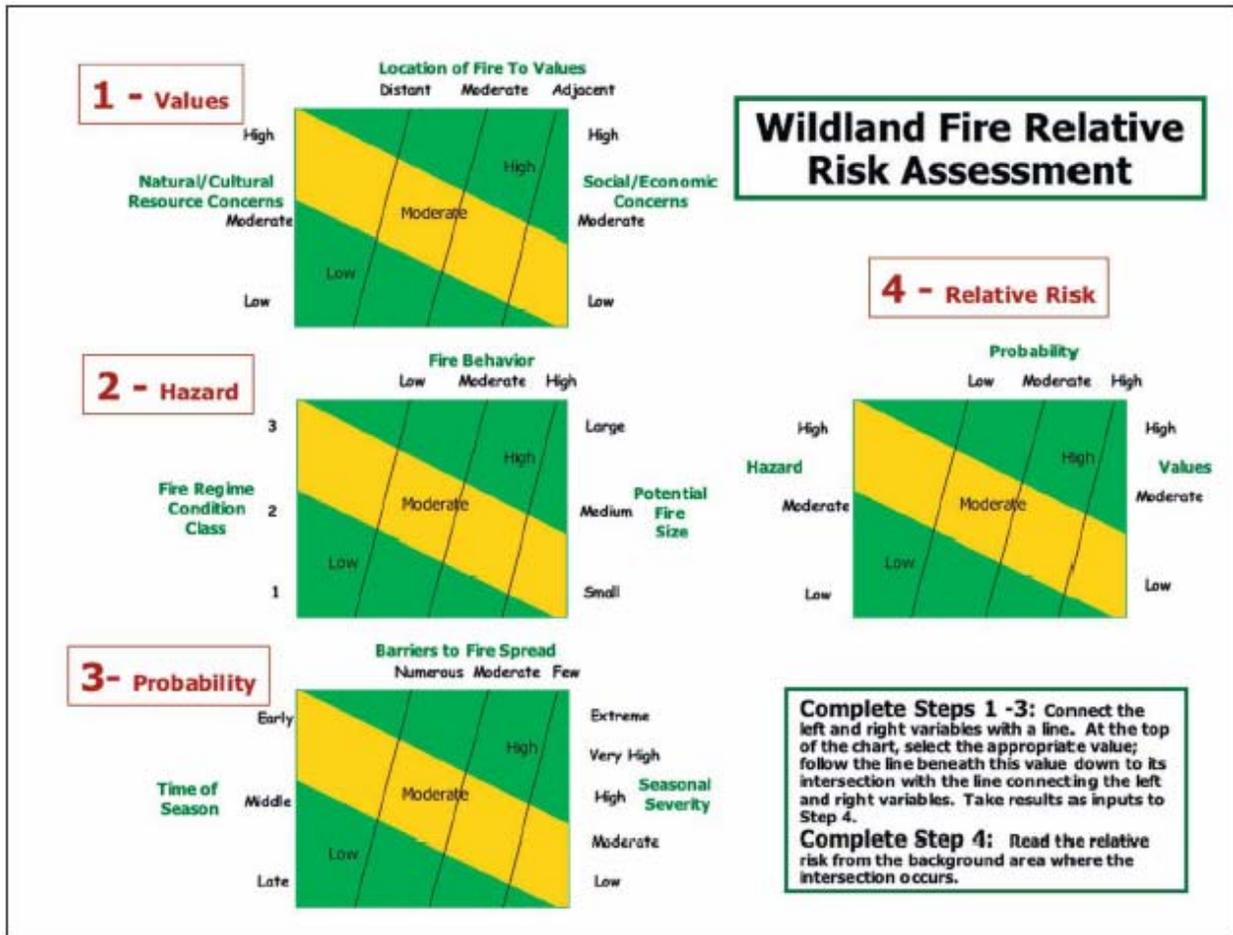


Figure 4. Wildland Fire Relative Risk Assessment.

necessary to complete the risk assessment. Step-by-step instructions for completing the Wildland Fire Relative Risk Assessment are included in Appendix A. Each step is available individually in a larger format figure in Appendix A.

Initial information to consider in developing the rating for the individual element is provided after each individual chart in Appendix A. This descriptive list is not all inclusive and items on the list can vary by place and time. Users are expected to exercise their judgment in determining the ratings; information is intended to provide both guidance in completion and flexibility in determining exactly what the descriptions mean. Local information can and should be amended to the lists to better reflect site-specific situations. Local, site-specific information concerning air quality and smoke management must be amended into the Wildland Fire Relative Risk Assessment at the local level to reflect variances in situations and local values and regulatory concerns. Air quality criteria should be reflected in the values assessment portion, smoke production can be incorporated into the hazard descriptive list, and descriptive information related to the probability of adverse smoke events, if available, can be addressed as part of the probability assessment.

Alternative Risk Assessment Methods

If preplanning or ongoing planning efforts lead to the development of additional mechanisms for assessing risk, these outputs can be utilized during the relative risk assessment process. Some planning analyses provide indications of values, hazards, and probability that may be used in lieu

of completing Steps 1, 2, and 3 of the Relative Risk Assessment. Step 4, determination of the risk, must be completed, regardless of how the values, hazard, and probability are determined.

Mapping products may provide locations of communities, wildland-urban interface, infrastructure, natural resource concerns, etc. These maps can be used in conjunction with fire management units to assess risk from fire to these values and can be directly used in the relative risk chart as levels of values for Step 1 or Step 4.

Fire hazard can be used to evaluate the hazard portion of the relative risk, and fire risk could be an indicator of probability. These data can be mapped and used in conjunction with fire management unit information to assess the hazard and probability and can be directly used in the relative risk chart as levels of hazard and probability in Steps 2, 3, and/or 4. There are numerous other methods that can be used to help evaluate the relative risk. If an alternative method is used to derive the value, hazard, and probability, that method must be documented on the relative risk rating charts.

Management Actions

Management actions describe activities necessary to manage the fire until the Periodic Fire Assessment indicates a change in WFIP planning stage and activity is required or until objectives are achieved. Management actions will include monitoring and other actions as appropriate. Monitoring actions are important components of Stage I management actions. Monitoring actions are necessary to track fire movement, fire activity, fire effects, and to provide information vital to completing the Wildland Fire Use Management Assessment (see Periodic Fire Assessment section). Management actions should be designed to safely achieve the wildland fire use objectives as detailed in the fire management plan, and be based upon the fire situation and forecasted weather and fire behavior. Within the forecasted weather section, include an initial discussion of assessment of air quality forecasts/allowable burn days, as applicable for the local area.

Periodic Fire Assessment

For each wildland fire use action, the agency administrator (or delegated individual) is required to initially affirm and periodically reaffirm the capability to manage the fire as a WFU event. This process is intended to document and ensure management accountability throughout the duration of the wildland fire use. The Periodic Fire Assessment process:

- affirms continued management of the fire to meet resource objectives or provides rationale for conversion to a suppression response.
- confirms and documents the decision to establish, remain at, or move up to the next stage of planning.
- validates the minimum planning and implementation qualifications.

The Periodic Fire Assessment accomplishes the above-stated purposes by:

- completing a Decision Criteria Checklist (either by reaffirming the Decision Criteria Checklist completed in the previous stage or through completion of a new one),
- assessing the level of risk the fire presents using the Wildland Fire Relative Risk Assessment process
- (either by reaffirming the Wildland Fire Risk Assessment completed in the previous stage

- or through completion of a new one),
- assessing the planning needs of the unit,
- assessing the minimum planning and implementation qualifications for each stage of the WFIP, and
- completing a signature table that affirms the agency administrators concurrence to manage the fire for resource benefits at a particular stage.

The initial Periodic Fire Assessment is completed as part of WFIP Stage I. It is then redone on the recurring timeframe set by the assessment frequency.

Decision Criteria Checklist

The Decision Criteria Checklist completed in Stage I or during the most recent Periodic Fire Assessment is reviewed for continued validity. The validity of the checklist is noted on the Periodic Fire Assessment signature page. If the Decision Criteria Checklist is no longer valid, management of the fire for resource benefits can no longer continue. See WFIP Stage I Decision Criteria Checklist procedures for a description of the Decision Criteria Checklist and an example form.

Wildland Fire Relative Risk Assessment

The Wildland Fire Relative Risk Assessment, completed during Stage I or during the most recent Periodic Fire Assessment, is reviewed and updated to remain current and ensure validity. **It is important that this assessment be reviewed and updated as conditions change over time (this review and update is required in the Periodic Fire Assessment).** See WFIP Stage I Wildland Fire Relative Risk Assessment procedures for a description of the Wildland Fire Relative Risk Assessment and example forms.

Wildland Fire Use Management Assessment

The Wildland Fire Use Management Assessment consists of two parts:

- Part 1: Planning Needs Assessment Chart
- Part 2: Fire Use Manager Decision Chart

This section is completed to determine the level of planning and management capability and qualifications commensurate with the fire activity and management capability.

Part 1: Planning Needs Assessment Chart

The Planning Needs Assessment Chart is used as part of the Periodic Fire Assessment to determine or affirm the level of planning commensurate with the relative risk, potential fire duration, and fire activity. The Planning Needs Assessment Chart indicates the need to establish, remain at, or to move up to the next stage of planning and is the principle guide for transition throughout the WFIP process. This chart aids managers in assessing the need to complete detailed, long-term assessment and implementation plans for a particular fire. The chart also guides agency administrators in setting priorities for planning needs for multiple fires and ensuring that those fires having the greatest need have the necessary planning done within the framework of management capabilities and time constraints. It must be noted that agency administrators and staff have the prerogative to move up and complete the next or all WFIP Stage(s) for any or all wildland fires at any time. **When the Planning Needs Assessment Chart**

indicates progression to a higher level and that stage of the WFIP is completed, the fire will be managed under that WFIP stage either for its duration or until the chart indicates a need to progress to the next higher level. This chart does not provide guidance to move down or backward through planning stages. Once WFIP Stage III is indicated and completed, the fire will not return to management under Stage I. The Planning Needs Assessment Chart is shown in Figure 5.

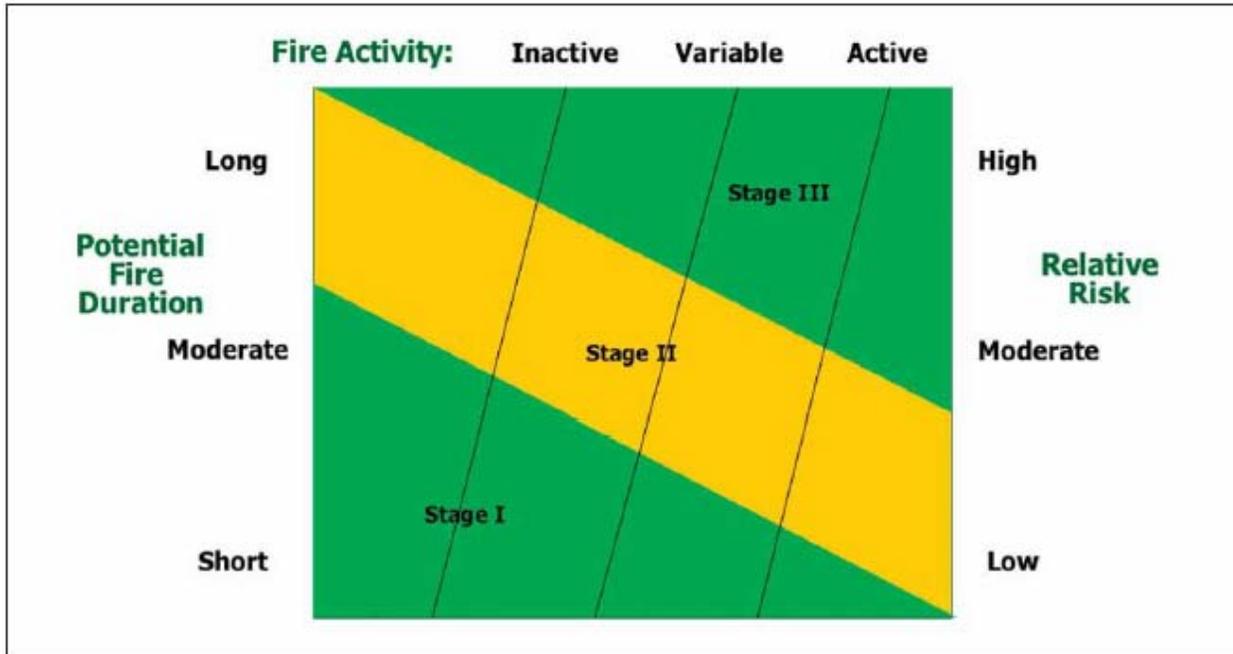


Figure 5. Planning Needs Assessment Chart.

To complete the chart in Figure 5, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the planning need from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process described above.

Table 2 shows the minimum interagency qualification requirements for wildland fire use planning at each stage of the WFIP process. This information should be used with the Planning Needs Assessment Chart to determine appropriate levels of planning qualifications. Higher qualified personnel can always be used to complete the various planning levels if desired. Duty officer qualifications are defined in local unit fire management plans.

Table 2. WFIP planning minimum qualifications

WFIP Stage	Minimum Planning Qualifications
WFIP Stage I	Unit Duty Officer
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

Part 2: Fire Use Manager Decision Chart

The Fire Use Manager Decision Chart is used during each stage as part of the Periodic Fire Assessment. This chart guides the agency administrator in determining the appropriate qualification levels for implementation of management actions. The Fire Use Manager Decision Chart indicates the need to establish, remain at, move up, or move down to a specific level of implementation qualifications and is the principle guide for transition of implementation qualifications throughout the WFIP process (the key difference between this chart and the Planning Needs Assessment Chart is that this chart is used throughout the duration of the fire and provides an indication of remaining at a level, moving up, or moving down in implementation qualification requirements). The Fire Use Manager Decision Chart is shown in Figure 6.

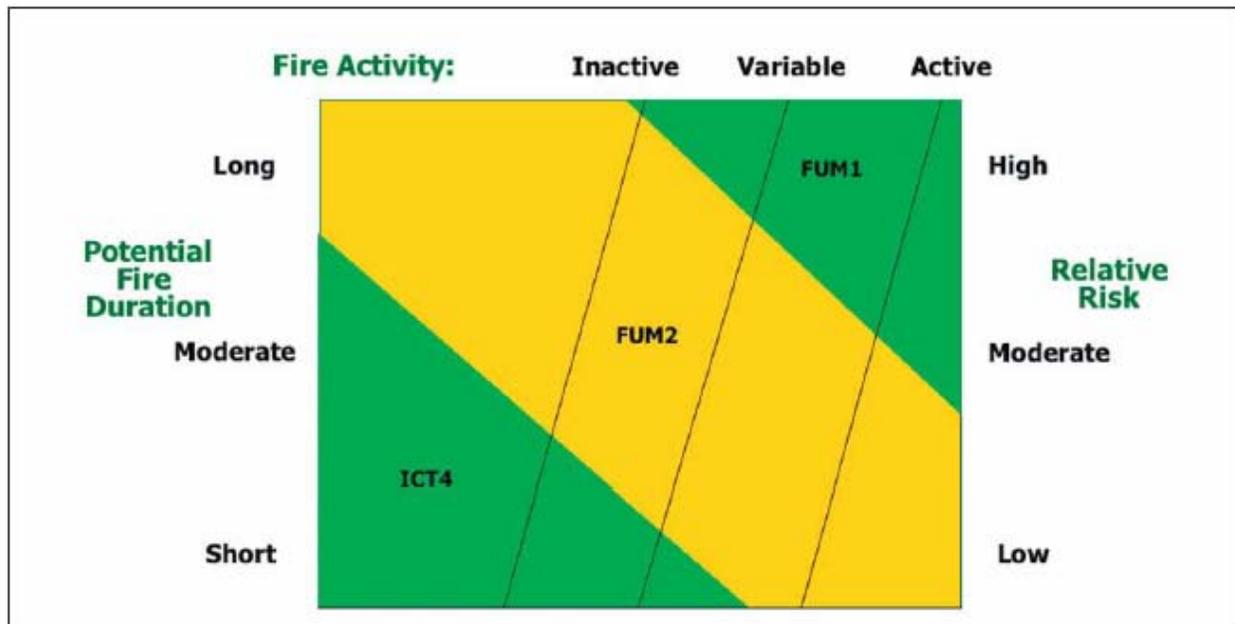


Figure 6. Fire Use Manager Decision Chart.

To complete the chart in Figure 6, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the level of fire use manager needed directly from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process.

Table 3 shows the **minimum** level of implementation qualifications. During implementation, as fire activity and management needs escalate, implementation qualification needs ascend to a higher level. But as conditions moderate and management needs drop, implementation qualifications can descend to lower levels. Table 3 and Figure 6 are used jointly as fire situations and conditions escalate. When conditions are moderating or lessening, Table 3 and Figure 6 provide the necessary qualification levels for implementation, regardless of what level of the WFIP has been completed (i.e. Stage I, II, or III). Qualifications can descend back to an ICT4 after either Stage II or Stage III has been completed, but must be guided by Figure 6.

Initial information to consider in selecting the value for each variable in Figures 5 and 6 is provided after each individual chart in Appendix A. This list is not all inclusive and items on the

list can be expected to vary by place and time. Users are expected to exercise their judgment in selecting the values; information is intended to provide both guidance in completion and flexibility in determining exactly what the descriptions mean. Local information can and should be amended to the lists to better reflect site-specific situations.

Table 3. WFIP implementation minimum qualifications

WFIP Stage	Minimum Implementation Qualifications (Use Fire Use Manager Decision Chart to determine recommended position)
WFIP Stage I	Incident Commander Type 4 (ICT4) (Must have local knowledge or prior experience in implementing WFIP's and managing wildland fire use events)
WFIP Stage II	Incident Commander Type 4 (ICT4) (Must have local knowledge or prior experience in implementing WFIP's and managing wildland fire use events)
WFIP Stage III	Incident Commander Type 4 (ICT4) (Must have local knowledge or prior experience in implementing WFIP's and managing wildland fire use events)

Signature Table

Local fire staff review and complete the assessments and checklist. Once these forms are completed they are taken to the agency administrator (or his/her designee) and **must be reviewed and confirmed on the specified assessment frequency.**

On the Signature Table, the following must be completed:

- Assessment Frequency,
- Valid Date(s),
- Signatures,
- Date,
- Confirmation of Decision Criteria Checklist,
- Validation of WFIP Planning Stage, and
- Confirmation of Fire Use Manager level.

Assessment Frequency and Valid Dates

The assessment frequency is how often the assessment will be reviewed. This frequency can be daily, but each unit can determine the appropriate assessment frequency. It can be less frequent than a daily requirement. The frequency for completing the Periodic Fire Assessment is established based on the current and expected fire and weather situation. When units set a monitoring and assessment frequency, they should consider developing a “step-up” frequency based on levels of fire activity, external attention and influences, or other critical concerns. Then, as situational concerns escalate, the monitoring and assessment frequency can correspondingly increase. Conversely, as situational demands lessen, monitoring and assessment can “step down” and become less frequent. **Units must identify standards and rationale for establishing assessment frequency, especially “step-up” and “step-down” actions.**

The valid dates reflect the length of time that the identified assessment frequency will be used. If the assessment frequency is changed, the valid dates must be changed accordingly.

Signatures/Delegation

The agency administrator or designated individual must sign the Periodic Fire Assessment Signature Page in conformance with the specified assessment frequency. The Periodic Fire Assessment signature authority can be redelegated to specific positions as allowed by agency policy.

When redelegation occurs, agency administrators must document, in writing, the revalidation authority to the designated individuals. This permits the delegated individual to validate that management capability is adequate to continue management of the fire for resource benefits. If or when fire conditions or complexity levels escalate, Periodic Fire Assessment signature authority will automatically and immediately revert to the agency administrator who made the initial delegation of authority.

CHAPTER 4: Wildland Fire Implementation Plan - Stage II

WFIP Stage II represents the continuation of management for resource benefits. During this stage, objectives are clearly defined, the fire situation is described, management actions commensurate with the fire situation are established, cost estimates are prepared, and the Periodic Fire Assessment is continued to evaluate the need to remain at Stage II or move to WFIP Stage III. Components of WFIP Stage II and output products are shown in the box below. Advancement in the planning process above Stage II is determined by the Periodic Fire assessment indicating Stage III is needed or the agency administrator directing Stage III to be completed.

