Living with Wildfire in the Chewelah Area

Chewelah Community Wildfire Protection Plan

A Collaborative Strategy

Coordinated by the
Northeast Washington Forestry Coalition

Edited by the Community Wildfire Plan Committee

Chewelah, Washington
2005

The Chewelah Community Wildfire Protection Plan

The Chewelah Community Wildfire Protection Plan was developed collaboratively by local citizens, state agencies, and federal agencies starting in the fall of 2003, and progressed through the winter of 2005. Due to widespread participation, the Northeast Washington Forestry Coalition (NEW FC), a non-profit community-based group founded in 2002, organized general project coordination. Initial funding for this project was awarded via a Secure Rural Schools and Community Self Determination Act of 2000, Resource Advisory Committee grant to the NEW FC in October 2002. This written plan is the result.

The Mission of the Northeast Washington Forestry Coalition, Community Wildfire Plan Committee

The Northeast Washington Forestry Coalition is a community-based, non-profit organization involving industry, conservation groups, natural resource agencies, and residents cooperating to encourage and facilitate the use of natural resource principles that promote ecosystem health and diversity. Through community involvement and education, the coalition supports management of all land with the watersheds in a manner that sustains natural resources and that will, in turn, contribute to economic and community well-being and resilience.

Steven Country Fire Protection District #4

Stevens County Fire Protection District # 4, having participated in the development of the Chewelah Community Wildfire Protection Plan, approves and supports the plan's goals. The District will continue to participate and provide over-sight as the plan is implemented within the District boundaries.

Stevens County Fire District # 4 Commissioners:

12/14/04	Gary Skok S/S	Commissioner
12/14/04	Fred Nussbaum S/S	Commissioner

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EXECUTIVE SUMMARY

Goals and Objectives

The Chewelah Community Wildfire Protection Plan (CCWPP) began in the fall of 2002, when NEW FC (formerly the Colville Community Forestry Coalition), the Forest Service (FS), and the Washington State Department of Natural Resources (DNR) were discussing the high fire danger throughout the Colville National Forest and the surrounding private and state lands. The Chewelah area was chosen as the first area for a fire plan in the Colville National Forest area. A very active community was involved in the planning process. Several fire suppression agencies working in the Chewelah area, land managers from the Forest Service, State and private sector, and people living in the Chewelah area worked with numerous land management plans across FS, State, and private land on the fire plan.

This wildfire protection plan provides an overall view of the watershed and its relationship with fire. It suggests ways the relationship can be improved, individually and as a community. It also provides direction to local agency land managers and concerned landowners who want to work with their state and federal neighbors in developing fuel reduction strategies. The Chewelah Community Wildfire Protection Plan addresses the main components of wildfire and separates the approximate 150,000-acre project area into twelve separate strategic planning areas (SPAs) with individual descriptions and recommendations. The CCWPP discusses the planning process, gives a community profile, and describes the Mitigation Action Plan, monitoring, and evaluation.

The CCWPP planning process resulted in three basic goals:

1. Improve community awareness of our stewardship of the land and foster a respect for the ecosystem and the processes that maintain it.

2. Develop a wide array of strategies for fuel reduction and fire suppression that Chewelah area residents can accept as sensible precautions against catastrophic fire, and that agencies can incorporate into their current management practices.

3. Restore fire-adaptive species in the ecosystem, thereby encouraging more fire-resilient forests.

Methodology

A Framework for Community Fire Plans, collaboratively developed by numerous agencies and the Program for Watershed and Community Health at the University of Oregon, was used as a guideline for the CWPP planning process. This framework takes several federal programs and policies into consideration, and address the various requirements of the Bureau of Land Management Interim Guidance for Community Risk Assessment and Mitigation Plans, Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation Program, Healthy Forests Restoration Act (HFRA) Community Wildfire Protection Plans, and the National Fire Plan, A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy.

Section 1: INTRODUCTION

1.1 Background and History

The Chewelah area fire regime has deviated from its historic fire frequency interval. Regimes in the Chewelah area have changed from frequent low-severity fires to less frequent, high severity fires. This change is due to years of fire suppression, roads, and livestock grazing.

The collaborative CCWPP planning process identified and prioritized what problems create fire hazards and hinder safety:

1. People start the majority of the wildfires within the Chewelah area. Reducing the number of such ignitions will reduce the potential for a catastrophic wildfire.

2. Years of successful fire suppression have resulted in thousands of acres of overly dense brush and forest areas that are 'ripe' to burn if an ignition occurs. In many of these areas, a wildfire would be difficult or impossible to stop under extreme conditions.

3. Hundreds of homes have been built in the rural interface. Many have narrow or steep access roads or driveways with dense, encroaching, or overhanging vegetation, inadequate clearances for fire engines, and a lack of possible turnaround sites. In a wildfire situation, most fire fighters would be reluctant to save such a home for fear of being overrun by the wildfire.

4. Many homes have been built in areas with no capacity for alternative electronic communication, particularly if power were interrupted in an emergency. Nevertheless, our community needs to establish a process of good communication in order to share home and life saving information.

During this process of identifying issues, many questions about reducing fire risk were raised. The following are examples of what questions were asked and were addressed within the CCWPP:

How is this work done? *[Section 5]*

Is treatment done in the same manner across the area? *[Section 1.2, 5.1 and 5.2]*

What is at risk in the event of a wildfire? *[Section 4]*

What are we attempting to do by reducing fuels?
To reduce fire hazards to reduce catastrophic fire.

What are our objectives for addressing the overstocked forest?
Restore the ecological integrity and health of the forests after eighty years of fire suppression.