WFIP Stage II
<input type="checkbox"/> Objectives
<input type="checkbox"/> Fire Situation <ul style="list-style-type: none">– Current and predicted weather– Current and predicted fire behavior– Threats– Safety considerations– Environmental concerns– External concerns
<input type="checkbox"/> Management Actions (include description of action and expected duration)
<input type="checkbox"/> Estimated Costs
<input type="checkbox"/> Periodic Fire Assessment

Objectives

Land management is the process of making land use decisions for the future, setting objectives, implementing actions to accomplish the objectives, achieving outputs, and performing evaluations which compare results to objectives. In land management programs, objectives are used to establish desired outcomes for management actions. Objectives represent the single most influential factor in land management program implementation. They are fundamental to successful management to achieve desired land use decision conditions.

In wildland fire use, goals and objectives are important. Goals are primary basic products of the long-range management plans commonly referred to as land use decisions.

They deal with large areas and long time periods. Land use decisions establish resource condition objectives; allowable, limited, or excluded uses for an area and the term and conditions for such use; and recommend management actions to achieve desired conditions. Objectives, a necessary component of the planning process, provide a bridge between goals and implementation actions. They identify changes resulting from management actions that move from the current situation to a desired situation. Site-specific treatment objectives must be developed to guide project-level operations in wildland fire use. These are very well-defined statements that describe what one or more wildland fires must accomplish to meet resource management objectives, as stated in land and resource management plans.

Objectives defined in WFIP Stage II represent specific statements of accomplishments for wildland fire use and provide a link back to fire management plans and land and resource management plans. These objectives must be specific, measurable, achievable, relevant, and trackable. At the Stage II planning level, more detailed tactical implementation of strategic objectives for wildland fire use activities takes place. At this level, the WFIP Stage II is a site-specific plan to guide implementation of fire management activities on the ground. Objectives are formulated from local unit input, agency administrator direction, fire management plans, and

land and resource management plans.

Fire Situation

The fire situation section describes current conditions surrounding the fire and includes the following:

- Current and predicted weather
- Current and predicted fire behavior (predictions are vital to initial implementation actions because they provide):
 - Estimates of fire size and shape at a given time,
 - Models of management alternatives,
 - Determinations of resource needs, production rates, and requirements,
 - Placement of resources,
 - Estimates of behavior under different weather patterns,
 - Estimates of ignition patterns, including spotting,
 - Modeling for contingency action planning,
 - Developing prescriptions through historical weather records,
 - Verifying prediction outputs.
- Threats
- Safety considerations
- Environmental concerns
- External concerns

The sum total of these efforts will be information on those factors affecting the fire and how it will burn and what it may affect. This information will support decisions on management actions, resource needs, and overall strategy and tactics concerning the appropriate management response.

Risk assessment during this stage can be quickly assessed through the Wildland Fire Relative Risk Assessment Chart during the Periodic Fire Assessment. However, if the unit has the capability to complete full long-term risk assessments through the use of the Rare Event Risk Assessment Process (RERAP), Fire Area Simulator (FARSITE), or other quantitative methods, they are encouraged to do so. This will provide the best information available. In the event such quantitative methods cannot be completed in a timely manner, the Wildland Fire Relative Risk Assessment can be used to obtain a subjective assessment of the risk. The Stage II fire situation can be updated as current and forecasted weather and other situational factors change.

Management Actions

The Stage II planning level represents an escalation of both planning and operational actions over those needed for WFIP Stage I implementation. Management actions in this stage can vary significantly, depending upon specific circumstances of the particular fire. In cases where the fire may be fuel limited—surrounded by sparse fuels or natural barriers with limited spread potential in relation to values at risk—monitoring may be specified as the predominant implementation action. Monitoring is necessary to track fire movement, fire activity, fire effects, and to provide information vital to completing the Wildland Fire Use Management Assessment. In other cases, monitoring plus some form of mitigation actions may be necessary. In still other cases, fuel types in which the fire is burning may require immediate actions to delay, direct, or check the spread of

fire on one or more flanks. WFIP Stage II management actions should be designed to safely achieve the wildland fire use objectives as detailed in the fire management plan and be based upon the fire situation and forecasted weather and fire behavior. These actions represent operational activities and resources needed to accomplish those activities until monitoring information or the Periodic Fire Assessment indicates a change in management planning and actions is required.

Estimated Costs

Cost estimates developed in this stage represent projections of expenditures using the resources identified to accomplish the management actions and assume no escalation to Stage III. If the

WFIP Stage III

- Objectives and Risk Assessment
Considerations
 - Natural and cultural resource objectives
 - Constraints
- Maximum Manageable Area Definition and Maps
- Weather Conditions and Drought Prognosis
- Long-term Risk Assessment (describe techniques and outputs, include maps as appropriate)
- Threats
 - MMA
 - Public Use and Firefighter Safety
 - Smoke Dispersion and Effects
 - Other Resources
- Monitoring Actions (actions, frequency, and duration)
- Mitigation Actions (describe all management actions, management action points that initiate these actions, and key to map if necessary)
- Resources Needed to Manage the Fire
- Contingency Actions (describe actions necessary when mitigation actions are unsuccessful)
- Information Plan
- Estimated Costs of Long-term Implementation Actions
- Post-burn Evaluation
- Signatures and Date
- Periodic Fire Assessment

planning needs transition to Stage III, new cost estimates that reflect a new set of management actions and a fire fighting resource mix will be prepared.

Periodic Fire Assessment

Once Stage II is completed, the Periodic Fire Assessment must be completed. The process can be continued from Stage I but the signature page must clearly reflect the change in “WFIP Planning Stage Required” from Stage I to Stage II. The agency administrator (or delegated individual) is required to periodically verify the capability to continue management of the fire as a WFU event. This process documents and ensures management accountability throughout the duration of the wildland fire use event.

The Periodic Fire Assessment consists of the same elements as described for WFIP Stage I (See WFIP Stage I Periodic Fire Assessment description for more information). These include:

- Decision Criteria Checklist
- Wildland Fire Relative Risk Assessment
- Wildland Fire Use Management Assessment
 - Part 1: Planning Needs Assessment
 - Part 2: Fire Use Manager Decision Chart
- Signature Page

CHAPTER 5: Wildland Fire Implementation Plan - Stage III

This stage represents completion of planning necessary to direct long-term implementation and successfully accomplish the desired objectives. The WFIP has been progressively developed throughout all stages; this represents the final stage. It presents detailed strategic and tactical implementation information and will be attached to information developed in previous stages.

This stage details operational activities and documents the planning completed to ensure adequate mitigation action have been developed to reduce or eliminate threats to values. These actions should reduce the probability that fire behavior or fire effects will exceed acceptable limits.

Objectives

Objectives defined in WFIP Stage III represent site-specific statements of accomplishments for wildland fire use and provide a link back to fire management plans and land use plans. These are very well-defined statements that describe what one or more wildland fires must accomplish to meet resource management objectives. They should be specific, measurable, achievable, related/relevant, and trackable. At the Stage III level, the most detailed tactical implementation of strategic objectives for wildland fire use activities takes place. At this level, WFIP Stage III is a very detailed operational plan to guide implementation of fire management activities on the ground over potentially longer durations than in Stage I or II. Objectives will be formulated from local unit input, agency administrator direction, fire management plans, and land and resource management plans.

Maximum Manageable Area (MMA) Determination

All wildland fires being managed under appropriate management response strategies identified in a WFIP Stage III will have a defined MMA. The MMA delineates the geographic limits of the fire area as defined by the capability of management actions to meet resource objectives and mitigate risk for a given wildland fire managed for resource benefits. It represents an important tool in the planning process and serves as a planning reference and not as a rigid prescription element. It is based primarily on natural defensibility and facilitates identification of threats to a management boundary and threats to values within and adjacent to that boundary. It provides a planning basis for risk assessment analyses. It provides for closely directed fire management application in a specific area defined by resource objectives, fire and weather prescription elements, social concerns, political considerations, and management capability.

Maximum manageable areas have the following attributes:

- MMAs are developed from either predetermined areas identified in the fire management plan or during preparation of Stage III of the Wildland Fire Implementation Plan.
- MMAs define the geographic limits of management capability to meet resource objectives and accommodate the social, political, and resource impacts for all wildland fires managed to meet resource objectives.
- MMAs serve as planning references for developing risk assessment and risk management information and not as a rigid prescription element.
- A fire exceeding the MMA does not require an automatic change to a different strategy. There will be cases where a change in strategy from wildland fire use to wildfire suppression and the formal implementation of the Wildland Fire Situation Analysis

(WFSA) process because a wildland fire use event exceeded an established MMA is not prudent or logical. In these situations, experience may indicate that the MMA will be exceeded by the specific wildland fire use on a very small or non-threatening scale. Management options in this situation include:

- Constraining the fire spread to the small or non-threatening overrun of the original acceptable area using whatever resources are available to deal with the situation. Containment must be accomplished within 48 hours from the end of that burning period, or the fire must be converted to a wildfire accompanied by a WFSA. If containment is successful, management as a WFU fire may continue. If the fire is converted to a wildfire, no further acreage gain may be attributed to wildland fire use.
- In some situations, there may be reasonable justification to change MMA locations. Any proposed change to the MMA must be thoroughly documented and justified by the unit managing the fire. Approval to change the MMA will be provided by the next higher level in the organization. Changes in the MMA are not warranted simply due to the spread of the fire near the boundary. The approving level will review the initial MMA establishment criteria, changes to the situation affecting the need to change the boundary, and local and regional situations before determining if the proposed change is warranted.
- Where adjacent units/agencies have established adjacent MMAs for separate fires, it will be acceptable, given the units /agencies agreement, to manage fire spread from one MMA into another without formal change of either MMA boundary.

Weather Conditions and Drought Prognosis

A discussion of current weather conditions and trends in comparison to historical records provides insight into the relative severity of the current situation, reinforces fire danger indicators, and supports decision making. A review of the drought situation provides additional support to fire danger indicators and supports current and future decisions. This information is available from historical weather records, climatological reviews, research information, wildland fire assessment tools, and National Weather Service archives. Information presented here is valuable in further defining the hazard posed by the specific fire(s) being managed. Kinds of information useful for this discussion include, but are not limited to:

- Historical weather trends and patterns,
- General wind patterns,
- Historical wind direction analyses,
- Climatological probabilities,
- Historical length of fire season,
- Severity of the current season and comparison with other significant fire years,
- Seasonal drought outlook, and/or
- Precipitation probability over defined time periods.

Long-term Risk Assessment

Decision making associated with managing wildland fire for resource benefits can have critical impacts. Risks and uncertainties relating to wildland fire use must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. It is important to make high quality and informed decisions. Decision making is facilitated by factual information and prediction of outcomes or consequences of the decision. Of particular

importance is the ability to assess the degree of risk presented by the particular wildland fire. The importance of risk assessment is reinforced through the “Guiding Principles from the Federal Fire Policy” and affirmed by the 2003 Implementation Strategy that states, “Sound risk management is a foundation for all fire management activities,” and “Fire management plans are based on the best available science.”

During the most detailed planning stage of the WFIP (Stage III), an assessment of the long-term risk that a particular fire may present is required. This is critical input information to ongoing management activities, development of mitigation strategies and actions, continuing support for decisions about the fire, and future implementation activities. Technological advances in fire behavior prediction, meteorological analysis, fire spread estimation, fire effects prediction, smoke production and dispersal, rare event assessment, and fire area simulation make it possible to obtain better information, reduce uncertainty, assess potential fire outcomes, evaluate consequences of failure, and determine probabilities of success more effectively than ever before. Using these techniques to gain the type of information necessary for consideration in decision making promotes better management choices and ultimately, more desirable outcomes. As new technology becomes operationally available for application in management situations, it will be utilized to improve operational actions to the greatest degree possible. The Long-term Risk Assessment is also based on the principles of assessing values, hazard, and probability. These three elements are not directly assessed in the risk assessment, but pervade the entire Stage III planning process. The sum total of this information is used by the agency administrator to reduce uncertainty and support management decisions and actions.

Specific assessment outputs useful in evaluating long-term risk include:

- Indications of how the fire may burn; predictions of intensity and severity.
- Fuel conditions, moisture conditions, departures from average conditions.
- Fire dynamics — indicators of potential rapid escalation in fire behavior.
- Analysis and comparison of current fire danger indicators with historical data and trends.
- Fire history reviews, records of past fires in terms of area burned and type of fires (i.e., low to moderate intensity, surface fire, stand replacement, etc.).
- Probability of the fire reaching the planning area boundary (MMA).
- Probability of a season-ending weather event.
- Probability of a fire-slowing weather event.
- Probability of a large spread weather event.
- Indications of where the fire may spread or total area that may be burned by the fire.
- How fast the fire will travel.
- How soon the fire may reach critical sites or the planning area boundary.
- Predictions of the range of potential fire effects on natural and cultural resources.
- Probability of adverse smoke events and dispersal.
- Review of past precipitation history.

An array of decision making support aids is available to support wildland fire assessments. The choice of technique will depend on the information needed and the state of knowledge regarding that subject area. Techniques may range from a subjective, descriptive comparison to a very objective in-depth analysis using sophisticated mathematical models and quantitative data as available on the local unit. The Stage III Long-term Risk Assessment provides quantitative information derived from specific analyses which utilize historic weather data, long-term

climatological data, fuel moisture data, fuel conditions, fire danger, seasonal severity, satellite imagery, and simulation modeling. Use of technological tools is appropriate when a specific method can give the decision maker information that reduces uncertainty associated with possible outcomes and facilitates the best decision possible.

No mandatory requirements exist for risk assessment. **However, in WFIP Stage III, an assessment must be completed that yields some of the information listed in the output list above.** Units are encouraged to acquire input information and data and to utilize available long-term risk assessment techniques such as the Rare Event Risk Assessment Process (RERAP), Fire Area Simulator (FARSITE), fire effects indicators such as those gained from the Fire Order Fire Effects Model (FOFEM), and smoke emissions models. Risk assessments will both utilize and affect information contained in the Weather Conditions and Drought Prognosis, Threats to the MMA, Threats to Public Use and Firefighter Safety, Threats to Smoke Dispersion and Effects sections of WFIP Stage III.

Assessment outputs will have a direct bearing on information developed and included in the Monitoring Actions, Mitigation Actions, Resources Needed to Manage the Fire, and Contingency Actions sections of WFIP Stage III. As the quality of risk assessment increases, the quality of subsequent decisions and probability of desirable outcomes will increase. Units should strive for the highest quality decisions possible.

Threats

Identification of all known and anticipated threats is critical in evaluating values, hazard, and probability for the fire(s). The nature of long-term strategic planning involves anticipating and predicting where the fire may move, what it may impact, and designing a strategy to minimize or eliminate those impacts. Threats must be defined for the MMA boundary, all sensitive natural and cultural resources inside and immediately outside that boundary, firefighters and the public, air quality, and other concerns as appropriate. Once a threat is defined in this section of Stage III, it must be linked through subsequent sections and appropriate actions (monitoring and mitigation) must be tied to that identified threat.

Monitoring Actions

A monitoring plan of action is necessary to ensure successful accomplishment of the objectives and to continually acquire information relevant to the fire situation. Monitoring is useful for documenting observed fire weather, observed fire behavior, fire movement toward management action points (MAP), fire effects, smoke dispersal and volume, and to aid in validating fire behavior and weather forecasts. Monitoring variables that are important can include, but are not limited to: smoke dispersal, live and dead fuel moistures, daily weather observations, fire perimeter and progression mapping, and observed fire behavior. Monitoring frequency will be based on fire activity and location. All monitoring information will be analyzed, applied as needed, and archived as part of the final documentation package.

Mitigation Actions

Science-based risk assessments, as discussed in the previous section, provide a solid foundation for developing a successful risk management/mitigation strategy. But, it must be clearly understood that risk assessment and risk management are not synonymous. Based on the risk assessment, decision makers decide what to do about managing the risk. Part of WFIP Stage III is a detailed plan that identifies mitigation actions, the activities for mitigating or eliminating

risk. Risk can be mitigated or eliminated in three central ways: reduce the hazard, reduce the probability of the hazardous event occurring, and reduce the value of potential losses that could occur from the risk.

In wildland fire use, the first two risk mitigation types are the most frequently utilized, identified as mitigation actions in the implementation plan, and implemented as needed. Mitigation actions are on-the-ground activities that serve to increase the defensibility of a particular point, area, or line, like a planning area boundary (to reduce the probability of the hazardous event occurring); to check, direct, or delay the spread of fire (reduce the hazard); and to minimize threats to life, property, and resources (reduce value of potential losses or impacts). Mitigation actions serve to mitigate or eliminate identified threats and may include non-fire tasks (such as closures, evacuations, management actions to reduce impacts from smoke, etc.) and specific fire applications.

Management action points are tactical decision points, either geographical points on the ground both inside and outside the MMA or specific points in time where an escalation or alteration of management actions is warranted in response to fire activity, proximity to identified threats, time of season, weather changes, or management decisions. The points are placed on maps that accompany the WFIP. They can be started in Stage II and added to in Stage III for long-range needs. These points must be tied to identified threats in the plan. Each management action point will have one or more corresponding mitigation actions described which will need implementation when the fire reaches it or after a specified time period. This documentation stays with the fire through its management and is amended periodically as new management action points and mitigation actions are developed. As management personnel change over the life of a WFU fire, this documentation provides continuity in direction needed when a fire approaches the management action point.

Resources Needed to Manage the Fire

Based on monitoring and mitigation actions, the information plan, and management oversight and qualifications needed to accomplish the objectives, resources needed to implement the plan and accomplish the objectives must be identified in this section. Resources identified here include those needed for the projected duration of operations as described in Stage III.

Contingency Actions

Contingency actions are actions necessary when mitigation actions are unsuccessful (impacts to values could occur). They are identified for implementation to control the spread of fire into unwanted areas or to prevent it from adversely impacting a sensitive value (reduce hazard and/or probability). For example, if the fire crosses the MMA at any point along the perimeter and mitigation was unsuccessful, onsite firefighting resources will be utilized to achieve control. If control cannot be accomplished, the fire will be converted to a wildfire. All fires that are converted to wildfires will have a Wildland Fire Situation Analysis (WFSA) prepared to select the proper strategic alternative and identify necessary resources. Contingency actions may also include preplanned coordinated actions with air regulatory agencies in the event that forecast or smoke management plans are not accurate.

Information Plan

Among agency staff, cooperators, and affected publics, fire use objectives, risks, and tradeoffs are not always well understood or well accepted. Communication and education of all agency

personnel involved with the planning and implementation of wildland fire use is crucial to successful program implementation. An understanding of the guiding principles and objectives by the public and media is essential for full social and political acceptance and endorsement of this program. As a result, it is becoming increasingly important to establish and maintain an aggressive and efficient communication and education effort for wildland fire use programs and for each wildland fire that is managed. In addition, wildland fire use operational actions are often viewed negatively.

This element of WFIP Stage III provides documentation of the role of information during the wildland fire use event, the messages to be communicated, and operational procedures and processes to ensure that the information reaches all applicable audiences and supports local unit needs.

Estimated Costs

Cost estimates developed in this stage are projections of expenditures expected to be incurred during implementation over the predicted duration of the fire. These estimates will include both costs expended to date and projections from the signed date into the future.

Post-burn Evaluation

Post-burn evaluations will be conducted as dictated by agency policy to evaluate the degree of accomplishment of stated objectives and desired fire effects. Secondly, an evaluation of the total operation is vital to improvement of programmatic efficiency. Specific areas that may be evaluated include, but are not limited to:

- Management and mitigation of safety.
- Use of best available science, including weather and fire behavior forecasts, long-term risk assessments, fire growth simulations if applicable.
- Short-term fire effects.
- Public information and education, notification of individuals, groups, and areas potentially impacted by fires.
- Consistency with land and resource management plans and fire management plans.
- Attention to resource management issues and concerns.

Signatures and Date

WFIP Stage III must be approved by the agency administrator or delegated individual upon completion. This approval is documented by signature and date at the end of Stage III. This approval does not constitute the Periodic Fire Assessment which must be continued on the set frequency after completion of Stage III.

Periodic Fire Assessment

Once Stage III is completed, the Periodic Fire Assessment is completed. The process can be continued from Stage I or II but the signature page must clearly reflect the change in “WFIP Planning Stage Required” to Stage III. The agency administrator (or delegated individual) is required to periodically affirm the capability to continue management of the fire as a WFU event. This process will document and ensure management accountability throughout the duration of the wildland fire use event. The Periodic Fire Assessment consists of the same elements as described for WFIP Stage I (See WFIP Stage I Periodic Fire Assessment description for more

information). These include:

- Decision Criteria Checklist
- Wildland Fire Relative Risk Assessment
- Wildland Fire Use Management Assessment
 - Part 1: Planning Needs Assessment
 - Part 2: Fire Use Manager Decision Chart
- Signature Page

Chapter 6 Monitoring and Evaluation

Two levels of monitoring are performed to track the Wildland Fire Use (WFU) program. The first level monitors the individual, active resource benefit fires, or an active WFU fire greater than 100 acres. Contained within the Stage III implementation plan (Stage III section of this guidebook) are suggestions and requirements for monitoring individual WFU fires (Monitoring Actions section) associated with site specific land management objectives. The second level of monitoring addresses the accomplishments of the entire WFU program.

Individual fires managed for benefits should be monitored and the following list of monitoring items will provide a starting point.

- Conduct post fire monitoring field trips when more than 50 acres of riparian area are affected. Insure that field trips are interdisciplinary.
- Evaluate areas affected by high severity fire for soil hydrophobicity.
- Evaluate post fire sediment production and water temperature changes if cost effective opportunities are present.
- Document and map fire severities utilizing a combination of aerial oblique photos, aerial photos at 1:15840 scale, and sample based stand exams where cost efficient opportunities are present.
- Monitor vegetation responses, specifically forest regeneration. Evaluate changes in forest cover type and seral stage.
- Any fire identified by the line officer to be significant will be monitored and reviewed to determine if all objectives identified here were met, to what degree, and to make necessary adjustments to this guidebook to improve the program.

As part of the post fire evaluation, the district fire manager or assistant will initiate preparation of a fire severity map for all fires larger than 100 acres. This map will be used to develop a data base of fire size and severity to carry forward research evaluating fire effects on vegetation types. Specific items to evaluate may include:

1. Summary of events, display of monitoring observations. The following items may be included and mapped out if possible:
 - a. Fire area, list acres.
 - b. Daily fire projection map and estimated rates of spread.
 - c. Daily fire intensity observations.
 - d. Crown fire area, list acres and % of area.
 - e. Lethal underburn, list acres and % of area.
 - f. Nonlethal underburn, list acres and % of area.
 - g. Unburned area within fire perimeter, list acres and % of area.
 - h. Estimated fuel consumption.
 - i. Estimated smoke production (based on estimated fuel consumptions)
 - j. Summary of weather patterns, list averages and extremes as needed.
2. Validate fire behavior projections.
3. Holding forces used to keep fire within prescription.
4. Cost estimates.
5. Smoke impact estimates.

6. Trail closure impacts.
7. Impacts on public and private property in/out of the Fire Management Unit.
8. Evaluations of key decisions made during the life of the fire.
9. Impact to structures and trail system within wilderness.
10. Summary of monitoring field trip if one occurred.

A fire severity map overlaid onto a daily progression map with weather data for the time period would be the minimum package for long-term documentation and evaluation needs but should also include a summary statement. This statement should describe the relationship of the risk assessment and fire projections to the implementation actions and MMA. This summary statement combines the elements of the WFIP Stage III and provides rationale for establishing the MMA based on mitigation of identified risks. Document the WFIP Analysis Team members in this section.

Program evaluation is designed to measure how and when fires are allowed to play their natural role in the ecosystem. Program level evaluation occurs at two time scales. Annually the WFU program reviews why fires were suppressed. Specifically, short term program monitoring identifies, missed opportunities or missed calls which could provide feedback to the risk assessment process. Long-term program monitoring determines the extent WFU is meeting ecosystem management objectives. This evaluation process will examine whether WFU fires are burning within the range of natural variability in terms of frequency, size and intensity.

Evaluation Criteria

1. All lightning caused fires are evaluated as WFU candidates.
2. WFU fires remained in MA-11 meeting objectives.
3. No loss of life or property resulted from WFU implementation.
4. Resources are committed commensurate with risks identified in the implementation plan, and regional and national priorities.
5. Decisions are commensurate with current and predicted fire potential.
6. National ambient air quality standards for PM-10 and PM-2.5 are met.
7. Line officer discretion and decisions are clearly documented in Stage I, Stage II, Stage III decision points, and during periodic validation.

Evaluation Procedure

1. Evaluate each fire not managed as a WFU fire, and total the number non WFU designated fires. Identify what risk factors that contributed to the decision to manage with a suppression strategy, and identify proactive mitigation measures that might have led to WFU designation.
2. For each beneficial fire document events that required some type of holding action. Focus on items that limited the full potential of the WFU fire. Identify proactive mitigation measures that might have prevented the need to take action on the fire.

During the fall each district will report out and distribute results generated from the evaluation procedures. The depth of the analysis should be commensurate with season's fire activity. For example, if the district experienced a hundred fires, in-depth analysis on all individual fires is not

possible. However, certain fires may stand out as significant to illustrate issues related to risk constraints on WFU implementation. During wet years where fewer fires occur, analysis should be fairly rigorous, especially since these years currently provide the greatest opportunity to take risk. Addressing items that limited the use of WFU will look for trends across the FMU, and identify solutions for improving the WFU program. As refinements to the risk assessment and implementation process are developed, they will be incorporated into the guidebook.

Fire is a natural and necessary part of the ecology of northern Rocky Mountain ecosystems. Fire occurrence can be observed in virtually all habitat types and locations within the St. Joe Roadless FMU. Brown, et al (1994) helped to provide baseline information to measure the degree fire has been allowed to play its natural role in the Selway Bitterroot. As monitoring and evaluation processes are developed, they will be incorporated into the St. Joe Wildland Fire Use Guidebook.

Recommendations to Improve Future Program Implementation

1. Develop FARSITE ready fuels data in a GIS. Develop a protocol to update FARSITE with ground verification of data.
2. Develop a St. Joe Roadless FMU weather protocol to complement the FARSITE fuels data.
3. Develop strategy to deal with access management issues and trail closures.
4. Learn about new issues in WFIP analysis and show examples from innovative WFIP plans.
5. Annually update GIS based fire occurrence and fuels layers.

Appendix A: Wildland Fire Implementation Plan

Standardized, reproducible forms for the WFIP process are included in this appendix. While a standardized format is provided for the WFIP (in Word format) that can be used to prepare the document, an electronic version similar to the WFSA electronic program will be available. Users can choose to prepare a WFIP by using the forms presented in this appendix or by using the electronic version when available.

Specific forms included for the complete WFIP are:

WFIP Stage I

- Strategic Fire Size-Up
- Decision Criteria Checklist
- Relative Risk Rating
 - Wildland Fire Relative Risk Assessment: Step 1: Determining Values
 - Wildland Fire Relative Risk Assessment: Step 2: Determining Hazard
 - Wildland Fire Relative Risk Assessment: Step 3: Determining Probability
 - Wildland Fire Relative Risk Assessment: Step 4: Determining Wildland Fire Relative Risk
- Planning Needs Assessment Chart
- Fire Use Manager Decision Chart

WFIP Stage II

WFIP Stage III

WFIP Stage I:

Strategic Fire Size-Up

Fire Name		
Fire Number		
Administrative Unit(s)		
Start Date/Time		
Discovery Date/Time		
Current Date/Time		
Current Size		
Fuel Model		
Current Weather		
Observed Fire Behavior		
Location: Legal Description(s)		
Latitude/Longitude		
Local Description		
FMU (circle appropriate FMU situation)	WFU Approved	WFU Not Approved
Cause (circle fire cause)	Natural Ignition	Human-caused Ignition

Suitability for Wildland Fire Use (circle situation, initials of person preparing, date/time)	Wildland Fire Use Candidate — Continue with Decision Criteria Checklist	Suppression	Initials	Date/Time
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Decision Criteria Checklist

Decision Element

Is there a threat to life, property, or public and firefighter safety that cannot be mitigated?

Are potential effects on cultural and natural resources outside the range of acceptable effects?

Are relative risk indicators and/or risk assessment results unacceptable to the appropriate agency administrator?

Is there other proximate fire activity that limits or precludes successful management of this fire?

Are there other agency administrator issues that preclude wildland fire use?

Yes	No

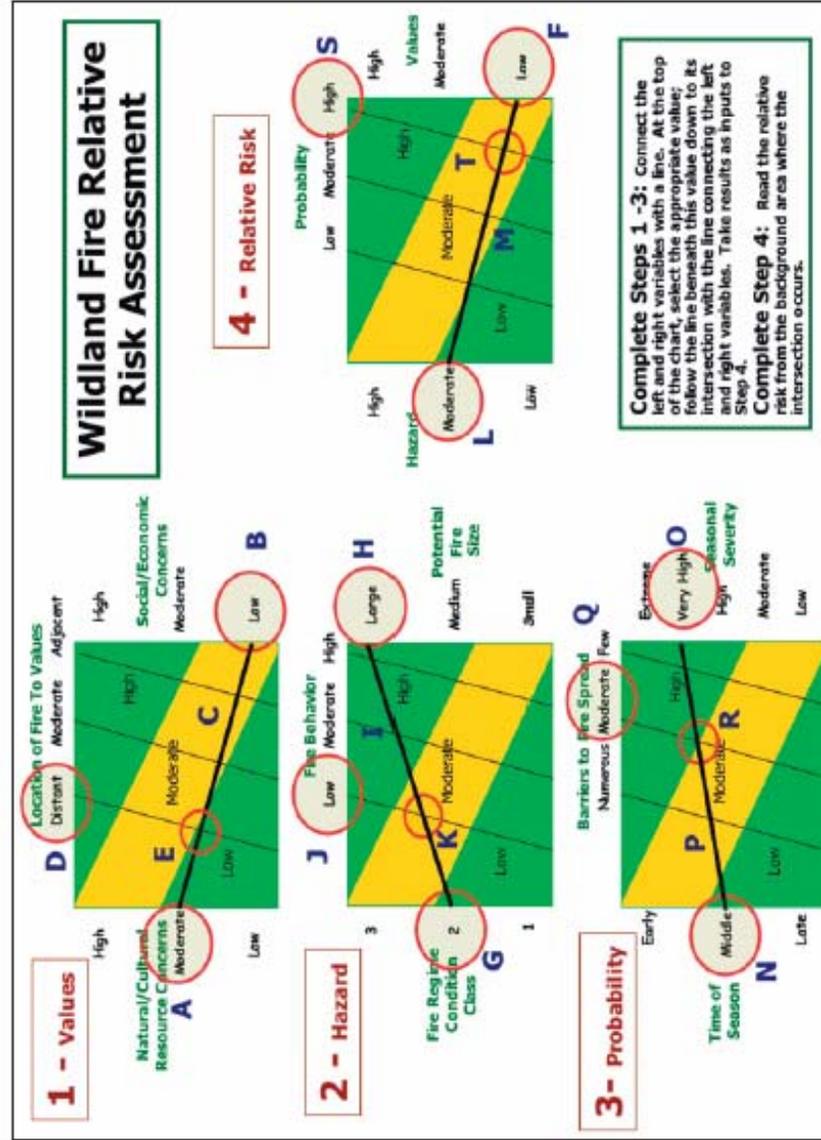
The Decision Criteria Checklist is a process to assess whether or not the situation warrants continued wildland fire use implementation. A “Yes” response to any element on the checklist indicates that the appropriate management response should be suppression-oriented.

Approved Response Action (check one)		Signature/Position	Date
Suppression Response	<input type="checkbox"/>		
Wildland Fire Use Response	<input type="checkbox"/>		

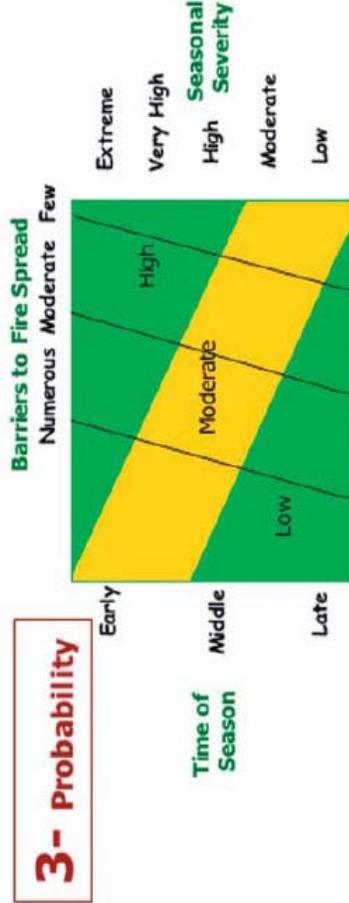
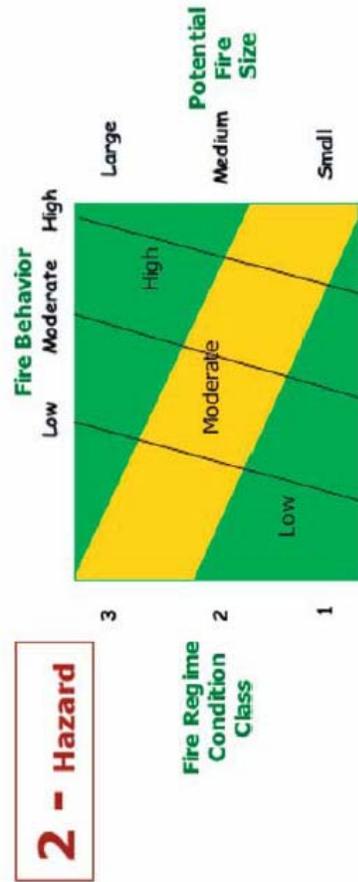
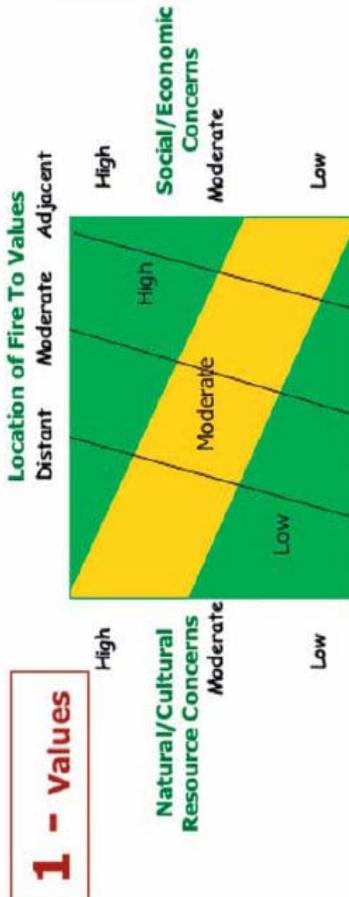
Justification for Suppression Response:

Step-by-Step Instructions for Completing the Wildland Fire Relative Risk Assessment

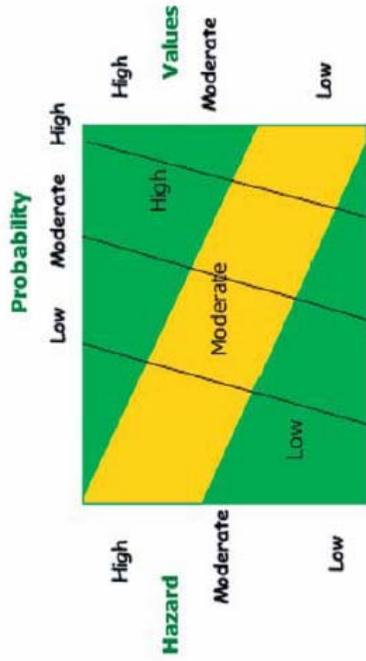
- A Step 1 Locate Natural/Cultural Resource Concern level
- B Step 1 Locate Social/Economic Concern level
- C Step 1 Draw line connecting left and right variables
- D Step 1 Locate Location of Fire to Values level
- E Step 1 Follow interior line down to intersection with line connecting left and right variables, locate Value Assessment output (Low, Moderate, High)
- F Step 4 Take Step 1 - Value Assessment output to Step 4 as Value input
- G Step 2 Locate Fire Regime Condition Class level
- H Step 2 Locate Potential Fire Size level
- I Step 2 Draw line connecting left and right variables
- J Step 2 Locate Fire Behavior level
- K Step 2 Follow interior line down to intersection with line connecting left and right variables, locate Hazard Assessment output (Low, Moderate, High)
- L Step 4 Take Step 2 - Hazard assessment output to Step 4 as Hazard input
- M Step 4 Draw line connecting Value and Hazard levels
- N Step 3 Locate Time of Season level
- O Step 3 Locate Seasonal Severity level
- P Step 3 Draw line connecting left and right variables
- Q Step 3 Locate Barriers to Fire Spread level
- R Step 3 Follow interior line down to intersection with line connecting left and right variables, locate Probability Assessment output (Low, Moderate, High)
- S Step 4 Take Step 3 - Probability assessment output to Step 4 as Probability input
- T Step 4 Follow interior line down to intersection with line connecting left and right variables, locate Relative Risk Assessment (Low, Moderate, High)



Wildland Fire Relative Risk Assessment



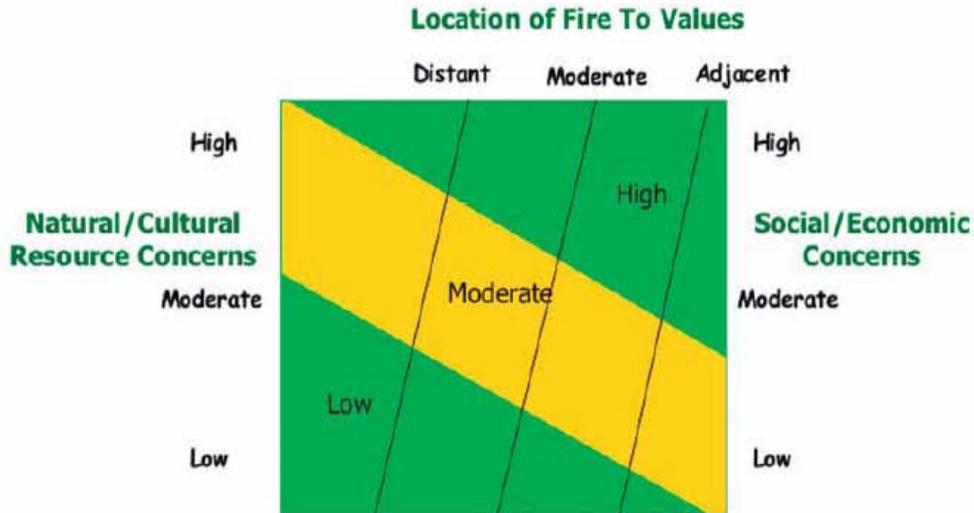
4 - Relative Risk



Complete Steps 1 -3: Connect the left and right variables with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Take results as inputs to Step 4.

Complete Step 4: Read the relative risk from the background area where the intersection occurs.

Wildland Fire Relative Risk Assessment: Step 1: Determining Values



Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Value Assessment from the background area where the intersection occurs.

Notes:

Part 1: Value Assessment: Values are those ecologic, social, and economic effects that could be lost or damaged because of a fire. Ecologic values consist of vegetation, wildlife species and their habitat, air and water quality, soil productivity, and other ecologic functions. Social effects can include life, cultural and historical resources, natural resources, artifacts, and sacred sites. Economic values make up things like property and infrastructure, economically valuable natural and cultural resources, recreation, and tourism opportunities. This assessment area allows opportunity for the local agency administrator to identify particular local concerns. These concerns may be identified in the fire management plan or other planning documents.

Natural/Cultural Resource Concerns — key resources potentially affected by the fire. Examples include, but are not limited to, habitat or populations of threatened, endangered, or sensitive species, water quality, erosion concerns, and invasive species.

Low	Moderate	High
Resource concerns are few and generally do not conflict with management of the fire. Mitigation measures are effective.	Significant resource concerns exist, but there is little conflict with management of the fire. Mitigation measures are generally effective.	Multiple resource concerns exist, some of which may conflict with management of the fire. The effectiveness of needed mitigation measures is not well established.