The committee then gathered information needed to develop strategies derived from assessed community values. The following was completed and can be found throughout this document:

- Reviewed historical fire starts and researched minimizing human caused fire *[Sections 4 and 5]*
- Identified Communities At Risk (a high density of homes per square mile) *[Section 1.2]*
- Assessed fire hazard ratings (an analysis of fire's ability to spread based upon vegetation, canopy cover, slope, aspect, and elevation) *[Section 4.1.4]*
- Identified completed fuel reduction *[Section 1.2]*
- Identified road locations (which both help and hinder fire) *[Section 3.3.1 & 5.1.2]*
- Addressed topography (steepness and elevation) *[Section 4.1.4]*
- Identified endangered species habitat *[Section 3.1]*

After a brief review of the GIS (Geographical Information Systems) maps and layers, the information suggested we begin at the wildland-urban interface, where the physical aspects of the land, the numerous human-caused fire starts, and the vegetation buildups presented the highest threats. In general, areas around homes seemed to be the single most essential point to address throughout the Chewelah area. Lands near residences and roads, especially those where aspect, vegetation, slopes and elevation combine to increase the hazard rating, were next in priority. Considering healthy forest ecosystems was a vital element as well. Forests with bio-diversity, beauty, and resources provide the Chewelah area with cool clear water, fish, and a sustainable timber supply. Community security will be the by-product of addressing the wildland-urban interface.

1.2 Strategic Planning Areas

The Strategic Planning Areas within the project area covers all of Fire District #4, and a small portion of Fire District #5, (including the City of Chewelah and adjacent WUI acres outside of Fire District protection).

Fire Districts, Department, and Agency:

Stevens County Fire District (SCFD) # 4
PO BOX 190
Valley, Washington 99181
(509) 937-2012
scfd4@centurytel.net

SCFD #4 is an all-volunteer fire department with three stations including 41- Valley, 42-Waitts Lake, and 43-Chewelah City FD. SCFD #4 has one type 1 or 2 engine, one tender, and one type 6 brush engine at each station. Tentative plans are to build additional stations to the north at Moser/Highline Rd., and to the west at Red Marble/Mountain View Road. Mutual Aid Agreements are in place between Stevens County Fire Districts, and with the Washington Department of Natural Resources.

Stevens County Fire District #5
PO BOX 152
Addy, WA 99101

The SCFD #5 is an all-volunteer fire department with its closest station in Addy. It has two type 1or 2 engines, two tenders, and three type 6 brush engines in the vicinity.

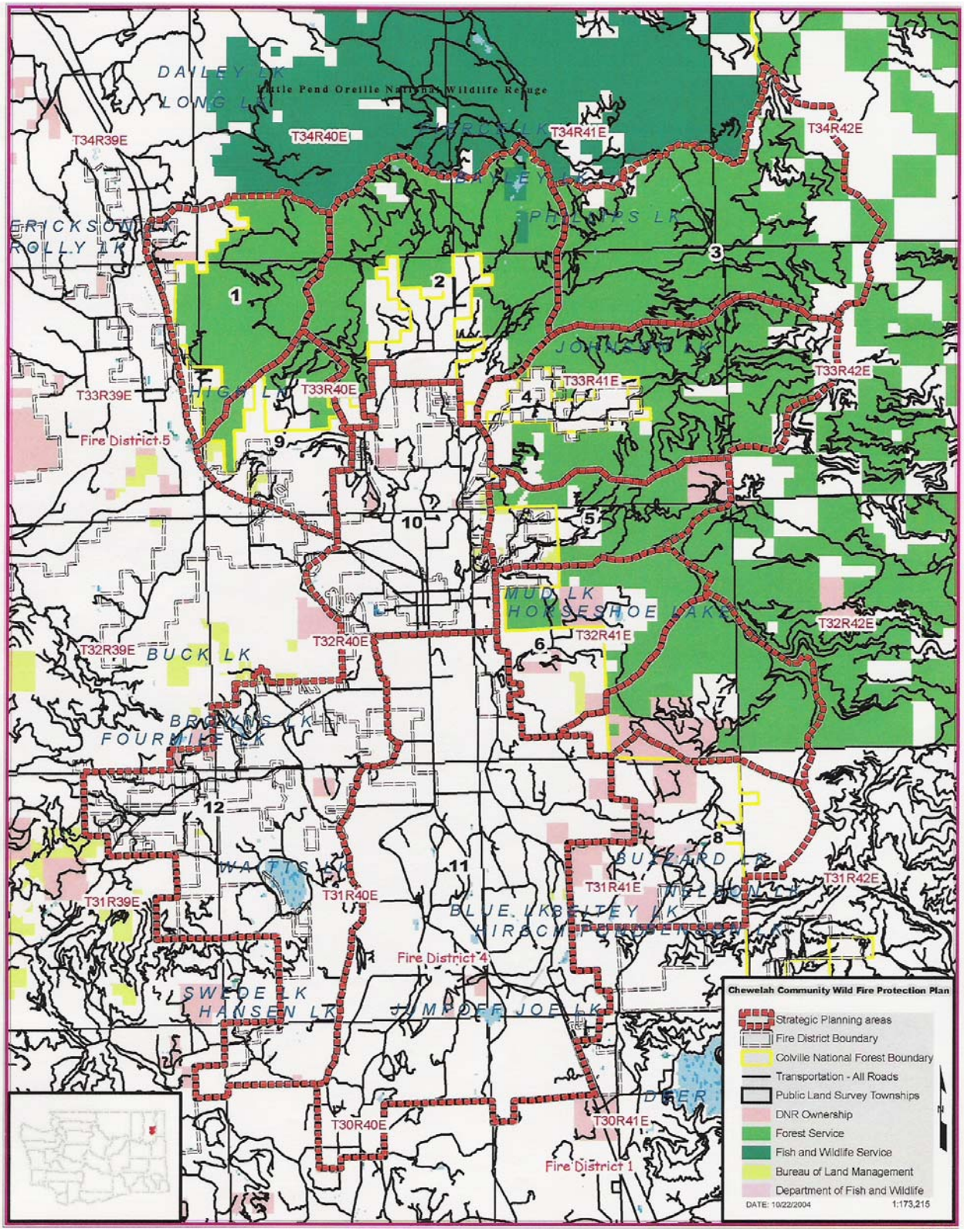
Chewelah Fire Department
PO BOX 258
Chewelah, WA 99109

This is an all-volunteer fire department. It has one station in Chewelah, with one type 1 engine, 2 type 3 engines, and one type 6-brush engine. This fire hall is also STA 43 for SCFD #4. Mutual Aid Agreements are in place with SCFD #4.