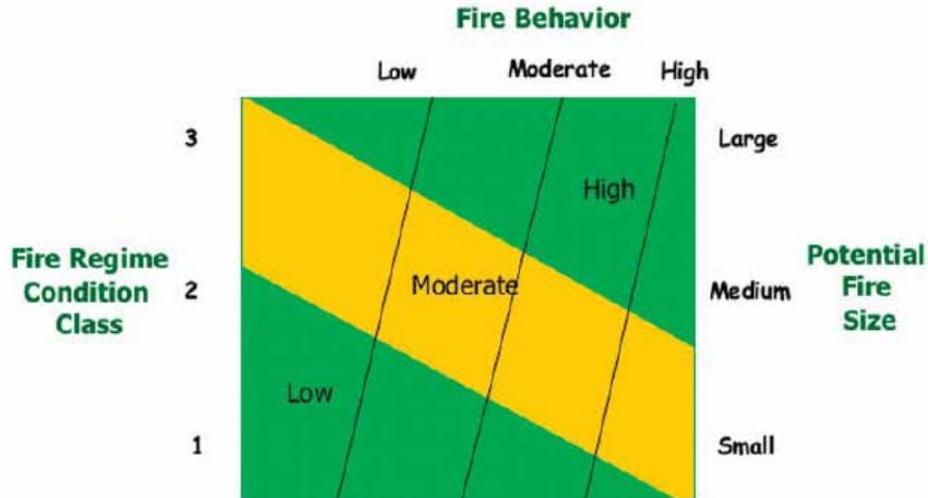
Social/Economic Concerns — the risk of the fire, or effects of the fire, impacting the social or economic concerns of an individual, business, community or other stakeholder involved with or affected by the fire. Social concerns may include degree of support for the wildland fire use program or resulting fire effects, potential consequences to other fire management jurisdictions, impacts to tribal subsistence or gathering of natural resources, air quality regulatory requirements and public tolerance of smoke. Economic concerns may include potential financial impacts to property, business, or infrastructure. Infrastructure impacts may be costs to repair or replace sediment catchments, wildlife guzzlers, corrals, roads, culverts, power lines, domestic water supply intakes, and similar items.

Low	Moderate	High
Local support for wildland fire use is high. The fire should have little or no impact on subsistence or tribal activities involving treaty rights. The fire is expected to remain within a single jurisdiction, or agreements are in place to allow the fire to move across several jurisdictions. Media coverage is favorable. Few structures or business ventures are potentially affected by the fire. There are few impacts to recreation and tourism.	Local support of wildland fire use is clearly divided between supporters and opponents. The fire will have some impacts on subsistence or tribal activities involving treaty rights. The fire is expected to involve more than one jurisdiction, cooperators, or special interest group and agreements need to be developed. Media coverage tends to be a mix of favorable and unfavorable views. Some structures may be threatened by the fire or some business ventures have been affected by the fire.	Local support for wildland fire use is low. The fire will have significant impacts on subsistence activities or tribal activities involving treaty rights. Smoke impacts may become a concern for higher level air quality regulatory agencies. The fire is expected to involve several jurisdictions, cooperators, and special interest groups, and agreements requiring significant negotiation need to be developed. Media coverage tends to be unfavorable. Many structures or private properties could be threatened.

Location of Fire to Values

Distant	Moderate	Adjacent
Fire location is not proximate to values to be protected or fire is located where it is highly unlikely that it would reach the values.	Fire location is moderately proximate to values. Location is such that, based on historical data, fire could potentially reach the values but will take multiple burning periods and sustained fire activity to reach the values.	Fire location is in close proximity to values. Without mitigation actions, fire will be expected to reach the values.

Wildland Fire Relative Risk Assessment: Step 2: Determining Hazard



Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Hazard Assessment from the background area where the intersection occurs.

Notes: _____

Part 2: Hazard Assessment: The hazard in wildland fire is made up of the conditions under which it occurs and exists, its ability to spread and circulate, the intensity and severity it may present, and its spatial extent.

Current Fire Behavior – the current fire behavior or that most recently observed. Changing fire behavior is addressed through repeated completion of the Periodic Fire Assessment.

Low	Moderate	High
Short duration flaming front with occasional torching. Fuels are uniform and fire behavior can be easily predicted and tactics implemented.	Short range spotting occurring. Moderate rates of spread are expected with mainly surface fire and torching. Fuels and terrain are varied but don't pose significant problems in holding actions.	Long range spotting greater than one-quarter mile. Extreme rates of spread, and crown fire activity are possible. Fuels, elevation, and topography vary throughout the fire area creating high resistance to control.

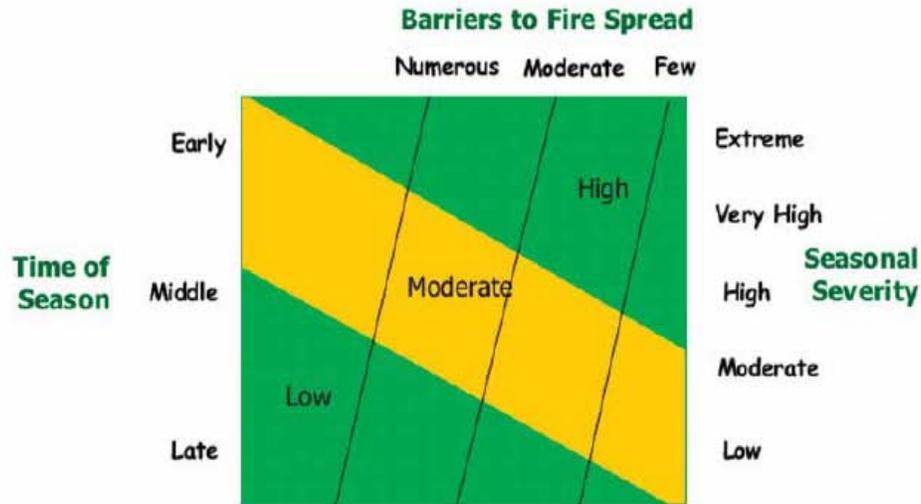
Fire Regime Condition Class – a measure of ecological functions at risk based on changes in vegetation.

1	2	3
Vegetative composition and structure are resilient and key components are at low risk of loss. Few, if any, fire return intervals have been missed and fuel complexes are similar to historic levels.	Both the composition and structure of vegetation has shifted toward conditions that are less resilient and more at risk of loss. Some fire return intervals have been missed, stand structure and composition, and fuel complexes have been altered and present potential for fires of severity and intensity levels in excess of historic levels.	The highly altered composition and structure of the vegetation predisposes the landscape to fire effects well outside the range of historic variability, potentially producing changed fire environments never before measured.

Potential Fire Size – the potential fire size by the end of the season in comparison to historical fire occurrence.

Small	Medium	Large
Fire size is expected to be small for the dominant fuel type involved.	Fire size is expected to be in the mid-range for the dominant fuel type involved.	Fire size is expected to be large for the dominant fuel type involved.

Wildland Fire Relative Risk Assessment: Step 3: Determining Probability



Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Probability Assessment from the background area where the intersection occurs.

Notes: _____

Part 3: Probability Assessment: Probability refers to the likelihood of a fire becoming an active event having potential to adversely affect values.

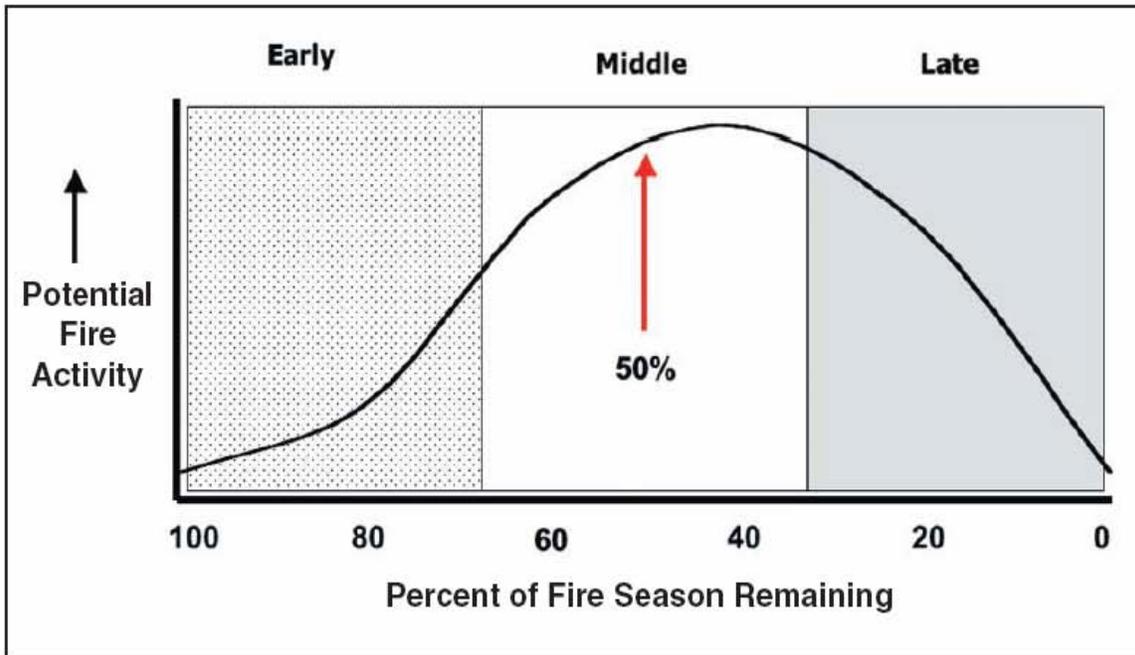
Time of Season — the current time in relation to the historical fire season. The chart below the guidelines reinforces the importance of the time of season. During the early part of the fire season, the peak of burning activity is still to come, thus the fire could present substantial variation in behavior and activity. In the middle of the season, the peak of burning activity may or may not have occurred, while in the late part of the season, the peak of fire activity generally has occurred and managers can reasonably expect diminishing fire activity and behavior as time progresses. As the amount of fire season remaining decreases or as the time of season progresses from early to late, management concerns and issues associated with potential fire activity decrease.

Early	Middle	Late
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The current date is in the early portion of the historic fire season, at least two-thirds of the established fire season remains and the peak of burning activity is still to come.

The current date is in the middle of the historic fire season, at least one-third of that period has passed and no less than one-third remains. The peak burning activity period either has occurred, is occurring now, or will occur very soon.

The current date is in the latter part of the historic fire season. At least two-thirds of the historic period has passed, the peak burning activity period has occurred, and the probability of a season-ending or fire-ending event is increasing quickly.



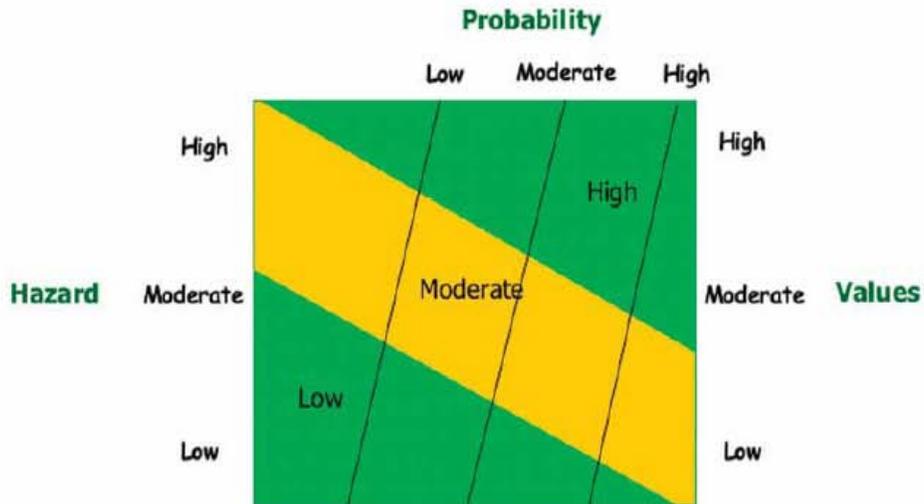
Seasonal Severity — a measure of potential burning conditions as expressed by factors such as energy release component (ERC), drought status, live fuel moistures, dead fuels moistures, soil moisture, stream discharge, and similar types of measures.

Low	High	Extreme
Measures of fire danger are below to somewhat above seasonal averages. Drought status is within seasonal norms with no long-term drought present.	Measures of fire danger are well above seasonal averages but not setting new records. The area is in short-term drought (1 to 2 years of drought) but not considered to be in long-term drought.	Measures of fire danger are setting new records. The area is considered to be in long-term drought (3 or more years of drought).

Barriers to Fire Spread — a measure of the natural defensibility of the fire location and an indication of degree of potential mitigation actions needed.

Numerous	Moderate	Few
The location of the fire and presence of natural barriers and firebreaks limit the horizontal fuel continuity, minimal mitigation actions on the ground will be needed.	The location of the fire and presence of some natural barriers and firebreaks limit the horizontal fuel continuity on some, but not all fire flanks, some mitigation actions on the ground will be needed to protect threats to boundaries and sensitive areas.	The location of the fire and presence of only limited natural barriers and firebreaks will permit fire spread across continuous fuels. Mitigation actions on the ground will be needed but are expected to be effective.

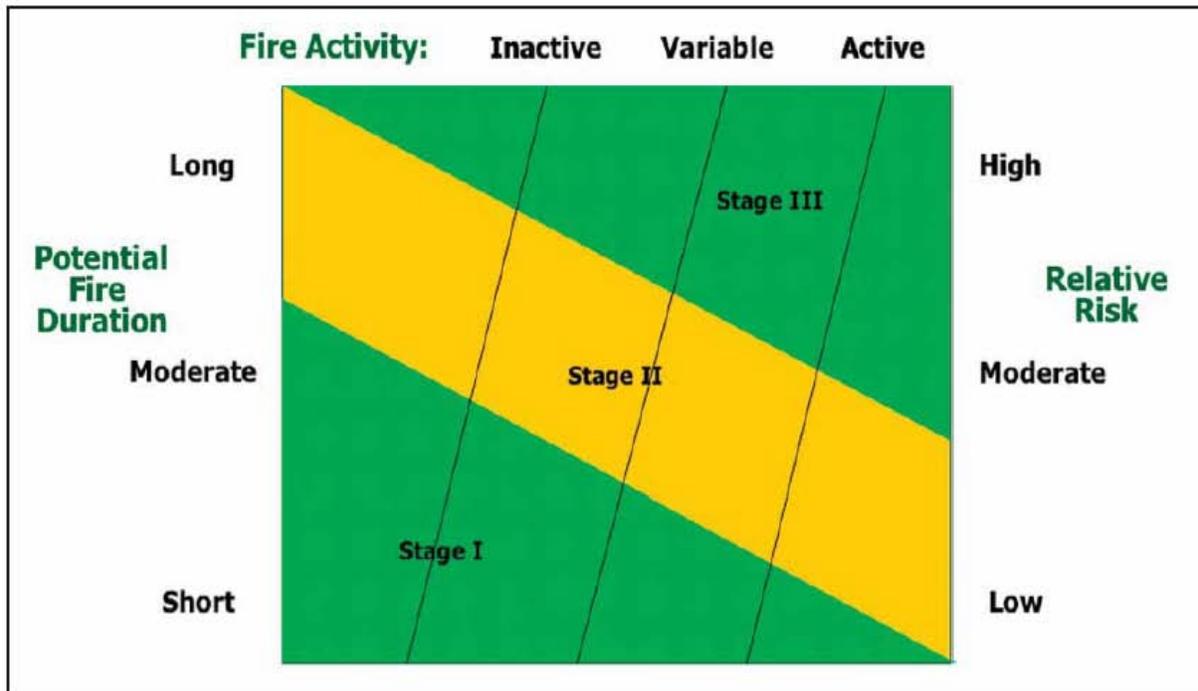
Wildland Fire Relative Risk Assessment: Step 4: Determining Wildland Fire Relative Risk



Connect the left and right values with a line. At the top of the chart, select the appropriate value; follow the line beneath this value down to its intersection with the line connecting the left and right variables. Read the Relative Risk from the background area where the intersection occurs.

Notes: _____

Planning Needs Assessment Chart



To complete the chart, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the planning need from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process.

Minimum interagency qualification requirements for wildland fire use planning at each stage of the WFIP process. This information should be used with the Planning Needs Assessment Chart to determine appropriate levels of planning qualifications. Higher qualified personnel can always be used to complete the various planning levels if desired. Duty officer qualifications are defined in local unit fire management plans.

Table 5. WFIP minimum planning qualifications

WFIP Stage	Minimum Planning Qualifications
WFIP Stage I	Unit Duty Officer
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

Guidelines for Planning Needs Assessment Chart

Potential Fire Duration – the estimated length of time that the fire may continue to burn in comparison to historical fire durations and amount of fire season available for a given area.

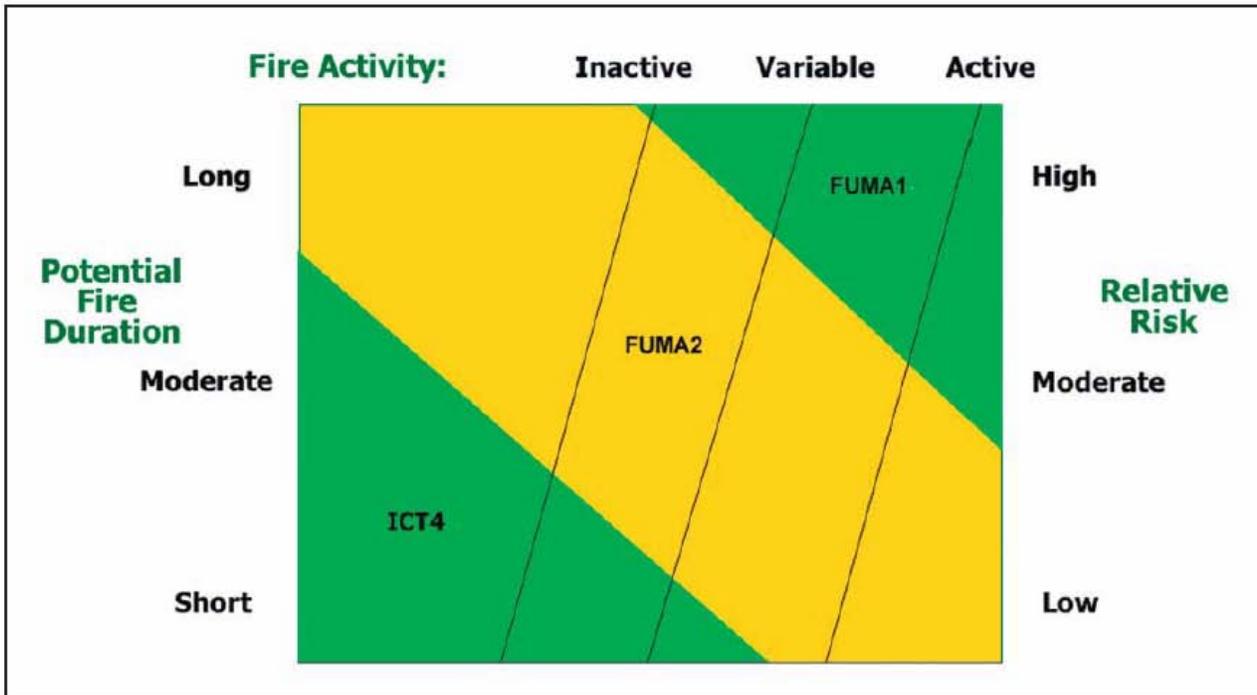
Short	Moderate	Long
Fire is expected to persist for only the shortest time in comparison to historical fire durations. This may be as short as only a few days. Fuels may be limiting, weather may be limiting, or time of fire season may be limiting. Generally, this could be referenced as less than the historical average fire length for a given area.	Fire is expected to last for a time period similar to the historical average length of fires.	Fire is expected to last for a time period longer than the historical average length of fires.

Relative Risk – a measure of the relative risk, determined directly from the Wildland Fire Relative Risk Assessment, so no range of values is listed here.

Fire Activity – the relative activity of the fire in terms of intensity and spread over time.

Inactive	Variable	Active
Fire is burning with very low intensity, little or no spread, and little or no increase in burned area. Fire is confined to surface litter and duff layers.	Fire is burning predominantly in surface litter and duff layers, with low intensity and little or no spread but has occasional periods of increased intensity and spread. Growth of burned area is not constant but occurs in response to increased activity. Area increase may be static for moderately long periods and then increase for short periods. Fire size usually increases by less than 50 percent during active periods.	Fire is burning in all fuel strata (litter, surface, and crown) with periods of sustained flaming fronts, perimeter growth, and area increases that can exceed 100 percent at times. Infrequent periods of low activity occur but spread is generally constant.

Fire Use Manager Decision Chart



To complete the chart, connect the left and right variables with a single line (potential fire duration and relative risk, respectively). Select the appropriate level of fire activity at the top of the chart and follow the line beneath that value down to its intersection with the line connecting the left and right variables. Read the level of fire use manager needed directly from the background area where the intersection occurs. The relative risk values are those obtained from the Wildland Fire Relative Risk Assessment process.

Minimum level of implementation qualifications. During implementation, as fire activity and management needs escalate, implementation qualification needs ascend to a higher level. But as conditions moderate and management needs drop, implementation qualifications can descend to lower levels. Table 3 and Figure 8 are used jointly as fire situations and conditions escalate; when conditions are moderating or lessening, Figure 8 provides the necessary qualification levels for implementation.

Table 6. WFIP minimum implementation qualifications

WFIP Stage	Minimum Planning Qualifications (Use Fire Use Manager Decision Chart to determine recommended position)
WFIP Stage I	Incident Commander Type 4 (ICT4) (Must have local knowledge or prior experience in implementing WFIPs and managing wildland fire use events)
WFIP Stage II	Fire Use Manager Type 2 (FUM2)
WFIP Stage III	Fire Use Manager Type 2 (FUM2)

Guidelines for Fire Use Manager Decision Chart

Potential Fire Duration – the estimated length of time that the fire may continue to burn in comparison to historical fire durations and amount of fire season available for a given area.

Short	Moderate	Long
Fire is expected to persist for only the shortest time in comparison to historical fire durations. This may be as short as only a few days. Fuels may be limiting, weather may be limiting, or time of fire season may be limiting. Generally, this could be referenced as less than the historical average fire length for a given area.	Fire is expected to last for a time period similar to the historical average length of fires.	Fire is expected to last for a time period longer than the historical average length of fires.

Relative Risk – a measure of the relative risk, determined directly from the Wildland Fire Relative Risk Assessment, so no range of values is listed here.

Fire Activity – the relative activity of the fire in terms of intensity and spread over time.

Inactive	Variable	Active
Fire is burning with very low intensity, little or no spread, and little or no increase in burned area. Fire is confined to surface litter and duff layers.	Fire is burning predominantly in surface litter and duff layers, with low intensity and little or no spread but has occasional periods of increased intensity and spread. Growth of burned area is not constant but occurs in response to increased activity. Area increase may be static for moderately long periods and then increase for short periods. Fire size usually increases by less than 50 percent during active periods.	Fire is burning in all fuel strata (litter, surface, and crown) with periods of sustained flaming fronts, perimeter growth, and area increases that can exceed 100 percent at times. Infrequent periods of low activity occur but spread is generally constant.

Management Actions

Forecasted Weather (Include an initial assessment of air quality forecasts/allowable burn days as applicable)

Forecasted Fire Behavior

Hazards and Safety Concerns

Management Actions

Availability of Resources

Periodic Fire Assessment Stage II

Insert the following sections, either by completing new versions or by using those already completed as part of WFIP Stage I:

- Decision Criteria Checklist
- Wildland Fire Risk Assessment
 - Part 1: Planning Needs Assessment
 - Part 2: Fire Use Manager Decision Chart
- Signature Page

WFIP Stage II

Attach Stage I information.

Objectives

Objectives	
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Fire Situation

Current and Predicted Weather	
Current and Predicted Fire Behavior	
Threats	
Safety Considerations	
Environmental Concerns	
External Concerns	

Management Actions

Management Actions	
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Estimated Costs

Estimated Costs	
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Periodic Fire Assessment Stage III

Insert the following sections, either by completing new versions or by using those already completed as part of WFIP Stage III:

- Decision Criteria Checklist
- Wildland Fire Risk Assessment
 - Part 1: Planning Needs Assessment
 - Part 2: Fire Use Manager Decision Chart
- Signature Page

WFIP Stage III

Attach Stage I and Stage II information. Update and/or revise Stage I and II as necessary.

Objectives

Natural and Cultural Resource Objectives	
Constraints	

Maximum Manageable Area (MMA) — Definition and Maps

Acres in MMA	
Definition of MMA	
Attach Map of MMA	

Weather Conditions and Drought Prognosis

Weather Conditions/ Drought: Discussion and Prognosis	
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Long-term Risk Assessment and Map (if applicable)

Risk Assessment (Describe techniques utilized and outputs, include maps as appropriate)	
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Threats

Threats to MMA

Threats to Public Use
and Firefighter Safety

Smoke Dispersion
and Effects

Other Threats

Monitoring Actions

Describe monitoring
actions, frequency,
duration

Mitigation Actions

Describe holding
actions and other
mitigation actions, and
management action
points that initiate these
actions, and key to map,
if necessary.

Resources Needed to Manage the Fire Under Expected Weather Conditions

Describe resources necessary to accomplish ignition, holding, other mitigation actions, and monitoring actions.

Contingency Actions

Describe contingency actions, management action points that initiate them, resources needed, etc.

Information Plan

Describe information plan, contacts, responsibilities, etc.

Estimated Costs of Managing the Fire

Describe costs in terms of resources needed, projected duration, etc.

Post-burn Evaluation

Describe post-burn evaluation procedures, resource requirements, costs, duration, etc.

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Signatures

Include signatures/titles/dates for preparing, approving, and any concurring individuals.

Appendix B: Preplanning Wildland Fire Implementation Plan Elements

Parts of the WFIP can be planned well in advance of fire season. Preplanning is especially critical in those fuel types where fires develop rapidly and a “long duration” fire may only last a few days. In many cases, these elements can be part of the fire management unit information in the fire management plan. The following items from the WFIP can be preplanned:

- **Objectives** – all or most of these should be known in advance and based on the resource objectives in the land use plan and fire management unit objectives.
- **Constraints** – standards and guidelines within the land use plan and fire management unit are the basis for any operational constraints. These constraints typically affect which types of activities may occur where or when.
- **Safety Considerations** – document those safety considerations associated with various aspects of the environment, such as cliffs or mineshafts; with well-known and generally regular weather events, such as foehn winds; and with particular times of the year, such as hunting seasons.
- **Values at Risk** – document those values threatened by either the simple presence of fire, and certain fire intensity, or any appropriate management response actions that may be taken. These values may consist of different types of natural and cultural resources or physical features such as campgrounds or private property.
- **External Concerns** – these consist of concerns known to exist for cooperators, adjacent owners or land managers, communities, regulatory agencies, and other stakeholders (i.e. the critical concerns discussed as part of the relative risk rating). Not all concerns can be known in advance since some are situational and not tied to a particular fire management unit. The objectives and constraints should adequately cover internal concerns.
- **Implementation Actions** – some preliminary implementation actions, or appropriate management responses, can be developed in advance, particularly for Stage I and Stage II. Most often, these will consist of different levels of monitoring to some holding or checking actions. Units that expect to develop Stage III without the aid of a FUMT may develop more detailed descriptions of the allowable responses or a list of response options.
- **Maximum Manageable Area** – preliminary MMAs can be designated based on roads, jurisdictional or land allocation boundaries, watershed boundaries, or similar features. These MMAs are not finalized until a wildland fire use event occurs and management is elevated to Stage III. Preliminary MMAs can include information on which segments are naturally defensible and which are not, as well as what types of actions may be needed to increase the defensibility of those segments. Preplanned MMAs may be the only option for some fire management units.
- **Management Action Points** – preliminary management action points may be identified to address certain types of values at risk or preliminary MMA boundaries. Full development may not happen until the fire occurs since the appropriate management response often depends on fire behavior.
- **Monitoring Plan** – do not confuse the monitoring plan with monitoring as an appropriate management response. The monitoring plan is intended to determine if the fire is meeting or has met management objectives. Since nearly all the management objectives should be known in advance, this plan can also be prepared in advance.

- **Information Plan** – use experience from past fires, both suppression and wildland fire use, to develop many elements of the information plan. Some elements may be more situational or new contacts or contact methods may occur between the development of this preliminary plan and an actual fire.
- **Agreements** – although not technically part of the WFIP, fully implementing a WFIP may require that cross-jurisdiction agreements be in place to allow the fire to move from one jurisdiction to another. These jurisdictions may be other land management agencies; state or local fire protection agencies or districts; or private landowners.

In addition to WFIP elements, several types of data are recommended for advanced development or for addition to the fire management plan as data are developed from different fires. As appropriate, update data each year. The following list is not exhaustive but intended as a tickler:

- Weather Data
 - NFDRS station catalogs and weather files
 - Definitions for:
 - . . . Season or fire-ending event
 - . . . Fire-slowing events (event plus number of days the event is effective)
 - . . . Large fire growth events or key weather events that result in large fire growth
- Term files for use in RERAP
- Preliminary RERAP assessments for individual FMUs with assumptions (risk of fire movement over set distances by time of year and general direction)
- FARSITE layers, including changes resulting from the previous years fires and vegetation management actions
- Structure protection plans
- Potential evacuation needs, routes, and responsibilities, which should be shared with the appropriate authority in advance of an ignition.
- Mitigation measures for threatened and endangered species (TES) (i.e. plants, animals, and fish) that have been successful in the past
- Data layers (actual data or location of data)
 - Fuels
 - Roads and trails
 - Streams
 - Values to be protected (some of this data may be protected)
 - Land status
 - Fire history
 - Fuels treatment history
 - Vegetation type or dominant species
 - Vegetation structure
 - Potential vegetation
 - Fire regime or fire regime condition class
 - Smoke sensitive areas

Appendix C: Wildland Fire Use Public Information Plan

Wildland Fire Use Program Forest Contacts

This packet of information on Wildland Fire Use on the St. Joe Ranger District of the Idaho Panhandle National Forests is intended to help the reader understand the purpose and background of the Wildland Fire Use program, and the process used to implement it. For further information, please contact any of the people listed below.

Idaho Panhandle National Forests

Supervisor's Office: 3815 Schreiber Way, Coeur d'Alene, ID 83815 (208) 765-7223

Forest Supervisor	Ranotta McNair
Forest Fire Management Officer	Mark Grant
Deputy Fire Mangement Officer	Craig Glazier
Recreation Program Manager.....	Kent Wellner

St. Joe Ranger District: 222 South 7th St., Suite 1, St. Maries, ID 83861 (208) 245-2531

District Ranger.....	Charles Mark
Fire Management Officer.....	Jim Bartlett
Asst. Fire Management Officer.....	Destry Scheel
Fuels Specialist.....	Jason Jerman
Recreation/Special Use Permits	Mary Price
Trails.....	Tracy Gravelle

Lolo National Forest

Supervisors Office: Ft. Missoula, Bldg 24 Missoula, MT 59804 (406) 329-3750

Forest Supervisor	Deborah L. R. Austin
Forest Fire Management Officer	Charles E. Stanich

Superior Ranger District: PO Box 460, 209 West Riverside Superior, MT 59872 (406) 822-4233

District Ranger	Rob Harper
Fire Management Officer.....	Bob Derleth

Clearwater National Forest

Supervisors Office: 12730 Highway 12 Orfino, ID 83544 (208) 476 4541

Forest Supervisor	Tom Reilly
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Clear/Nez Zone Fire Management Officer..... Jim Gray

North Fork Ranger District: 12730B Highway 12 Orofino, ID 83544 Phone: (208) 476-4541

District Ranger Douglas Gober

Fire Management Officer Mike Lubke

PUBLIC INFORMATION PLAN

WILDLAND FIRE USE

St. Joe Ranger District 2005

This Public Information plan was developed by representatives from the Bitterroot, Clearwater, and Nez Perce National Forests for use on the Clearwater and Selway-Bitterroot Fire Management Units and has been adapted for use on the St. Joe Ranger District of the Idaho Panhandle National Forests.

The plan serves two purposes: 1) identify information and education actions that *may* be taken to help prepare the public and Forest Service employees for fires, including wildland fire use fires, that occur on the St. Joe Ranger District, and 2) to provide a coordinated approach in keeping the public informed during fire season. Public affairs officers, fire management officers, recreation managers, and other resource specialists on the St. Joe Ranger District will coordinate the implementation of this plan.

KEY DISCUSSION POINTS:

- 1) We actively manage and monitor all fires; we don't just let them burn.
- 2) We are managing ecosystems. Fire is a natural force that is needed to sustain ecosystems.
- 3) Suppression:
 - a) We don't have the capabilities to stop all fires.
 - b) It's better to let nature burn a little at a time than to have large, high intensity wildfires that are difficult or impossible to control.
 - c) Only carefully selected wildland fires will be allowed to burn naturally. Many others will be extinguished or confined by natural barriers (fuels, weather, and topography).
- 4) Smoke is inevitable with fire and a part of the environment.
- 5) We have over 30 years of experience with managing wildland fire use in the Northern Rockies Region.

TOOLS NEEDED:

- 1). Fact Sheet on wildland fire use. Short, concise, easy for public to understand.
- 2). Glossary of terms.

- 3). Small map of St. Joe Ranger District. Maps should be uncluttered so that fire areas can be easily drawn on; small enough (i.e. 8 1/2 x 11) so that it can be photocopied and distributed easily. Fire symbols to show location fires.
- 4). Presentation outline to assure consistency of message and wording.
- 5). Video or slide show to backup a presentation.
- 6). Improved signs at trailheads for Wildland Fire Use.
- 7). Bullet sentences about Wildland Fire Use (WFU) that can be used in news releases during fire season.
- 8). Fire information kit containing maps, fact sheet, glossary, information on fire's role in ecosystem management, and current fire information.

PRE SEASON - PROVIDE INFORMATION AND EDUCATION

The St. Joe Ranger District should develop a contact list of specific individuals or groups to contact and signify who is responsible for contacting them. The following is a general listing of groups with whom there is opportunity to engage and some responsible officials for making contacts.

<u>Action</u>	<u>By Whom</u>	<u>By When</u>	<u>Tools</u>
1. Employees: Offer presentation at family meeting or brown bag lunch program. Make special effort to educate frontliners about the WFU program.	Supervisors Office (SO) Districts Fire Management (FM)	May	Info Kit A/V
2. Civic Groups & Other Forest Users: Offer presentation at meetings and various gatherings.	Districts: FM, Public Affairs (PA)	May/June	Info Kit A/V
3. Department of Environmental Quality, Coeur d'Alene: Offer presentation; include info on all types of burning Keep them informed during season.	SO FM,PA	May/June	Info Kit A/V
4. Idaho Department of Fish and Game: Present details of WFU plan; when and how it will be implemented and determine IDFG contact for when a WFU fire occurs.	SO FM Districts FM, Rangers	Annual Mtg.	Copy of Guidebook A/V presentation
5. Hikers: Provide improved signs at trailheads describing WFU fires. Should be made of durable, waterproof material. Also provide WFU brochure.	Districts FM, Recreation (Rec.)	May	Signs Brochure
6. Outfitters: Inform of details of WFU plan & when it will affect their on operation should fire occur.	SO FM, Rec. Districts FM, Rec.	Annual Mtg. District Coordination meeting	Info Kit A/V
7. Backcountry Horsemen, other sportsman groups: Offer presentation at meetings.	Districts FM, Rec.	May	Info Kit A/V
8. Larger audience: Prepare articles for magazine/newspapers & distribute. Opportunity to capitalize on past successes.	SO PA	April for magazine; August for newspapers.	Articles
9. Congressional Staffers: Personal contact.	SO FM, PA	May	Info Kit
10. County & City Officials: Personal contact	Districts FM, Rangers	May	Info Kit
11. Retirees: Present at regular meeting.	SO FM, PA	Spring Meeting	Info Kit
12. Schools: Offer 1 hour presentation to teachers	Districts FM, PA	September	Info Kit A/V
13. Media: Meet with key media contacts. Brief them about WFU program.	FM, PA	June	Info Kit

FIRE SEASON (Wildland Fire burning)

(COORDINATE BETWEEN FM AND PA ON THE THREE ADJACENT FORESTS)

<u>Action</u>	<u>By Whom</u>	<u>By When</u>
1. News Media: Frequent news releases, continuing I&E as well as current info. Send copy of news release to other 2 Forests. Suggest feature on WFU to primary newspapers. Offer Info Kit.	SO PA	With advent of any significant fire activity.
2. News Media: Air or ground tour if possible.	SO PA, FM	When opportunities exists to view WFU fire.
3. Employees: Post current fire status on bulletin board. If smoke or fire conditions are serious, have family meeting or use computer resources to insure employees are well informed (Intranet, e-mail).	Districts FM, Rec.	With advent of any significant fire.
4. Hikers and other forest users: Post current fire info, caution signs, or closure notices at trailheads. Note: Possibility of posting on Internet.	Districts FM, Rec.	With advent of any significant fire.
5. Affected Area Residents/Communities: Keep accurately informed of fires. Use news articles, post current status sheets, personal contact. Use opportunity to continue I&E.	Districts FM, PA	When threats of fire or smoke imminent.
6. Outfitters: Inform/advise in person.	Districts FM, Rec.	When threats of fire or smoke imminent.
7. Other Agencies (i.e. ID Fish & Game, ID Dept. of Lands, Dept. of Environmental Quality, BIA, Coeur d'Alene, and Nez Perce Tribes):	SO FM, PA	With advent of fire.
8. Congressional Representatives: Inform in person.	SO PA	With advent of any significant fire.
9. County & City Leaders: Inform in person	Districts FM	With advent of any significant fire.
<u>POST SEASON</u>		
1. News Media: Provide media with wrap up info, photos, & flight over burn areas. As a minimum, issue an end-of-season news release.	SO FM, PA	Shortly after end of fire activity for season.

BACKGROUND AND HISTORY

OF WILDLAND FIRE USE OF NATURAL IGNITIONS

Clearwater, Bitterroot and Nez Perce National Forests

The Days of Fire Suppression

In accordance with the Wilderness Act of 1964, the 1,337,681 - acre Selway-Bitterroot Wilderness (SBW) was set aside as an area "...which is protected and managed so as to preserve its natural conditions and which generally appears to have been affected primarily by the forces of nature..."

One of those forces is fire. For thousands of years fire shaped the vegetation in our National Forests, dictating the types of plants and animals which would inhabit these areas.

Based in part on the large fires that occurred in northern Idaho and western Montana in 1910, a national policy of protection from fires was undertaken. Then came the days of fire suppression. In the early 1900s, land managers believed wildfires were catastrophic events. Wherever possible, they were quickly extinguished. The Selway-Bitterroot area and surrounding National Forests began to change. In plant communities that had adapted to frequent low intensity fires, dead wood and fuels (on-the-ground and aerial) began to accumulate, setting the stage for future large and more intense wildfires. Fire dependent vegetation was being replaced by different types of vegetation, which affected the types and numbers of animal species that could live in the ecosystem.

Prescribed Natural Fire Program Begins - 1972

In time, forest managers recognized that wilderness ecosystems are always changing and fire is one of the major agents of change in the renewal of these ecosystems. Fire has always been a part of these ecosystems and must be kept a part of them if they are to remain in a natural state. So, in 1972, the Forest Service instituted a prescribed natural fire program in a portion of the Selway-Bitterroot Wilderness. Fire, under certain "prescribed" conditions, was allowed to become a natural force once again. By 1979, the entire SBW was included in a prescribed natural fire program.

Fire -- A Necessary Function of Nature

Today, fire experts and research findings agree that fire is beneficial--even essential--to wildlands inside and outside of wilderness areas. This is not to say that fire suppression does not have a place in the management of wilderness or non-wilderness lands. A level of protection still needs to be provided to help protect life, property and resource values. This must be done with the potential damage based on risks, hazards, values and management objectives in mind. The benefits of fire must be weighed with the detrimental effects in order to make the necessary decisions to allow use of naturally ignited fires or to suppress them within the proposed Mallard-Larkins Wilderness.