Washington Department of Natural Resources
Northeast Region
S 225 Silke Rd
Colville, WA 99114
(509) 984-7474, 800-527-3305

United States Forest Service
Three Rivers RD, Colville National Forest
255 West 11th
Kettle Falls, WA 99141
(509) 738-6111

Chewelah Community Wildfire Protection Plan Area Map



SPA	Communities	Acres
1.	West Iron Mountain	9,708
	a. West Iron Mountain	
	b. 12 Mile	
	c. Addy	
2.	West- North Fork Chewelah Creek	17,225
	a. West-North Fork Chewelah Creek	
	b. Leslie Creek - Major Road	
3.	East - North Fork Chewelah Creek	17,878
4.	South Fork Chewelah Creek	15,900.
	a. South Fork Chewelah Creek	
	b. Burnt Valley	
5.	Thomason Creek	6,335
	a. Thomason Creek	
	b. Flowery Trail Summit	
	c. Six Mile	
6.	Sherwood Creek - Horseshoe Lake	8,708
7.	Betts Meadow	8,825
8.	Upper Cottonwood Creek	10,962
	a. Upper Cottonwood Creek	
	b. Grouse Creek Junction	
	c. Buzzard Lake	
9.	Gold Hill – Immel Road	6,390
10.	RFD #4 North	12,891
	a. Well Head	
	b. Golf course	
	c. Lower - North Fork Chewelah Creek	
	d. Highline	
	e. Cozy Nook	
	f. Embrey Hill	
11.	RFD #4 South	36,540
	a. Flyckt Rd.	
	b. Lower Cottonwood Creek	
	c. Skok Loop	
	d. Beity Lake	
	e. Jump Off Joe	
	f. Heine Rd. North	
12.	RFD #4 West	23,614
	a. Quarry Road - Browns Lake	
	b. Red Marble - Mountain View	
	d. Waitts Lake	
	e. Carrs Corner	
	f. Little Sweden	
	g. Deer Creek	
	TOTAL ACREAGE	174,975

Ownership Acres in the Chewelah Area

Communities	SPA #	Total	DNR	USFS	USFWS	BLM	PVT
West Iron Mountain.	1	9,708	274	7,116	35	83	2,200
W-North Fork Chewelah Creek	2	17,225	0	11,333	553	0	5,339
E-North Fork Chewelah Creek	3	17,878	0	14,634	37	0	3,207
South Fork Chewelah Creek	4	15,900	0	11,224	0	0	4,676
Thomason Creek	5	6,335	678	3,488	0	216	1,953
Sherwood Creek - Horseshoe Lake	6	8,708	973	3,265	0	175	4,295
Betts Meadow	7	8,825	1,661	5,557	0	0	1,607
Upper Cottonwood Creek	8	10,961	2,491	0	0	0	8,470
Gold Hill	9	6,390	0	1,790	0	222	4,378
RFD#4 North	10	12,890	290	16	0	192	12,392
RFD#4 South	11	36,540	653	0	0	42	35,845
RFD#4 West	12	23,615	357	0	0	71	23,186
TOTAL		174,975	7,377	58,423	625	1001	107,548

1.3 Fire Policies and Programs

This fire plan was developed using a number of policies and programs for guidance. The following is a description of each:

A Framework for Community Fire Plans:
Developed by Program for Watershed and Community Health, University of Oregon, 2004. The outline provides a framework for the elements for a community fire plan and a process for facilitating the development of the plan.

Healthy Forest Restoration Act – HR 1904:
Is developed within the context of the collaborative agreements and the guidance established by the Wildland Fire Leadership Council and agreed to by the applicable local government, local fire department and State Agency responsible for forest management, in consultation with interested parties and the Federal land management agencies.

National Fire Wise Program:
Firewise Communities/USA is a project of the National Wildfire Coordinating Group's Wildland/Urban Interface Working Team and is the newest element of the Firewise program. It provides citizens with the knowledge necessary to maintain an acceptable level of fire readiness, while ensuring firefighters that they can use equipment more efficiently during a wildland fire emergency. The program draws on a community's spirit, its resolve, and its willingness to take responsibility for its ignition potential.

National Fire Plan:
The National Fire Plan was developed in August 2000 (USDA Forest Service and Department of the Interior), following a landmark wildland fire season, with the intent of actively responding to severe wildland fires and their impacts to communities while ensuring sufficient firefighting capacity for the future. The NFP addresses five key points: Firefighting, Rehabilitation, Hazardous Fuels Reduction, Community Assistance, and Accountability.

National Environmental Protection Act:
The purposes of this Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

Western Governors Ten-Year Strategy:
Goals: to improve fire prevention and suppression, reduce hazardous fuels, restore fire-adapted ecosystems, and promote community assistance. Principles: a. priority setting that emphasizes the protection of communities and watersheds at-risk; b. collaboration among governments and broadly representative stakeholders; c. accountability through performance measures and monitoring for results.

Section 2: PLANNING PROCESS

2.1 Community Wildfire Planning Partners:

Contact	Organization	Phone
Tim Coleman	Northwest Ecosystem Alliance	(509)-775-2667
Jim Doran	NEW FC, Director	(509)-997-2295
Dick Dunton	Northeast Washington Forestry Coalition	(509)-935-8882
John Eminger	49 Degrees North Ski Area	(509)-935-6649
Peter C. Griessmann	WSU Extension; Area Extension Educator, Forestry	(509)-684-2588
Chuck Johnson	Washington Department of Natural Resources	(509)-684-7474
Fred Nussbaum	SFD #4 Commissioner	(509)-935-8870
Mike Petersen	The Lands Council	(509)-838-4912
Steve Rawlings	Colville National Forest Service	(509)-684-7222
Doug Sassman	City of Chewelah Fire Chief	(509)-935-6665
Gary Skok	SFD #4 Commissioner	(509)-935-6161
Don Stragis	Timberland Management Company	(509)-233-2710
Tim VanDoren	Stevens County Fire District # 4 District Fire Chief	(509)-937-2012

CWPP Planning Partners all participated in the process at different times, to identify concerns, prioritize, provide input, and help with the public outreach. SCFD #4 Fire Chief and Commissioners, John Eminger, and Dick Dunton were the principle contributors, with Tania Ellersick and Ellen Picken (The Lands Council) drafting the final CWPP.

2.2 Collaboration and Community Outreach

Public meetings and field tours were advertised and held by the Colville National Forest, USFS in Spring and Summer of 2004, to inform and acquaint the public of proposed Forest Health and Fuels Reduction projects in the Burnt Valley vicinity. The NEW Forestry Coalition participated in this outreach, and updated participants on the CWPP initiation, process, purpose and status of the CWPP. Initial CWPP input was from agencies and SCFD #4.

Introductory Meeting:
November 2004 Burnt Valley, Chewelah Fire Hall

Resident's Protection Needs: Two meetings were held to accommodate people who worked in the evenings and daytime.
March 3, 2005 6:30 Miner's home 2716 Moser Rd. Chewelah
March 10, 2005 1:00 Chewelah Fire Hall

Fire Hazard Reduction Workshop: To be held as of spring - fall 2005
Implementation plan: To be held, pending funding of Fuels Reduction Grant request.

Resident's Protection Needs Meeting Agenda:

Date:	March 3	March 10
Location:	Becky Miner's	Chewelah Fire Hall
Time:	6:30pm	1:00pm

Total present: 12 (not including presenters and The Lands Council student interns)

1. Introductions

   Dick Dunton *NEW FC*

   Tim Van Doren *Fire Chief District #4 (March 3)*

   Chuck Johnson *NEW FC*

   Ellen Picken *The Lands Council*

2. Dick Dunton: *What is the Chewelah Fire Plan?*

3. Tim VanDoren(March 3)/ Dick Dunton (March 10)

   The role of the Fire District
   Identify priority neighborhoods/ Strategic Planning Areas
   Review fire safe tips

4. Chuck Johnson: *The Funding Process*

4. Forest Service: *The role of the Forest Service*

   Explain Wildland Urban Interface projects

5. Ellen Picken: *Your role as community members*

   What are your economic and social values as area residents?
   What are your fire safety needs?

Handouts: Fire safe tips
Your fire safe needs (to return at end of meeting)

Section 3: COMMUNITY PROFILE

3.1 Environment

[All information in Section 3.1 is from the Quartzite Watershed Scale Ecosystem Analysis. Colville NF USFS, 1998.]

Air Quality

Clean air in a fire ecosystem is a complex issue, especially in a fire ecosystem in which wildland fire has been suppressed for decades, and prescribed burning is used as a management tool. Air in a fire ecosystem, like air everywhere in the country, is subject to national laws. The Clean Air Act requires the Environmental Protection Agency (EPA) to create air pollution standards to protect not only human health and welfare but also the environment. These standards were designed to protect the most sensitive members of the public including very young, the very old, and those with heart and lung problems. National ambient air quality standards (NAAQS) have been established for carbon monoxide, particulate matter, ozone, lead, and sulfur dioxide.

The primary smoke product from wildland fire that presents major public concern is particulate matter. About ten percent of the particulate matter from wildfires is greater than ten microns (about the size of beach sand.) Most particulate matter of this size is intercepted by a person's nose and mouth while breathing. About twenty percent is ten microns and less (PM10), about the size of flour particles. Because these can enter the airway and lungs, they are of greater concern. However, most particulate matter in the smoke of a wildland fire, about seventy percent, is 2.5 microns and less (PM2.5.) These particles can lodge themselves deeply into the lungs and are of greatest concern to human health.

Smoke from wildland fire can also create a problem with visibility. Much of the particulate matter produced by smoke is close to the wavelength of visible light (0.4 to 0.7 micrometers.) This makes the particles excellent scatterers of light and excellent reducers of visibility. This affects distant visibility of the mountains or, in higher concentrations, can cause hazardous driving conditions.

Prior to 1997, air quality standards for particulate matter only rated to PM10. To better address human health concerns, the EPA, in 1997, issued standards down to PM2.5. The EPA is currently monitoring PM2.5 levels throughout the nation and by 2005 will be designating those areas that don't meet minimum standards. After the designations, each state will have until 2008 to establish a plan to comply with the standards, after which it will have until 2017 to 2019 to meet the standards.

There are no PM2.5 monitors maintained by Washington State Departments of Ecology and Natural Resources, and US Forest Service within the Chewelah area. Monitors, if installed, would help to quantify the background PM2.5 levels and the increased levels expected from USFS and DNR intensified prescribed fire program.

Any fire produces smoke; however wildland fire and prescribed fire will differ in their effects on air quality in the Chewelah area for a number of reasons. Typically, wildfires burn during the driest

times of the year, when large amounts of available fuel increase the amount of smoke. Wildfires are typically random, unplanned events, which means the weather conditions at the time of the fire may or may not be favorable for smoke dispersion. Smoke from wildland fires can affect a large area around and downwind of the fire. A well-planned and implemented prescribed fire can have significantly fewer emissions than a wildfire in the same area. The ability to choose a weather window that will optimize smoke dispersion and minimize smoke flow into populated area is one of the great advantages of prescribed fire verse wildland fire in regards to air quality. Prescribed fires are set at a time of year when fuels typically have a higher moisture level than they have in July through September (wildfire season), so not as much fuel is burned and less smoke is produced.

Burning is regulated in the Chewelah area by several state, county, and city agencies. Stevens County and the Washington State Department of Ecology regulate wood stove burning and open or backyard burning. The city of Chewelah regulates burning within the city limits. The Washington State Department of Agricultural regulates agricultural burning. The Washington State Department of Natural Resources regulates prescribed burning of slash produced by forest management activities or burning of natural wildland fuels. Because of the differing characteristics of the types of burning, it is possible for one type of burning to be allowed while other types are prohibited. For example, slash burning might be conducted when open burning is prohibited.

Whenever prescribed burning is occurring, it is important to remember these two points:

1. Various regulations cover various types of burning.

2. There is an emissions trade-off: fewer emissions now during a prescribed burn versus more emissions later during a wildfire.

Soils

The understanding of soils is important to the restoration of the forest. Any area will revegetate itself if left alone after a fire; however severely burned sites will take much longer, since few plant species can easily regenerate in such soils. To minimize erosion in critical areas it is important to revegetate the area as soon as possible after the fire has swept through the area. Revegetation is most efficiently done with a good understanding of soils composition.