Fire does return valuable nutrients to the soil, opens overgrown areas to sunlight, and allows new growth that provides food and habitat for various animal species. Fire, burning under prescribed parameters, also removes dead wood and other debris--fuels that can kindle larger, more dangerous fires, from the forest floor. In addition, use of fire can create a mosaic of burned and

unburned areas, resulting in natural breaks and diversity in the landscape that reduce the potential for very large catastrophic wildfires.

In trying to achieve the objective of "allowing fire to play its natural role" in the ecosystem, some social trade-offs are generated. Smoke (air quality), impaired visibility, and personal risk are a few of the social concerns associated with having a successful wildland fire use program.

As these issues are reviewed, the complexity of the program increases. But the paramount objective of allowing fire to play its natural role remains evident.

The 1988 Fire Season and Yellowstone

In 1988, the American public witnessed the fury of the Yellowstone fires daily through the media. Wildland fire use policy was described as a "let burn" policy. And, believing "let burn" meant little or no action, the wisdom of the prescribed natural fire program was questioned. As a result, the Chief of the Forest Service directed all units to put out all wilderness fires until fire management plans could be reviewed and revised to incorporate the lessons learned from the Yellowstone fires.

Today's Fire Program

Following the Chief's direction, the fire management plan for the SBW was examined and revised; it was approved by the Regional Forester on June 4, 1990. Once again fire was allowed to play its natural role in the Selway-Bitterroot ecosystems, and to shape the landscape as it has done for centuries. Since fires often burn across boundaries, coordination is essential among the forest and districts comprising the SBW (just as it is between the IPNF, Clearwater NF, and Lolo NF according to this guidebook). As a result of the 1990 fire plan revision, a Selway-Bitterroot Fire Working Group and a Wilderness Fire Coordinating Group have been established to improve coordination and communication among fire managers on the Clearwater, Nez Perce, and Bitterroot National Forests. Similar coordination between the Idaho Panhandle, Clearwater, and Lolo National Forests is being pursued in order to facilitate current and future management Wildland Fire Use fires around their shared boundaries.

New Federal Wildland Fire Policy

As a result of the 1994 fire season and the tragic South Canyon fire in Colorado, the federal fire policy was reviewed. This policy was determined to be a sound policy but it was felt that a more consistent approach was needed in the interpretation and application of managing fire. A new federal wildland fire policy was developed and implemented in 1998 and updated in 2005. Under this new policy, terminology has changed. We no longer use the term "prescribed natural fire." The new term is now "wildland fire use for resource benefit." New decision criteria have also been developed along with a more consistent approach in the application of this concept throughout the federal wildland fire management agencies.

What is Wildland Fire Use and How is it Managed?

Wildland fire use fires that meet resource benefits are lightning caused fires that are allowed to play their natural role in the life cycle of a forest. Wildland fire use for resource benefit is the new terminology that replaces prescribed natural fire under the new federal wildland fire policy that was adopted and approved in 1998 and revised in 2005.

Management of a wildland fire use event is much more complex than the commonly used term "let burn" implies. A description of wildland fire use events and the process used to manage them follows.

Why Allow a Fire to Burn - What Good Does it Do?

Fire has always been a part of shaping the ecosystem in the Northern Rocky Mountains.

It is a necessary element in the life cycle of any forest and, in fact, some species need fire to regenerate.

Fires burn with different intensities; in some areas a fire may burn hot, leaving patches of ashes, charred trees and a good seedbed for plants to regenerate. In other areas, cool fires just meander along the ground, burning grass, brush, dead logs, and lower branches. Fire returns valuable nutrients to the soil, opens overgrown areas to sunlight, and allows new growth that provides food and habitat for various animal species. The fuels (dead wood and other debris) that could kindle larger, more intense fires are burned before they become dangerous. The result of this free burning is a patchwork of young and old vegetation, often referred to as a mosaic. This variety of vegetation promotes a variety of wildlife and a diverse landscape.

Wildland Fire Use vs. Wildland Fire Under a Suppression Strategy - What is the Difference?

When a fire starts in an area which has an approved wildland fire use guidebook, a determination has to be made: Is it a "**wildland fire use that meets resource benefits**" or a "**wildland fire that needs an appropriate suppression response**?" Some areas of National Forest still need to be protected from the effects of wildland fire, these areas include; timber production areas, old fire intolerant forest habitats, recreation sites, etc. Fires in areas with a protection emphasis are unwanted fires that are suppressed. **A Wildland fire use fire that meets resource benefit** is a lightning caused fire burning under pre-planned, specified conditions (prescription) to accomplish specific objectives. It is a "wanted event." If a wildland fire use event exceeds prescription parameters, an appropriate suppression response action may be taken on all or a portion of the fire necessary to meet the protection objectives. It will be allowed to burn as long as it stays within the predetermined "prescription". **A wildland fire that needs an appropriate suppression response** is an "unwanted fire" where the damages outweigh the benefits. An appropriate suppression response will be taken to meet suppression objectives for each of these kinds of fires.

How is the Decision Made? How Does the System Work?

The decision to classify a fire as wildland fire use fire or a wildland fire requiring appropriate suppression response is complex, requiring consideration of many factors, and the involvement of both fire and other resource specialists.

- 1) Within a maximum of eight hours** of the discovery of the fire, a team of experts in resource management must decide if it will be classified as a wildland fire use event or a wildland fire needing an appropriate suppression response. This is called completing the stage I initial assessment. This assessment is a report about the fire situation that includes information about

the fire location, start date/time, current size, fuel conditions in fire area, weather (current/predicted), fire behavior (current/predicted), and availability of resources. This decision is approved by the Forest Supervisor, District Ranger or an approved acting. These following elements are considered in this decision:

<u>Wildland Fire Needing Appropriate Suppression Response (Old Terminology-Wildfire)</u>	<u>Wildland Fire Use for Resource Benefit (Old Terminology-PNF)</u>
Person caused fire or Lightning caused fire in which:	Lightning caused fire in which:
-Threats to the plan boundary can't be alleviated	-Threats to the plan area boundary can be alleviated
-Threats to life or property can't be alleviated	-Threats to life or property can be alleviated
-Cultural and natural resources effects unacceptable	- Cultural and resource effects are acceptable
-Weather forecast unacceptable	-Weather forecast acceptable
-Risk indicators unacceptable	-Risk indicators acceptable
-Fire Prescription parameters unacceptable	-Fire Prescription parameters acceptable
-Local, Regional, & National situation unacceptable (i.e., too many fires, shortage of firefighting resources, poor air quality, etc.)	-Local, Regional, and National situation acceptable (i.e., resources are available, air quality acceptable, etc.)

- 2) **Then, within a maximum of two days** (48 hours) after the initial assessment decision to proceed with a wildland fire use, the stage II short-term implementation action plan is developed. This plan is reviewed and approved by the Forest Supervisor, District Ranger, or their acting.

This plan includes a listing of objectives and desired effects, safety considerations, external concerns, environmental concerns, threats, short-term actions in managing this under wildland fire use, and estimated costs.

Fire managers constantly evaluate weather and fuel conditions, comparing them to long-term averages, as well as known wet and dry years. This enables managers to better assess risks associated with this program. Depending on the relative risk of this wildland fire, the time of season, relative complexity of managing the fire under wildland fire use, and documented or potential fire behavior - a Stage III analysis is completed. This is a long-term implementation action plan and must be completed within seven days after a need is indicated through a Stage II Planning Needs Assessment. The Stage III includes more detailed information about; 1) natural and cultural resource objectives and constraints/considerations, 2) mapping of the Maximum Manageable Area (MMA), 3) fire projections under expected and severe conditions, 4) weather season/drought discussions and prognosis, 5) risk assessment map, 6) description of probability of success, 7) potential threats to MMA, 8) threats to public use and firefighter safety, 9) smoke dispersion and effects, and any other information the deciding official needs in order to make the decision. It also includes monitoring actions, holding actions to keep the fire within the management area, resources needed to manage the fire, a

revised estimate of the costs of managing this fire, contingency actions needed, an information plan, and post burn evaluation needs.

If the plan is not approved during any stage of the process, the fire is considered a wildland fire needing an appropriate suppression response.

In preparing the stage III plan, resource managers must establish a maximum manageable area (MMA). In wilderness, the resource managers would need to have wilderness and fire expertise. Outside wilderness, the resource managers would need to have expertise in fire and other resource knowledge, i.e., fisheries, soils, wildlife, etc. This area defines the maximum distance in each direction around the fire that the fire will be allowed to affect before it is determined to have negative impacts. The fire can spread any direction within this area. The MMA boundary must be defensible from a fire protection standpoint. If a fire does cross the MMA boundary and cannot be controlled within 48 hours, it must then be classified a wildland fire and appropriate management action must be taken. A Wildland Fire Situation Analysis (WFSA) is prepared where appropriate management responses are analyzed and a management strategy is selected.

- 3) **Each day, the fire is evaluated by the team of experts.** Fire managers and resource specialists continue to examine fire behavior, smoke conditions, the regional and national fire situation, and many other factors and report to the line officer. If the situation changes from the original assumptions, the deciding line officer must determine whether to allow this wildland fire to continue meeting resource benefits, or to declare it a wildland fire that needs an appropriate suppression response. This process is called a periodic fire assessment. It will be done daily when conditions warrant or during periods of inactivity, could be done once every several days.

GLOSSARY OF TERMS

There are a number of fire terms we frequently use. This glossary should help explain some of the commonly used Forest Service fire terminology.

Appropriate Management Response -- Specific actions taken in response to a wildland fire to implement protection and fire use objectives. This is a new term.

Appropriate Suppression Response -- Specific suppression actions taken in response to a wildland fire, with priority consideration given to firefighter and public safety.

Burning period -- The time of the day when fires spread most rapidly. Typically this is from 10:00 am. to sundown.

Burn plan -- The old name for a comprehensive site specific plan developed by fire and wilderness managers for each individual prescribed natural fire which describes the conditions associated with a fire, predicted fire behavior and weather, and the risks associated with allowing a fire to burn. This is now called a stage III long-term implementation action plan. See definition for stage III long-term implementation action plan. This plan must be approved by either the Forest Supervisor, District Ranger, or designated acting who is responsible for that particular fire.

Chain -- One chain is equal to 66 feet. Eighty chains equal one mile. Fireline length and the forward rate of spread of fires are often measured in chains.

Confine -- Confinement is the strategy used in an appropriate management response where a fire perimeter is managed by a combination of tactical actions (burnout, helicopter water drops, etc.) and use of natural topographic features, fuel, and weather factors.

Control/Contain -- Containment and control will continue to be used to represent the status of a particular fire for reporting purposes (e.g., a controlled fire, date of control, date of containment, etc.) and not to represent a type of management strategy. Contain means to take suppression action, as needed, which can reasonably be expected to check the fire's spread under prevailing conditions. Control means to complete a control line around a fire, any spot fires and interior islands to be saved; burnout any unburned area adjacent to the fire side of the control lines; and cool down all hot spots that are immediate threats to the control line, until the lines can reasonably be expected to hold under foreseeable conditions.

Contingency plan -- A part of the stage III long-term implementation action plan developed by fire, resource and/or wilderness managers. It ensures additional protection of life, property, and natural resources in the event of unforeseen weather or extreme fire behavior.

Crown fire -- Fire which burns in tree tops (going from tree top to tree top), and which burns all of a large part of the upper branches and foliage of trees.

Creeping fire -- Fire burning on the ground with small flames or no flames with very low rates of spread. Also known as smoldering fire.

Diversity -- Variety of plant and animal life within an area, as well as the variety of visual and geographic features.

Drought index -- Refers to several drought indexes that are currently used by fire, resource, and wilderness managers to display the moisture content of vegetation and forest fuels. Drought indices are used to assess potential expected fire behavior and/or severity of a fire season.

Ecosystem -- A unit of land that supports certain plant and animal communities along with physical features and processes associated with that land.

Energy Release Component -- A component of the National Fire Danger Rating System used by fire managers to assess fire potential in forest fuels. This component is strongly correlated with seasonal drying trends within a given year and relative to historic average, minimum, and maximum of past years and is used as an indicator of the potential for fire development.

Escaped fire -- A fire that continues to spread when the initial fire suppression effort was not able to contain the fire. Also a prescribed fire that exceeds its prescription.

Expected weather conditions -- Those weather conditions indicated as common, likely, or highly probable based on current and expected trends and their comparison to historical weather records. These conditions are used in making fire behavior forecasts for different scenarios (one necessary scenario involves fire behavior prediction under "expected weather conditions.")

Experienced Severe Weather Conditions -- Those weather conditions that occur infrequently, but have been experienced on the fire site area during the period of weather records. For example, rare event weather conditions that significantly influence fires may have occurred only once, but their record can be used to establish a baseline for a worst case scenario. These are the most severe conditions that can be expected. These conditions are used in making fire behavior forecasts for different scenarios (one necessary scenario involves fire behavior prediction under "experienced severe weather conditions").

Fire behavior forecast -- Site specific predicted behavior of a fire based on predicted fuel conditions, weather forecasts and topography and documented by an expert in the field of fire behavior.

Fire dependent species -- Certain plant and animal species are dependent on fire to survive or perpetuate their species. An example would be lodgepole pine; heat from fire is needed, in most cases, to open cones so seed can be made available to naturally reforest an area.

Fire effects -- The direct and indirect influences a fire has on an area. Tree scorch and duff consumption are examples of direct influences. Indirect fire effects examples would include effects of the fire on insect life cycles or elk populations because of habitat changes as a result of the fire.

Firefighter and Public Safety -- The primary consideration in the evaluation of all wildland fires, both wildland fire use for resource benefit and wildland fire requiring an appropriate suppression response. Safety risk to firefighters and the public is dynamic and must be continually monitored as conditions change.

Fire Intensity -- How hot a fire burns, as indicated by the length of the flames.

Fire Severity -- How hot a fire burns, as indicated by percent mortality of vegetation, percent consumption of litter and duff, and degree and depth of soil heating amongst other factors.

Fireline -- Used to deprive a fire of fuels, a fireline is a ditch scraped or dug, by hand or mechanically, through the organic forest floor down to un-flammable mineral soil.

Fire Management Unit (FMU) -- Any land management area definable by objectives, topographic features, access, values to be protected, political boundaries, fuel types, or major fire regimes, etc. FMU's are delineated in each forest's fire management plan. These units will have specific management objectives and preselected strategies assigned to accomplish these objectives.

Fire Management Area (FMA) -- A geographic area within an FMU that represents a predefined management area for wildland fire managed for resource benefit or areas to be protected from fire.

Fire Management Plan (FMP) -- A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved land use plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans, and prevention plans.

Fire perimeter -- The entire outer edge of the fire or the length of the outer circumference or edge of the fire.

Fire season -- The time of year during which fires are likely to occur. In Idaho, the season has been defined as May 10 - October 20. In Montana, the season has been defined as May 1 to September 30.

Fire severity -- Describes the effects of fire on soil and/or vegetation. An example of effects on vegetation is whether the fire killed the vegetation or underburned the vegetation. Related to how hot the fire burned (fire intensity) and how long the fire burned at a particular point on the ground (fire duration).

Fuel type -- Refers to the type of forest vegetation in which a fire is burning. Fuel types are used in predicting fire behavior and determining fire danger.

Holding Actions -- Actions taken to stop or slow the spread of a fire. These actions may include building of fireline, dropping retardant from aircraft, dropping water from helicopters, etc.

Holdover fire -- Usually an undetected fire that remains "dormant" for a considerable time. Also referred to as a "sleeper".

Hot spot -- A particularly active part of the fire.

Initial Attack -- An aggressive suppression action taken when an unwanted wildland fire starts. The actions taken are consistent with firefighter and public safety and values to be protected.

"Let burn" -- An inappropriate term given to fires, by the general public, that do not receive an aggressive suppression response and that are allowed to play their natural role in the ecosystem. This term implies "no action" or "no management" which is not the case. See appropriate definitions under appropriate management response and wildland fire use.

Maximum Manageable Area (MMA) -- A technical term associated with wildland fire use. This is the perimeter drawn around a fire area by wilderness and fire managers to show the total area a fire can influence before effects and impacts could be determined negative. This is not a prediction as to how large the fire might become. If the fire approaches the MMA line in any direction, managers will look at what actions should be taken to keep the fire within the MMA line. If the fire crosses this line at any point it must then be declared a wildland fire needing an appropriate suppression response.

Mitigation Actions -- Those on the ground activities that will serve to increase the defensibility of the MMA; check, direct, or delay the spread of fire; and minimize threats to life, property, and resources. These actions will be used to construct firelines, reduce excessive fuel concentrations, create fuel breaks or barriers around critical or sensitive sites or resources, create "blacklines" through controlled burnouts, and to limit fire spread and behavior.

Monitor -- Action taken during a fire by manager to observe, analyze, and document fire activity.

Mosaic -- The patchwork pattern of burned and unburned areas left by a fire on a landscape.

Preparedness -- Activities that lead to a safe, efficient, and cost-effective fire management program.

Prescribed fire -- Any fire ignited by a land management entity to meet specific land management objectives. A written, approved prescribed fire plan must exist, and National Environmental Policy Act requirements must be met, prior to ignition on Forest Service Lands.

Prescribed Natural Fire -- This term is replaced by wildland fire use.

Prescription -- Measurable criteria that define conditions under which a prescribed fire may be ignited and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

Rate of Spread -- Rate of spread is a common fire behavior term, telling fire managers how fast a fire moves. Often measured in chains/hour. A chain is equal to 66 feet. 80 chains equal one mile.

RAWS -- Acronym for Remote Automated Weather Station. These are weather stations set up at predetermined locations which take weather readings every hour and are recorded for use by fire and resource managers.

Risk assessment -- This is a process used in prescribed fires or wildland fire use planning to determine what level of risk. The risk assessment is documented and used by the approving official to make informed decisions. A risk assessment will take factors into consideration, such as weather/fuel conditions, threat to life and property, smoke management concerns, and impacts fire may have on local communities and wilderness users. The risk assessment is completed in the Stage III Long-Term Implementation Action Plan.

Red flag warning -- Indicates there is a very high risk for extreme fire activity. This term is often used if fuels are very dry and severe weather, such as a dry lightning storm with high winds, is predicted for the area. It could also be used in the case of a high risk of person caused fires.

Resources -- People and equipment needed to manage a fire.

Spot fire -- Usually a small fire less than 1/10 acre. Generally used to describe a fire start outside the perimeter of the main fire by flying sparks or embers.

Spotting -- A fire behavior term that describes a fire as "spotting" when it is spreading as a result of sparks or embers carried ahead of the main fire by the wind and starting new fires.

Stand replacement fire -- A fire that consumes (kills) most of the dominant vegetation in an area.

Thousand hour fuels -- This refers to forest fuels 3 - 8 inches in diameter.

Torching -- A fire behavior terms that describes a tree that suddenly erupts into flames from the base clear to the top of the tree.

Trigger Points - Management Action Points -- Refers to a geographical location, point in time or weather condition that, when reached by a fire, initiates some sort of management action. Action may include verifying the risk assessment contained within the burn plan, producing a new fire behavior forecast or implementing a contingency plan.

Wilderness Area -- Primitive lands designated by Congress to be managed so as to retain their wild character, generally appearing to be affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable.

Wildland Fire -- Any non structure fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires.

Wildland Fire Implementation Plan (WFIP) -- A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire being managed for resource benefits.

Wildland Fire Situation Analysis (WFSA) -- A decision making process that evaluates alternative management strategies against selected safety, environmental, social, economic, political, and resource management objectives. This process is used when the initial management strategy has proven unsuccessful.

Wildfire -- An unwanted wildland fire. *This term was only included to give continuing credence to the historic fire prevention products. This is NOT a separate type of fire.*

Wildland Fire Suppression -- An appropriate management response to wildland fire that stops or limits fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, but minimize loss of resource values, economic expenditures, and/or the use of critical firefighting resources.

Wildland Fire Use -- The management of naturally ignited wildland fires to accomplish specific prestated resource management objectives in predefined geographic areas outlined in FMP's.

Appendix D: Maps and Data

Historic maximum, minimum and average ERC values over one day periods from 1990 through 2005 from a special interest group (SIG) using NFDRS fuel model G for heavy timber litter (FBPS fuel model 10). Weather data is averaged for three stations from the Clearwater National Forest; Pierce Station #100711 (20% weighting), Kelly Station #100708 (40% weighting), and Powell Station #101031 (40% weighting).

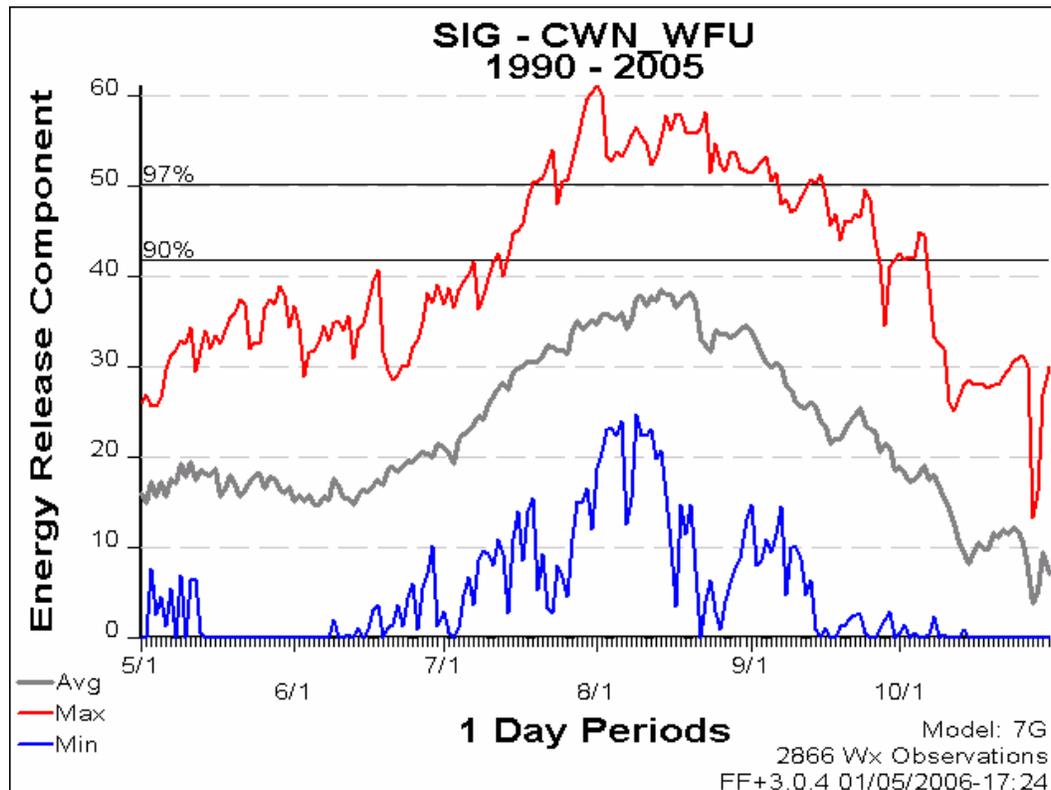
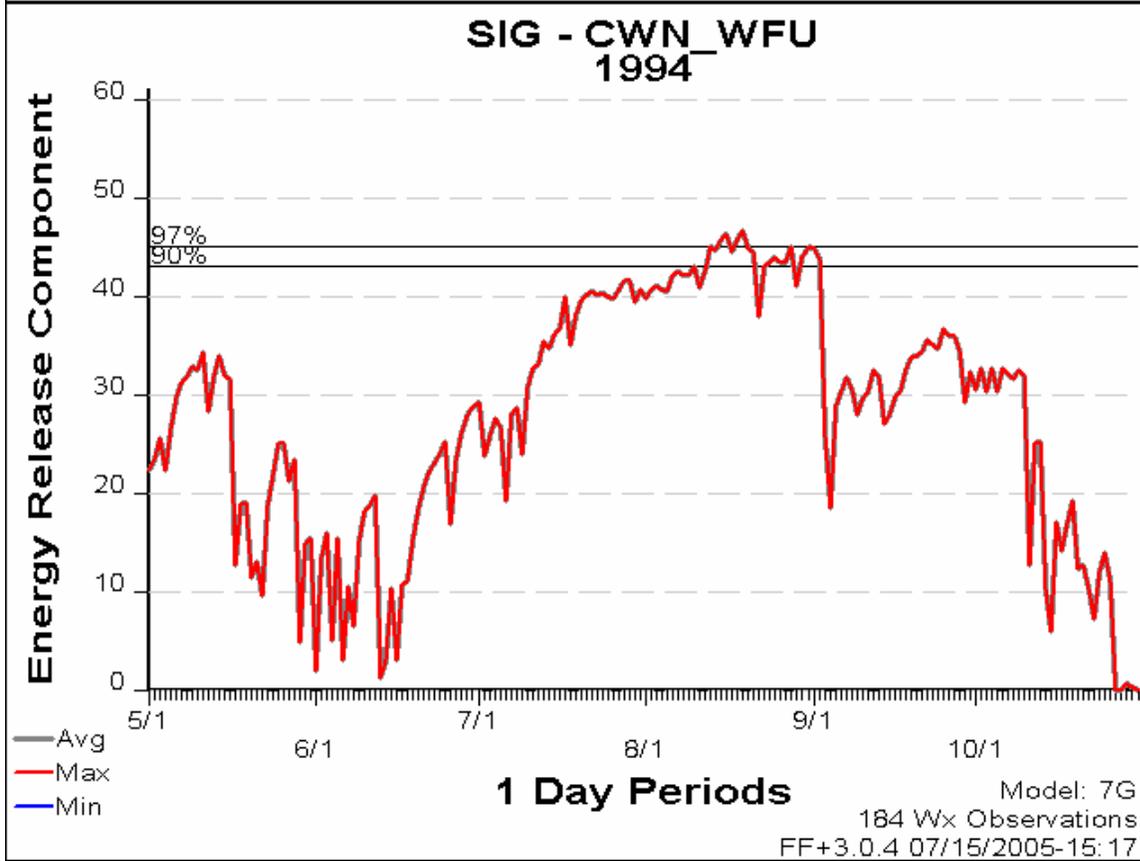
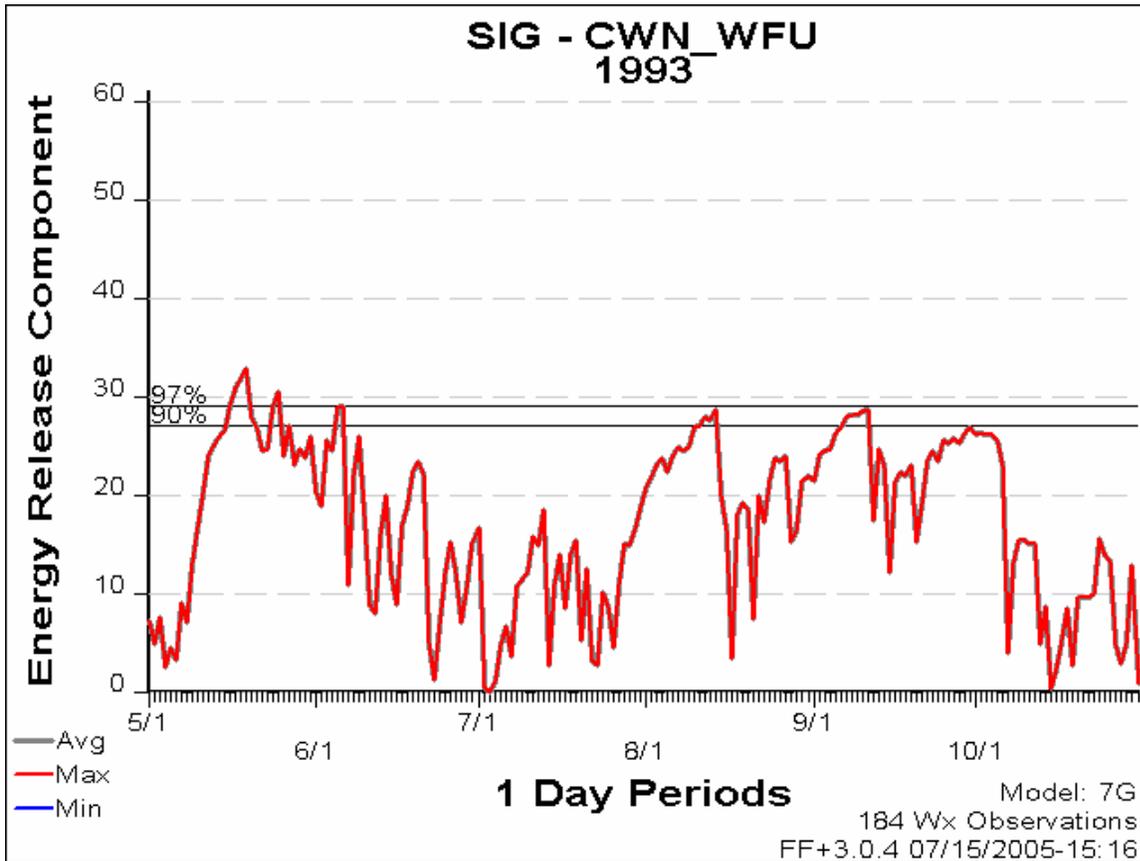


Figure D1: 16-year average Energy Release Component graph for the St. Joe WFU planning area with average, maximum, and minimum trend lines.

These are the same three stations with the same weighting that the Clearwater National Forest uses to make wildland fire use decisions on the Clearwater Fire Management Unit which is south of and adjacent to the St. Joe WFU planning area described in this Guidebook. These weather stations were chosen because their use will facilitate maintaining consistency in available data for decision makers on both Forests. The stations were also chosen because there are no existing weather stations within the St. Joe WFU planning area and the adjacent weather stations do not currently have good enough historic data with which to derive quality historic mean, minimum, and maximum values for the NFDRS components, indices, and weather characteristics used in WFU planning and decision making. Adjacent stations should be consulted for their current daily and seasonal trend data however to determine if data from the SIG described above is trending higher, lower, or on par with (potentially) more representative stations. Three stations may be consulted for this purpose; Fishhook station #100421 and Lines Creek station #100424 on the St. Joe Ranger District and Eagle station #100717, a high elevation station (5700 feet) just south of the of the Mallard-Larkins Pioneer Area above the North Fork Clearwater River.



Figures D2 and D3: Energy Release Component graphs for 1993 and 1994 respectively.

ERC charts for 1993, a very wet year with minimal fire season (Figure D2), and 1994, a very dry year with a very active fire season (Figure D3), are included for comparative purposes with the 16 year running average.

Weather patterns that have historically contributed to large fire growth, severe fire effects, and increased ignition potential include dry frontal passages, drought, and subsidence or high pressure. Dry cold fronts produce high winds, changes in wind direction, thunderstorms, and, often times low relative humidities. Drought affects seasonal drying trends of live and dead fuels and has cumulative impacts over multiple years through mortality of trees, moisture stress in live vegetation, lengthened fire seasons and exacerbates shorter term weather events such as frontal passages. Subsidence affects fire behavior and severity through drying of fuels, and by producing periods of atmospheric instability which can lead to large fire growth and plume dominated fire behavior. Nighttime inversions are common during periods of subsidence and can significantly impact fire behavior when they lift and will impact effectiveness of aerial resources and lookouts when in place over a fire. Thermal belts often develop midslope in the drainages within the planning unit and may contribute to active night time burning. Thermal belts are most common during periods of subsidence and are associated with nighttime inversions. Historically, exceptionally active fire seasons occur during periods of drought. Weather events, such as the dry frontal passage that fanned the fires of the Great Burn of 1910, contribute to single or multiple day strings of extreme fire behavior.

Season ending dates since 1990 were subjectively determined by reviewing annual ERC and precipitation amount charts created in Fire Family Plus (Table D1). Dates were determined by locating, on each graph, the point at which the ERC value dropped below critical levels toward the end of the season and did not recover to critical or near critical levels. The annual daily precipitation amount graphs were reviewed to determine the dates at which 90th percentile precipitation amounts were received and the number of days that the event persisted for. The

Table D1: Dates When Season Ending Values Begin		
Year	ERC	PPT AMT
1990	2-Oct	2-Oct
1991	16-Oct	16-Oct
1992	24-Sep	24-Sep
1993	6-Oct	6-Oct
1994	10-Oct	10-Oct
1995	26-Sep	26-Sep
1996	14-Oct	14-Oct
1997	14-Sep	14-Sep
1998	7-Sep	7-Sep
1999	25-Oct	25-Oct
2000	1-Sep	1-Sep
2001	7-Oct	7-Oct
2002	27-Sep	27-Sep
2003	5-Oct	5-Oct
2004	23-Aug	23-Aug
2005	30-Sep	30-Sep

two dates were then correlated for each year to ensure that the drops in ERC values were tied to significant moisture events. Season ending events that occurred relatively early in the season required more substantial precipitation amounts and durations than events occurring later in the season because of length of daylight (effective burning period) and remainder of fire season (available drying time) considerations.

Typically, season ending events occur from the last week of September through the second week of October (63% or 10 of the past 16-years). Two of the past 16-years (13%) did not receive season ending weather events until after mid-October with the latest listed as the last week of October in 1999 but no substantial season ending weather event was apparent in the data prior to the end of the analysis period. Four of the past 16-years (25%) received season ending weather events before mid-September with the earliest occurring in late August of 2004. Weather records for many of the past 16-years also display fire slowing events in the 2-3 weeks prior to season ending events.

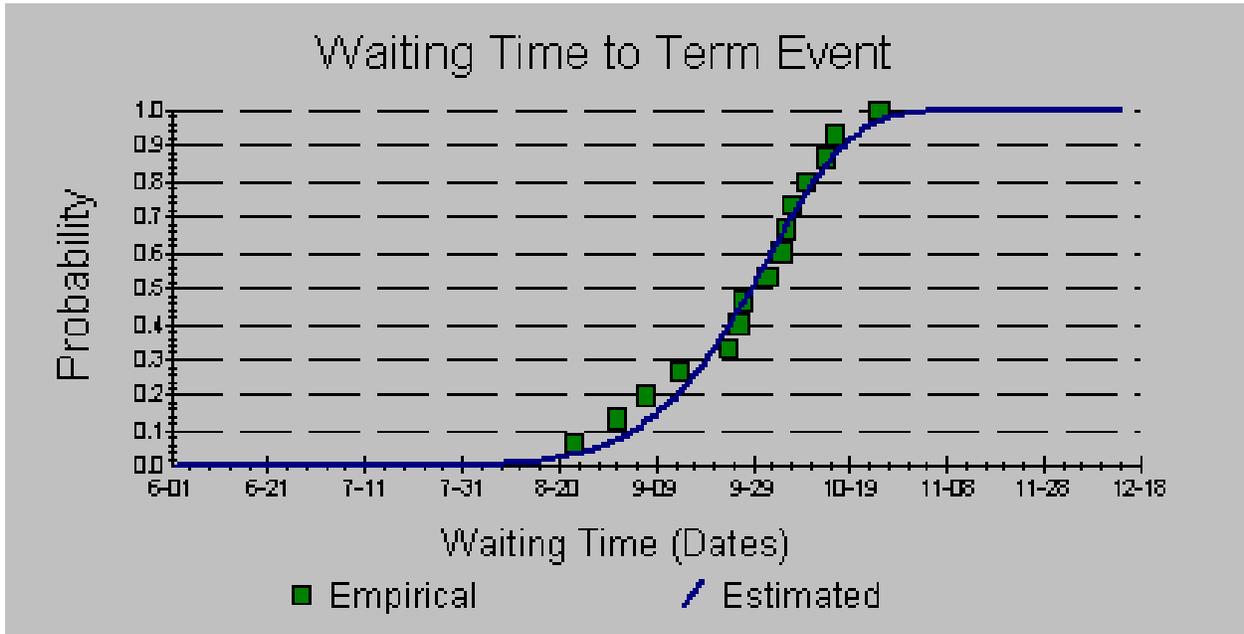
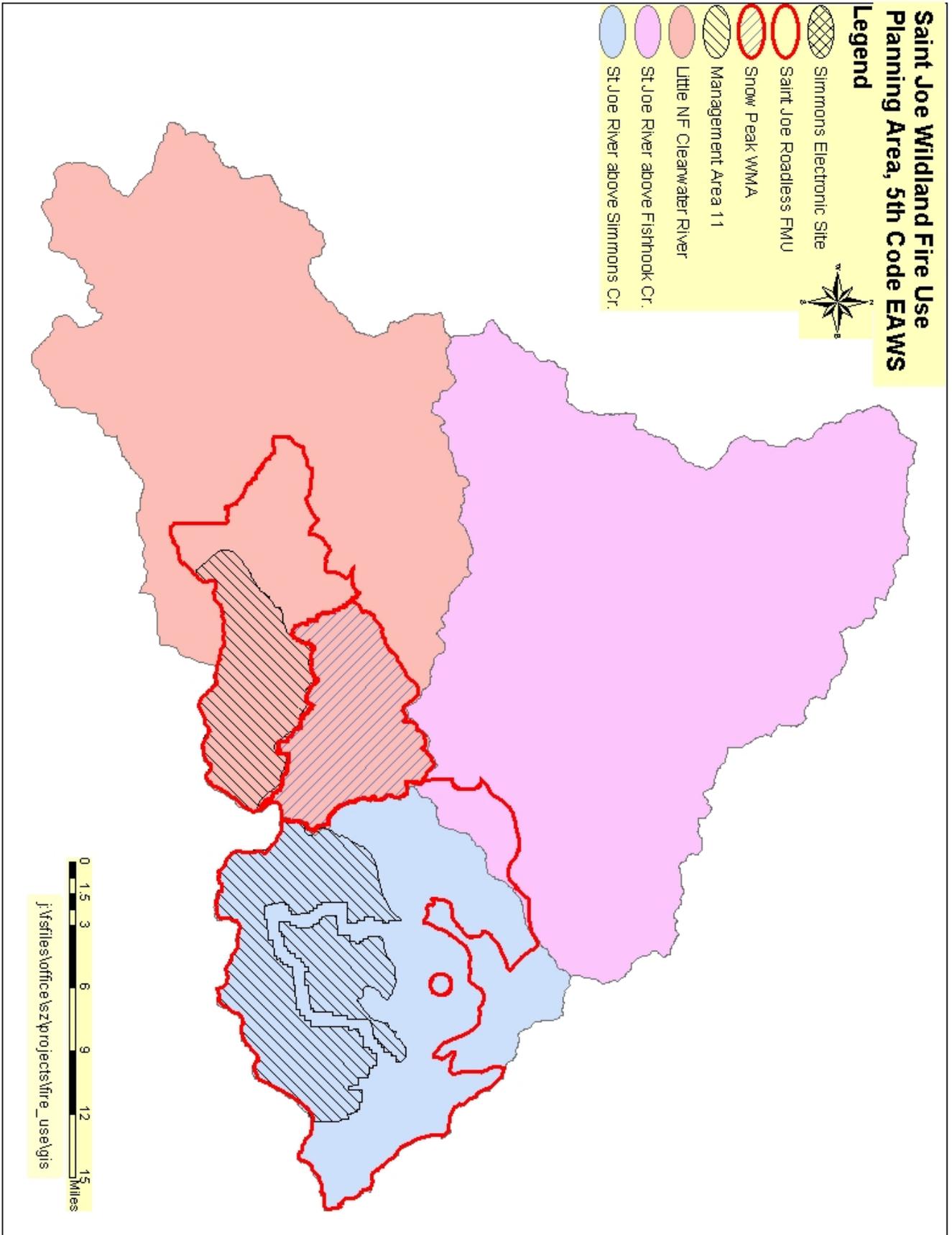
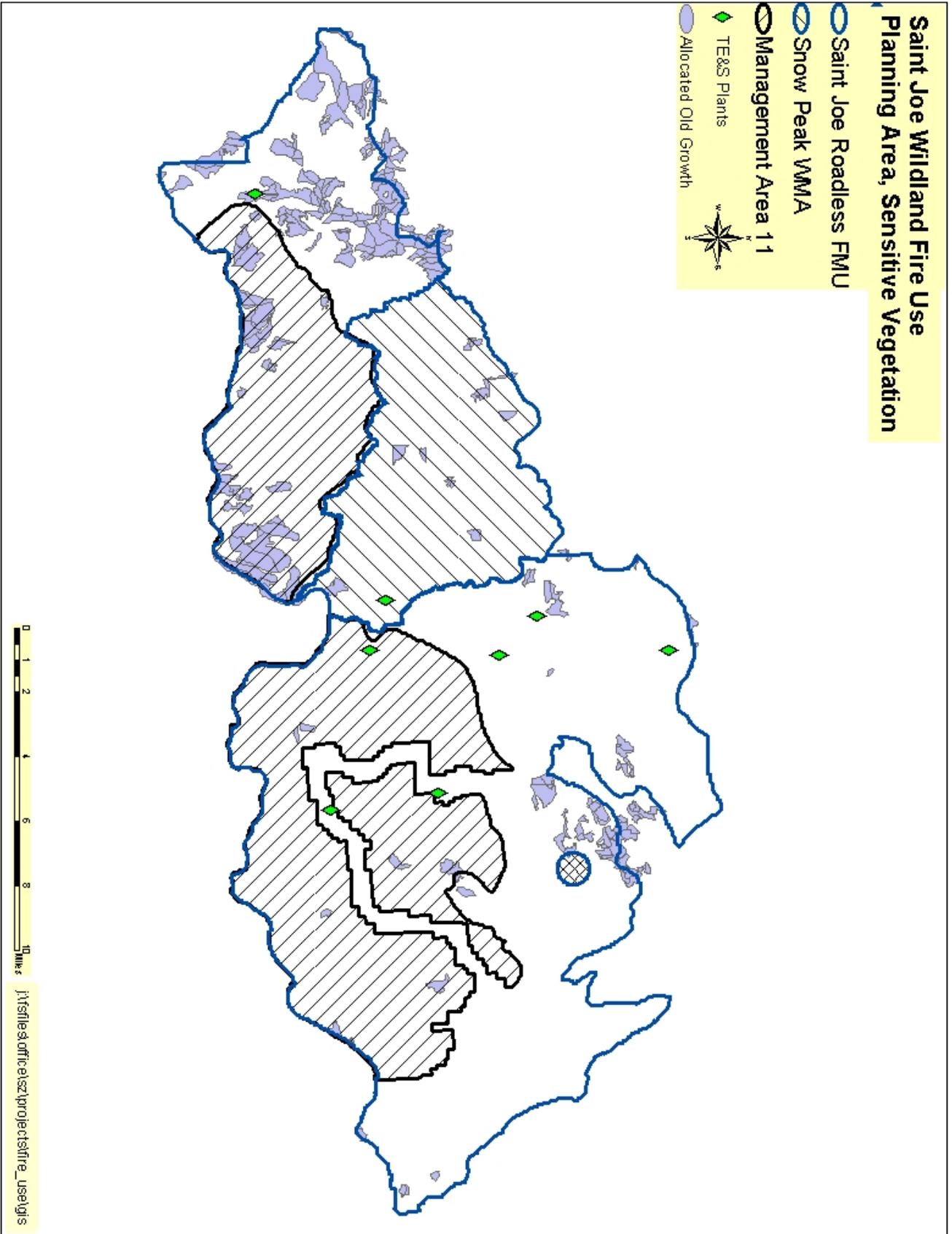
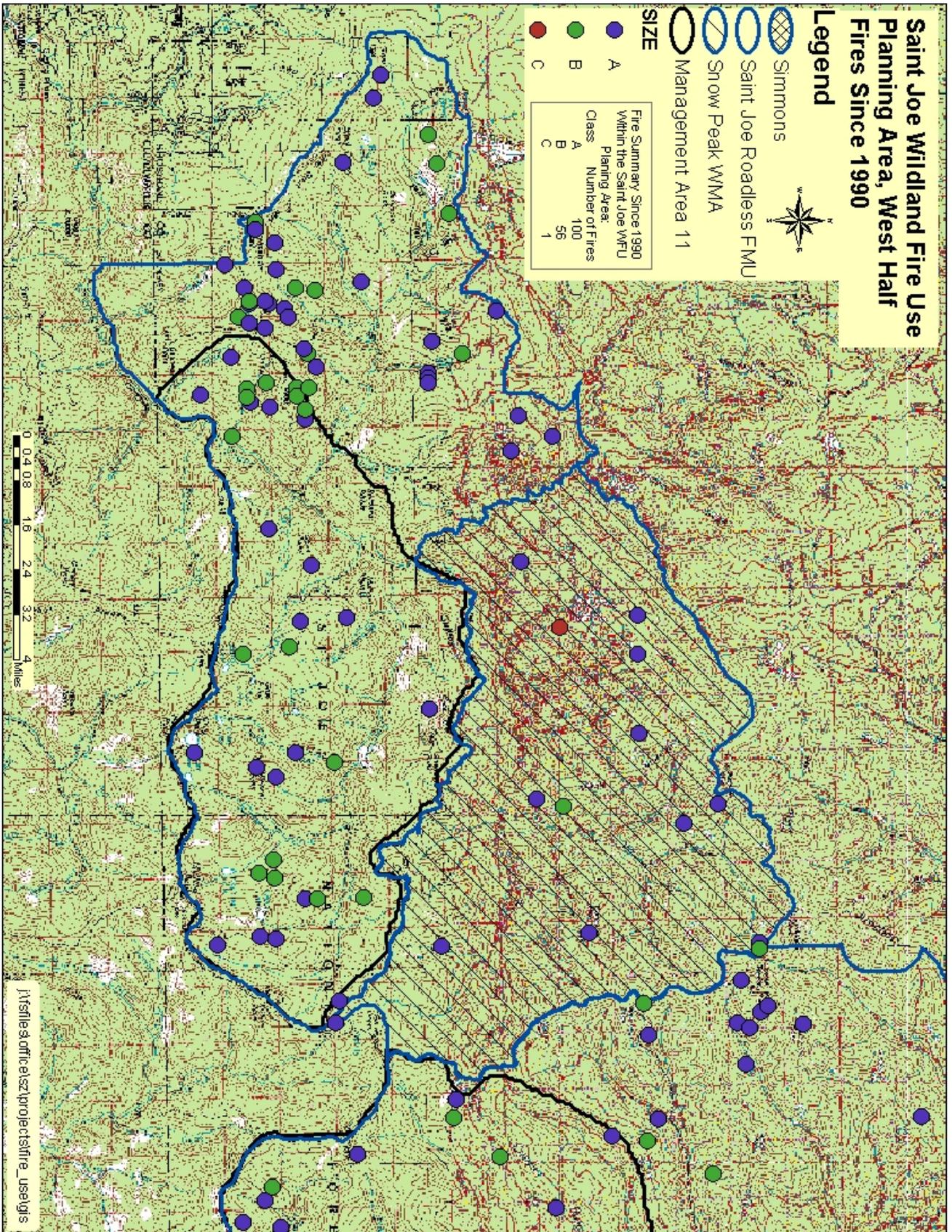