Soil depth, steepness and aspect of the slope, parent materials, drainage and moisture capacity, and permeability will affect how quickly vegetation will grow after a fire. Because shallow soils hold less water, limit root growth and often have fewer nutrients than other soils, they are not as productive for plant growth and revegetate slower. The steeper slopes, which are more susceptible to surface erosion and tend to lose moisture quickly, may also inhibit revegetation. The third complicating factor is the parent material that determines how nutritious and wet the soil is and how susceptible it is to slumping and sliding.

For the purposes of this fire plan four categories of material are discussed below:

1. Alluvial: These are soils that have been deposited by streams. They are usually found on gentle slopes or areas where earth has accumulated abundantly, and typically contain soils of various origins.

2. Ultramafic: These soils are derived from serpentine or peridotite rocks and are resultantly high in magnesium, iron, and other heavy metals and low in calcium. These nutrient imbalances and deficiencies lead to low productivity in these soils, which are consequently sparsely vegetated. The short supply of organic matter in ultramific soils further impedes revegetation after a fire.

3. Granitic: These soils tend to be highly erodible because they are dry, droughty soils that lack cohesion. Soil particles are easily detached and transported by gravity, water, and wind.

4. Other and mixed: In the "other soils" category are parent materials that have similar productivity and similar properties concerning moisture and erosion. Parent materials of these soils is most commonly sedimentary, volcanic, or metamorphic (any of those types altered partially by heat and/or pressure.) These soils are typically more productive and less susceptible to the impacts of fire than either granitic or ultramafic soils. Mixed soils are combinations of ultramafics, granitics, or "other" soils.

Soils classified as "other and mixed" are the most widely disturbed throughout the Chewelah are. Granitics are the next most common and ultramafic are the third.

Erosion and run-off during storms and spring break up can increase dramatically on a particular site after severe wildfire for a number of reason: loss of ground cover, inhibited regrowth of vegetation, fire-induced water repellency and a decrease in the soil's structural stability that makes it less able to resist detachment by wind and water. During particularly intense storms, these factors can cause heavily flooding, sedimentation, mud flows, and the associated threats to lives, property, and conditions, including homes, roads, bridges, reservoirs, ponds, water quality, etc.

Some soil types are more susceptible to damage from fire than others. Of the soil types in the Chewelah area, granitic and ultramafic soils are the most prone to erosion after a fire (or at any other time). Sandy soils derived from granitic rock tend to lack stickiness and are thus more easily detached by wind and water. This makes them highly sensitive to any reduction in ground cover.

It is primarily the severity of the burn rather than the soil type that determines how much erosion or runoff will occur after a fire. Ground cover is the key. Given equal slope, areas where all ground cover (organic matter, leaf litter and duff) has been consumed by the fire are most susceptible to post-fire erosion and runoff. Burns have the most severe effect on soil in areas with the heaviest fuel build-up; heat from the fire is in contact with the soil longer. It is this heating of the soil that can cause physical and chemical changes in it, coupled with the loss of soil cover, can lead to increased erosion and runoff as well as inhibited natural revegetation. Shallow or rocky soils which support sparse vegetation are not at great risk from fire damage simply because of the relatively short time the soils are contact with heat or fire. Steepness or slope affects post-fire erosion: the steeper the slope the greater the erosion hazard, especially when fire has consumed soil cover.

Section 3: Community Profile
3.1 Environment

Forested Vegetation Conditions and Trends

Many factors discussed in this plan affect the behavior of fire – weather, location, soils, build-up, etc. This section considers the influence of the plant series, a category based on the species that will dominate the site if it is left undisturbed and unburned for centuries.

The current conditions of fire differ greatly throughout the Chewelah area based on the affected biophysical environments, since fire regimes are unique for each one. The most common biophysical environment in the Chewelah area consists of the warm dry Douglas fir and shrub. The behavior of fire differs significantly between biophysical environments. In general, fire occurs less frequently with increasing elevation, with decreasing vegetation, with decreasing accumulation of dead material, and on north-facing slopes. The following is a description of each biophysical environment and its relationship with fire.

Warm Dry Douglas-fir/shrub

Biophysical Environment

Over 80% of the Chewelah area falls within this biophysical environment. It is characterized by warm dry Douglas fir and Grand-fir with shrub under stories. This biophysical environment generally occurs on midslopes and ridges on south and west aspects. For example the Douglas-fir series is most conspicuous on the southerly slopes of the upper Sherwood Basin and Grand-fir on the southern aspects of Betts Basin.

Forest habitat types found in this habitat type group consist primarily of Douglas fir, ponderosa pine and western larch. Historically these sites were maintained in grassy and more open stand conditions of large, old ponderosa pine and Douglas fir with western larch mixed in on more moist sites. Low intensity ground fires (under burns) significantly influence the development of many stands within this biophysical environment maintain an open stand appearance.

Role of Fire

During pre-settlement times, much of this biophysical environment was characterized by low intensity fires due to the relatively light fuel loading, which mostly consisted of small diameter fuels. Frequent, low intensity fires generally kept stands open; free of fire intolerant species and maintained seral species such as ponderosa pine as well as larger diameter fire resistant Douglas fir. In some area low intensity fires stimulated shrubs and grasses, maintaining vigorous browse and forage. The shrub layer could either inhibit or contribute to potential fire behavior, depending on weather and live fuel moisture conditions at the time of the burn. Stands tended to have older, large diameter overstory trees, interspersed with areas of young pole and sapling sized reproduction. When a low intensity fire occurred these thickets of younger trees were often killed, maintaining stands in an open, park like condition. The absence of a dense understory prevented flame lengths reaching the crowns of the overstory. Colville National Forest "Fire History" records, June 30, 1916, mention:

> ". . . the fires on the south slope as rule are mostly grass fires, while it burns the reproduction, brush and dead and down timber, it very

seldom crowns. The greater damage which can be noticed throughout the district is to the reproduction."

There are still some remnants of these park like stands today on the lower south facing creek bottoms, as well as on south facing ridges.

Severe high intensity fires in which entire stands are often destroyed were most likely to occur when succession had progressed without fire, causing an increase in surface and ladder fuels. It is unlikely, however that these later successional stages occurred over a widespread area prior to 1900. As a result, stand replacement fires which covered a large area were probably less common than non-lethal underburns.

Cool Mesic Douglas-fir grand fir/forb-shrub

Biophysical Environment

This biophysical environment occupies 11% of the Chewelah area and is characterized by Cool Mesic Douglas-fir/grand fir with forb-shrub understories. The plant associations include Douglas fir, huckleberry, Grand fir, Douglas maple. It is typically found on more northerly aspects of the Chewelah area. This biophysical environment generally occurs on cooler, drier benches.

Historically, fire behavior ranged from stand replacing fires to low intensity fires, producing a mixture of even aged stands with occasional large, old trees and a species mixture of young trees. The regime was more variable in this biophysical environment than in the warm dry Douglas fir and shrub biophysical environment. Areas in this biophysical environment that experience frequent low intensity fires, typically burned from a few hundred to a few thousand acres. Areas with less underburning and more frequent stand replacing fires were probably larger in size. Considerable variety can be found in structure and composition of mature forests in this biophysical environment. Two major successional pathways describe this process. In Douglas fir, ponderosa pine and western larch successional pathways, low intensity fires would remove most vegetation leaving scattered ponderosa pine and western larch. Fire thinned stands would mature into open forest with Douglas fir and Engelmann spruce understories. In pathways dominated by lodgepole pine, stand replacing fires renewed most stands.

Role of Fire

As fuels vary, fire behavior historically ranged from stand replacing to underburns, producing a mixture of even-aged stands with occasional large, old trees and a mixture of species regenerating. The fire regime was more variable in this biophysical environment than in the warm dry Douglas fir and shrub biophysical environment. In ecosystems with frequent underburns, typical fires burned from a few hundred to a few thousand acres; areas with less underburning and more frequent stand replacing fires were larger. Fire history studies in similar areas show stand replacing fires occurring at intervals of less than 100-150 years. Where fires burned in patchy mosaics of stand replacing and non-lethal severity, the mean fire-free interval was 50 to 100 years.

Fire's role in this biophysical environment, along with cycles of insect and disease, was to control forest composition and density. Stand replacing fires at intervals of less than 150 years favored lodgepole pine. If intervals were longer, Douglas fir, western larch, ponderosa pine, and grand fir prevailed, with dominance determined by fire severity, size of openings, understory species and the frequency of subsequent underburns. Ponderosa pine regeneration was unpredictable, depending on heavy cone crops and low levels of competition from herbs and shrubs, but mature ponderosa prevailed on sites frequented by underburns. Douglas fir established well where substantial duff remained, perhaps under the shelter of trees or shrubs; when mature, it could survive underburning.

In area that previously underburned, stands that were open and dominated by seral species have developed understories dominated by shade tolerant species, in a manner similar to the warm dry Douglas fir grand fir biophysical environment. Fuel loading and ladder fuels have also increased in these areas, and stand structure and composition has become more uniform over a landscape that was once characterized by mosaics due to fires of non uniform severity.

Where stand replacing fires occurred on a more regular basis, not enough time has elapsed since the onset of effective fire suppression to cause any marginal increase in within-stand fuel loading between historic and current levels. What has changed since the suppression era is stand structure and composition, which are becoming uniform over the landscape; with the increase in stand age and species homogeny comes an increase in mortality from insect and disease. Subsequently, larger areas may currently be more vulnerable to stand replacing fire than they were in the past. In summary, stand replacing fire frequency, size, and severity may increase in this biophysical environment as a result of fire suppression.

Cool Mesic cedar-hemlock/ forb-shrub

Biophysical Environment

This biophysical environment generally occurs on mid to lower slopes and generally on north and east aspect. It also occurs in valley bottomlands and lower slopes with high water tables. It also includes wet meadows and alder scrublands. It is the third (7%) most widely distributed biophysical environment in the Chewelah area. Cool Mesic Western Red cedar with forb-shrub under stories characterizes this biophysical environment. The plant associations for this group include western red cedar, western hemlock, Douglas fir, western white pine, Engelmann spruce, grand fir, lodgepole pine and western larch.

These forest types are very productive and produce high levels of wood biomass between the long stand replacement fire intervals. Although fuel loading can be quite high in these stands, fire hazard is usually low, due to the high humidity in the understory throughout much of the summer months. In addition, green shrubs and other understory vegetation help act as a "heat sink" in both young and older, "park like" stands. Thus, older stands are often resistant to low intensity fire, because the crowns of the larger trees can often survive torching of ladder fuels. However, during drought periods, when surface fuels dry out, fires may smolder for long periods of time, causing more severe fire effects. Once live fuel moisture decreases, conditions leading to stand replacing fires will increase.

Role of Fire

Almost every stand visited within the Chewelah area in this biophysical environment shows some evidence of fire, exhibited either by fire scarring on trees, or by charcoal in the soil, or by burned remnants of snags. However, fire scars on individual trees are not an indicator of fire regime, as individual trees tolerate fire differently. For example western red cedar is surprisingly fire resistant and individual fire scars are not uncommon. Because fire intensity varies with slope, aspect, vegetation and elevation, a mosaic occurs after large fires, ranging from complete stand replacement, partially killed overstory with more seral species surviving, underburning with little overstory mortality or no burning at all. All these conditions may exist within the perimeter of one large fire on all slopes, aspects and elevations. The more southerly aspects at lower elevations generally exhibited lower intensities, while the riparian environments probably did not underburn.

Research findings in other similar disturbance regimes show average high intensity patch size of less than 10 acres, with a variance of several hundred to perhaps one thousand acres. For riparian environments, patch size was probably significantly smaller. In addition, moderate to low intensity burns occurred either within or adjacent to stand replacement areas. These areas had greater numbers of residual trees. The result was a landscape composed of uneven aged stands with a significant seral overstory adjacent to even aged patches. Some stands remained in a middle structural stage, while those with little or no fire disturbance proceed to late or old structural stages.