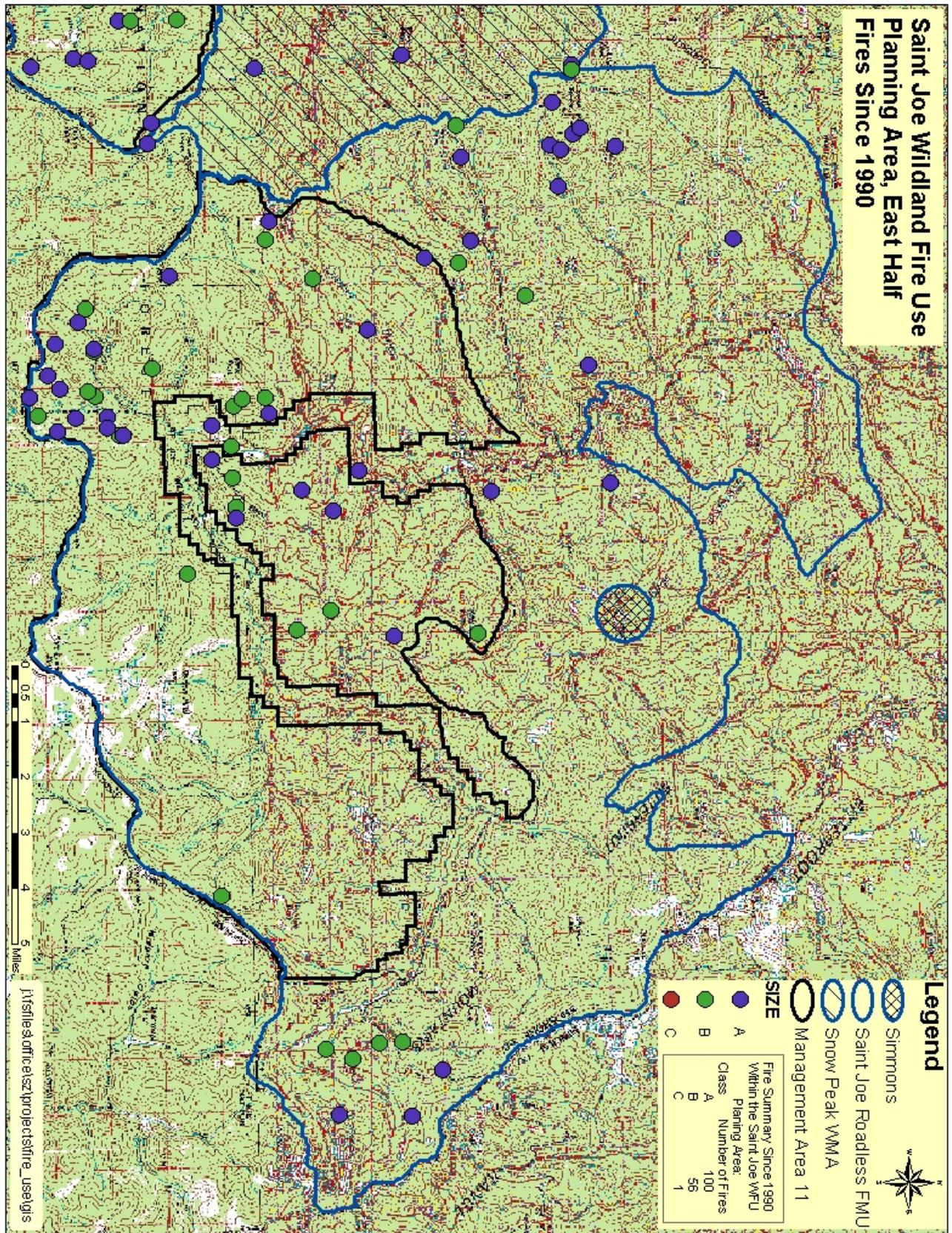
Figure D4: Terms analysis graph generated using RERAP.

Figure D4 above shows the Weibull waiting time distribution for season ending weather events with a season start date of June 1st. Empirical dates are the same season ending dates listed in Table D1. After using the auto fit curve utility in RERAP, the curve alpha estimate value for this graph is 8.14, the curve beta estimate value is 0.008, and the r-squared value is 0.976. The waiting time is the time from the season start date to the time of an estimated or empirical season ending event. For example, by September 26th (waiting time of 118 days) there is a 32% of a season ending event. By October 10th (waiting time of 132 days) there is an 80% chance of a season ending event.









Air Quality Considerations

Table D2: Air Quality Levels and Restrictions for Montana and Idaho

Restriction Level	24-Hr PM 2.5 Concentrations	Visibility	Restrictions
Level I	0-15 micrograms/cubic meter	> 10 miles	No restrictions to burning.
Level II	15-40 micrograms/cubic meter	6-9 miles	Air quality "watch". No restrictions to burning, but a closer watch on air quality conditions by the Smoke Management Coordinator. If conditions deteriorate, burners maybe restricted by geographic region or airshed.
Level III	40-65 micrograms/cubic meter	3-5 miles	Air quality "warning". Air quality conditions are deteriorating and are expected to persist. Depending on season and conditions, future prescribed and resource benefit fires may be restricted due to air quality concerns. Burners should consider reducing smoke impacts by limiting future resource benefit fires through their WFIP, Stage I, Initial Fire Assessment.
Level IV	> 65 micrograms/cubic meter	1.5-2.5 miles	Air quality "alert". Air quality conditions are continuing to deteriorate and are expected to persist. Future resource benefit fires will be restricted due to the air quality concerns. An "Air Quality Coordinating Committee" composed of NWS, MT and ID DEQ, R-1 and R-4 FS, and other agencies, such as BLM and NPS, will interface with existing coordination centers and infrastructures on a daily air quality direction and restrictions. Final decisions on air quality restrictions are always retained with the specific state regulatory agencies. At this restriction level, the process to address the WFIP, Stage I, Initial Fire Assessment decision time-frame required for resource benefit fires.

A Summer Smoke Management program, coordinated through the Interagency Smoke Meteorologist, has been established between Regions 1 and 4 to summarize the current smoke conditions and to predict smoke conditions. Specific items addressed in these daily summaries

are: (1) PM 2.5 levels; (2) burning restriction level; (3) daytime air movements; (4) winds; (5) air quality, atmospheric and anticipated smoke conditions for the next 24 hour period; (6) associated impacts to non-attainment zones and Class 1 airsheds (wilderness areas); and (7) the forecast affected area.

Table D2 gives the recommended restriction levels that have been developed to guide wildland fire use related to smoke based on EPA's Air Quality Index and Montana DEQ forest fire smoke categories. See <http://www.deq.state.mt.us/fireupdates>.

Table D3 below lists the qualified fire use managers that are available through the Resource Ordering and Status System within the Northern Rockies Region.

Table D3: Qualified Fire Use Managers and trainees pulled from ROSS by IQCS position Qualification on 8/2/05 in Region 1.

Name	IQCS Qual	Unit	Emp. Status
Tim Button	FUMA	ID-NPF	Agency
Erin Law	FUMA	ID-NPF	Agency
Mike Lubke	FUMA	ID-CWF	Agency
Bob Lippincott	FUMA	ID-CWF	Agency
Steve Munson	FUMA	ID-NPF	Agency
Patrick Parker	FUMA	ID-CWF	Agency
Ashley Sites	FUMA	ID-NPF	Agency
Ken Stump	FUMA	ID-NPF	AD
Bill Wikinson	FUMA	ID-NPF	Agency
Byron Bonney	FUMA	MT-BRF	AD
Bart Hoag	FUMA	MT-BRF	Agency
Stewart Hoyt	FUMA	MT-BRF	Agency
Bruce Windhorst	FUMA	MT-BRF	Agency
Steve Wirt	FUMA	MT-FNF	Agency
Dick Rath	FUMA	MT-GNF	AD
Lee Clark	FUMA1	MT-LCF	Agency
Brad McBratney	FUMA1	MT-LCF	Agency
Norman Kamrud	FUMA1	MT-LCF	Agency
Allen Rowley	FUMA1	MT-LCF	Agency
Wayne Cook	FUMA1	MT-LNF	Agency
Dennis Milburn	FUMA	MT-R01	AD
Rob Seli	FUMA	MT-LNF	Agency
Chuck Stanich	FUMA1	MT-LNF	Agency
Larry Svalberg	FUMA	MT-LNF	Agency
George Weldon	FUMA	MT-R01	Agency
Steve Zachry	FUMA2	MT-LNF	Agency

Trainee List

Name	IQCS Qual	Unit	Emp. Status
Chuck Mark	FUMA (T)	ID-IPF	Agency
Jim Bartlett	FUMA (T)	ID-IPF	Agency
Kevin Chaffee	FUMA (T)	ID-NPF	Agency
Barry Ruklic	FUMA (T)	ID-NPF	Agency
Scott Schrenk	FUMA (T)	ID-CWF	Agency
Jacqule Parks	FUMA (T)	MT-BRF	Agency
Fred Jones	FUMA (T)	MT-GNF	Agency
Marty Gardner	FUMA (T)	MT-BDF	Agency
Diane Hutton	FUMA (T)	MT-BDF	Agency
Allen Kyles	FUMA (T)	MT-BDF	Agency
Jess Secrest	FUMA (T)	MT-LCF	Agency
Mike Dardis	FUMA (T)	ID-FNF	Agency
Keith VanBroeke	FUMA (T)	ID-FNF	Agency

Appendix E: Site Protection

Site Protection Guidelines

The following are proposed guidelines to use for addressing site protection within the St. Joe WFU planning area. The purpose of the site protection is for protection from fire of any kind. These guidelines are addressed in steps to take in order to adequately identify all sites and reasonable strategic (proactive) and tactical (reactive) protective measures applicable for each individual site.

Included is a list of known administrative sites, private land inholdings, mining claims, and outfitter base camps. An assessment of cultural resource sites, including descriptions, evaluations, and geographic locations for use in a GIS, needs to be conducted and documented to facilitate future implementation of WFU within the planning area.

All known sites listed need evaluations to determine the appropriate level of fire protection action required. Defensibility of each site must be determined in order to properly identify the measures needed to adequately protect the site. This could be done with field surveys using the evaluation forms addressing pertinent information needed for proper assessment of each site. Six levels of fire protection are offered for individual sites or groups of sites within the planning area.

- No protection
- Fireline construction concurrent with threatening fire.
- Fireline construction and burnout concurrent with threatening fire.
- Fire shelter or water system protection concurrent with threatening fire.
- Retardant drops concurrent with threatening fire.
- Site/Structure/Improvement pretreatment fuels reduction of unnatural fuels prior to fire event.
 - Fuels reduction
 - Flammable material movement (firewood, fuel, etc.)
 - Change in building materials

All known sites that are deemed necessary to protect will have one or more protection levels identified and selected for future management. Those sites which have extremely heavy, multi-story forest types within close proximity may require more than one protection level or treatment. The final product of the assessment will be a map with the protection level identified for each site.

An inventory database developed from site specific evaluation forms should be developed to assist decision making prior to and during future fire seasons.

Site Name	Site Type	Location
Heller Creek	Campground	T43N, R10E, Sec. 17
Line Creek Stock Camp	Campground	T43N, R9E, Sec. 29
Spruce Tree	Campground	T43N, R9E, Sec. 29
Table Camp	Campground	T42N, R8E, Sec. 9
Gold Creek	Campground	T43N, R9E, Sec. 23
Fly Flat	Campground	T44N, R9E, Sec. 36
Beaver Creek	Campground	T44N, R8E, Sec. 8
Missoula Lake	Campground	T15N, R28W, Sec. 15
Red Ives	Historic Ranger Station	T43N, R9E, Sec. 20
Beaver Creek Cabin	Historic Cabin	T43N, R8E, Sec. 13
Trappers Cabin	Historic Cabin	T42N, R6E, Sec. 12
Chickadee Cabin	Historic Cabin	T42N, R6E, Sec. 8
St. Joe Lodge	Private Lodge/Outfitter	T42N, R8E, Sec. 18
Simmons	Electronics Site	T43N, R9E, Sec. 2
Surveyors	Lookout	T42N, R7E, Sec. 12
Mallard Peak	Lookout	T42N, R7E, Sec. 36
Snow Peak	Lookout	T43N, R7E, Sec30
Conrad Peak	Lookout	T44N, R8E, Sec. 16
Centennial Trail Outfitters (Randy Parks)	Outfitter Camp	T42N, R7E, Sec. 23
Centennial Trail Outfitters (Randy Parks)	Outfitter Camp	T42N, R8E, Sec. 6
Centennial Trail Outfitters (Randy Parks)	Outfitter Camp	T43N, R8E, Sec. 33
St. Joe Outfitters (Will and Barbara Judge)	Outfitter Camp	T42N, R8E, Sec. 26
St. Joe Outfitters (Will and Barbara Judge)	Outfitter Camp	T42N, R9E, Sec. 7
St. Joe Outfitters (Will and Barbara Judge)	Outfitter Camp	T42N, R9E, Sec. 21
St. Joe Outfitters (Will and Barbara Judge)	Outfitter Camp	T42N, R9E, Sec. 12
Bitterroot Mountain Outfitters (Shawn Martz)	Outfitter Camp	T43N, R9E, Sec. 29
Bitterroot Mountain Outfitters (Shawn Martz)	Outfitter Camp	T43N, R9E, Sec. 21

Centennial Trail Outfitters (Randy Parks)	Outfitter Camp	T43N, R10E, Sec. 16
Centennial Trail Outfitters (Randy Parks)	Outfitter Camp	T43N, R10E, Sec. 14
Clearwater Outfitters (Leo Crane) (Admin. by CNF)	Outfitter Camp	T41N, R6E, Sec. 29
Wooden Trail Improvements		To Be Determined
Mining Claims		To Be Determined
NOI and POO on File		To Be Determined