Due to these variable fire patterns and intensities, patch shape and distinct edges between mosaics existed for several decades following disturbance. In areas that had a relatively long fire return interval, patch size and mosaic borders diminished significantly with time since disturbance. Due to the variable fire intensities, patch shape was very irregular and consisted of many islands and fingers of remnant structural characteristics.

Due to the high productivity of these stands they often carry heavy fuel loading, much of which is rotten. In addition there is usually a large component of twigs and small branch wood. These fuels are often the results of accumulated deadfall and natural thinning. Duff can be relatively deep and contains a high amount of rotting wood.

Stand replacing fires do not usually consume the entire duff layer and can actually increase the amount of dead and downed fuels, as snags and other dead wood fall over in the years following the burn. In addition after a stand is opened to sunlight by fire or some other disturbance it will dry more quickly during the season and may be more susceptible to reburns and extreme fire behavior.

Cold Dry subalpine fir and forb-shrub

Biophysical Environment

This biophysical environment makes up 1% of the Chewelah area. It is found on the upper un-glaciated slopes, for example the western ridge of Chewelah Peak. Subalpine fir and western hemlock are the climax tree species. Early succession is mostly dominated by lodgepole pine or by a combination of other tree species including Douglas fir, Engelmann spruce, grand fir, western white pine, western larch and whitebark pine. The successional pattern for a particular stand depends not only on habitat type but also on past fire history, seed source and local conditions. The periodic fire disturbances and high amount of low to moderate fire severerity favors species such as lodgepole pine, Douglas fir and western larch.

Role of Fire

Fire regimes in this biophysical environment are relatively complex. Large, stand-replacing fires burned through thousands of acres at intervals ranging from 100 years to 150 years. Although variable, the frequency of stand replacing fires tended to decrease with increasing elevation because trees grow more slowly, causing fuels to accumulate more slowly.

Fuel loading depends on species composition and age structure, fire history, natural thinning, snow breakage, and levels of dwarf mistletoe and mountain pine beetle. An immediate source of dead material in a young lodgepole pine stand is the snags created by previous fire activity. Dense understories of spruce and subalpine fir often develop beneath the overstory. If heavy surface fuels lie beneath these understory trees, the hazard of crown fire is increased. Fires that started at higher elevations are usually lower in intensity; the stand replacing fires were those that swept uphill from lower forests.

Riparian Vegetation

Biophysical Environment

Fire can be an event in riparian areas; however fire plays a much smaller role in forest succession in these areas than in upland areas. Other disturbances include peak flow stream events and flooding by beaver. Riparian vegetation area varies with corridor width, elevation, and stream gradient. Examples of this biophysical environment are the lowest reaches: Thomason Creek, Sherwood Creek and Betts Meadow. Cottonwood trees, ponderosa pine, and grand fir populate the broad riparian areas. As elevation and stream gradient increase, riparian zones become narrower and western red cedar replaces ponderosa pine and grand fir. The presence of cottonwood extends upstream, where gradients flatten and riparian areas broaden. Multi stratum forest with large trees are typical of all but the upper most reaches of streams, where upland disturbance events overwhelmed most narrow riparian areas. Small breaks in riparian corridor continuity between valley floor and the upper reaches occurred with beaver flooding and the rare stand replacing fire.

Like the distribution of upland forest stages, the condition of riparian vegetation today reflects the effects of land uses and resource management policies. Fields, pastures and homes have replaced the natural riparian vegetation in the low gradient low elevation areas in the Chewelah area. Narrow strips of alder, cottonwood and conifers occur randomly in the Chewelah area's valley floors. Land uses, roads, pastures and logging, regularly interrupt the continuity of riparian vegetation between the valley floors and upland stream reaches. However stands of mixed conifers are interspersed with these openings and as ownership changes to Forest Service lands the structural diversity and tree diameters tend to increase. Conditions in the narrow upper stream that reaches onto Forest Service lands are near natural condition with many stands characterized as multi stratum with large trees. But these too have been affected by fire suppression. The continuity of stands with similar high fuel loading and ladder fuels are contributing to an increased potential for uncharacteristic stand replacement fires and an increasing potential for uncharacteristic change or loss of vegetation and riparian functions.

Special Biophysical Environmental Case

Blowdown During the winter of 1996/1997, a large-scale storm event (snow, ice and wind) occurred across the northeastern portions of Washington and parts of Idaho. In the spring of 1997 an aerial reconnaissance flight was made to evaluate the storm damage. Existing stand exam data and field reconnaissance were also used to evaluate the situation. Damage from the storm event occurred throughout the Chewelah area with the highest concentrations of blowdown along ridges and sub-ridges. Damage included blown down (primary Douglas fir trees), snapped off treetops and root sprung trees. An example is the overstory of a 1965 Wooodward Meadow area harvest. The top 10 feet of many of the remaining crop trees were broken off in the storm.

Douglas fir Beetle Douglas fir beetles are a normal component of northeastern Washington ecosystems. At low or endemic levels, the beetle infects scattered trees, including windfalls, and trees injured by fire scorch, defoliation, or by disease, or in a weakened condition due to drought. Where such susceptible trees are abundant, beetle populations can build up rapidly and spread to adjacent green, standing trees. Douglas fir beetle outbreaks generally start from a single disturbance event. Susceptibility is greatest in stands having the following characteristics:

1. Basal area is greater than 120 square feet per acre.
2. Douglas fir comprise up to more than 39% of the total trees present.
3. Douglas fir trees are more than 14 inches in diameter.
4. The stand of trees is more than 90 years old.

The majority of the stands in the dry Douglas fir or Grand fir habitat types within the Chewelah area have moderate to high susceptibility to Douglas fir beetle due to the stand characteristics described above. Stand susceptibility appears highest on Forest Service lands; examples are Betts, Woodward, Sherwood and Thomason valleys. The current outbreak of Douglas fir beetle in the Chewelah area appears significant and is predicted to create additional tree mortality over the next several years until the food source (Douglas fir trees available as brood trees) diminishes or weather/disturbance events alter beetle populations. Resistance of live trees is the most important natural factor controlling Douglas fir beetle populations.

The snow, ice and wind event mentioned above, and like events, set the stage for a rise in the number of beetles in the forest. In 1997, Douglas fir beetles entered storm damaged Douglas fir and produced broods. In 1998 the beetles emerged from the storm damaged trees and began attacking live standing Douglas fir. Historically in eastern Washington the Douglas fir beetle outbreaks that begin from a single event such as fire or weather are expected to last approximately four years. Drought, additional wind thrown trees or defoliation can prolong outbreaks.

In the Chewelah area, Douglas fir and grand fir have been replacing western larch, ponderosa pine and western white pine. Many of the stands in the Chewelah area are infected with Armillaria root disease, cause by *Armillaria ostoyae*. Douglas fir trees infected with Armillaria root disease are predisposed to attack by Douglas fir beetles. Stand hazard and risk from Douglas fir beetle remains high. Although Douglas fir beetles are native to eastern Washington, the current outbreak cannot be construed as entirely natural due to the significant changes in stand structure, composition, and hazard that have occurred as a result of human actions.

Native and Rare Plants

The Chewelah area contains approximately 26 species that are tracked as "rare" on the Forest service's "Sensitive Species" list. The different agencies have subtly different classification schemes for rare plants, but all are loosely based on the Natural Heritage Program's global and state ranking system adopted nationwide for classifying rare species. In general, species that are federally or state listed as "endangered" or "threatened" are the rarest and laws like the Endangered Species Act, or state "threatened or endangered rules" require their protection and management. The endangered Species Act does not apply to private lands, however Forest Practice Rules and Regulation protect the listed species. Species classified as "sensitive" by the agencies are those that potentially could be listed in the future, and policy and internal regulations require protection and management on public lands.

In relation to fire, it is important to understand the pattern of rarity. Rarity can be expressed as the interaction of three factors: Geographic range, local population size, and habitat specificity. The rarest species are those that have small geographic ranges small populations and unique or specific habitat requirements. No doubt some rare plants have always been rare, even prior to settlement, often because they were adapted to rare, isolated, habitats. Other plants have become rare because of the impact of humans (anthropogenic factors); many human activities have modified or eliminated suitable habitat or have directly threatened plants by decreasing their range, reducing their populations, etc.

Endangerment is not synonymous with rarity. Endangerment refers to the factors, or threats, that affect a species. The most endangered species are ones that are very rare and have serious factors that threaten them. Grazing, mining, agriculture, logging, settlement, road building, prescribed fire, wildfire and fire exclusion within the Chewelah area undoubtedly affected rare plant communities historically. Habitat modification or entire habitat loss (e.g. conversion to agriculture or rural and urban development) continues to be the primary factor adversely affecting rare plant species in the United States and worldwide. However, noxious weeds are becoming an increasingly large factor. Habitat modification is likely still occurring, especially on private lands where rare plant species are not protected by law. As the development of private lands in the Chewelah area continues, the native habitat will continue to be modified and remaining suitable habitat for species adapted to those communities will, in many cases be diminished. Rare plants are afforded protection on state and federal lands, as policies and laws require the land management agencies to manage these species.

Role of Fire

Wildfire had an important role in the Chewelah area; maintaining grasslands, scrublands, ponderosa pine, mixed conifer and true fir forests. The rare species associated with these communities were likewise affected by fire. Fire exclusion for eighty years has undoubtedly affected plant communities; it has changed the species composition and resulted in a build up of fuel throughout large areas of the landscape. The risk of catastrophic, high intensity wildfire has increased. Shrubs have colonized into areas that were once grasslands. Conifers have colonized areas that were dominated by grasslands and shrubs. Shade tolerant species (especially true firs) have colonized areas that once were more open and dominated by shade intolerant species. The overall density of trees and shrubs has increased and the abundance of native herbaceous species in the understory has likely decreased. These trends are apparent and the negative effects to rare species associated with these communities are likely.

The role of fire for all the rare plants found in the Chewelah area is not well understood. Very little scientific research has been done concerning these species' dependence on or tolerance of fire or concerning the way fire affects them. Much of what is known or believed to be true is anecdotal, derived from studies on related species or assumed from what is known about the response of the habitats in which these rare species occur. Land managers, botanists and ecologists have to make decisions regarding the effects of actions on these rare species with very little information. In the past, the procedure for protecting these rare plants has been to prevent an activity from affecting them by avoidance or buffers, thereby keeping small islands of occupied habitat in their current successional state, essentially "not affecting" the small populations. This has had great short-term success in keeping the small populations on the landscape. Recently, however, botanists and ecologists have come to understand that many of these species likely need some level of disturbance to continue to persist or reproduce, especially species that are not associated with later successional communities. It is fair to say that a portion of the rare plants known in the Chewelah area are associated with either early to mid-successional communities and are not associated with or dependent upon late successional communities. Utilizing fire or some means that emulates fire, such as thinning, is likely to be a critical tool in managing many of these species for the long term.

All the rare species known, suspected or associated for the Chewelah area have been aggregated into one of the vegetation groups listed below.

> **Forested Riparian Habitat**: The species included in this habitat group favor the multi-stratum forest stands of large diameter western red cedar that are commonly found near streams. Examples of the habitat are along Cottonwood and Sherwood creeks and their tributaries.
>
> *Botrychium crenulatum* (dainty moonwort)
> *Botrychium lineare* (slender moonwort)
> *Cypripedium parviflorum* (yellow lady's slipper)
> *Lycopodium dendroideum* (treelike clubmoss)
> *Sanicula marilandica* (black snakeroot)

Wetlands/Wet or Dry Meadows/Pond Habitat: This habitat is primarily located in isolated small wetlands like Woodward Meadows and Betts Meadows. Only the crested shield fern has actually revealed a population within the Chewelah area at this time.

Antennaria parvifolia (Nuttall's pussy-toes)
Botrychium ascendens (upswept moonwort)
Botrychium paradoxum (paradox moonwort)
Botrychium pedunculosum (stalked moonwort)
Carex comosa (bristly sedge)
Carex flava (yellow sedge)
Carex foenea (bronze sedge)
Carex rostrata (beaked sedge)
Cicuta bulbifera (bulb-bearing water hemlock)
Dryopteris cristat (crested shield-fern)
Eriophorum viridicarinaum (green-keeled cottongrass)
Geum rivale (purple or water avens)
Ophioglossum pusillum (northern Adder's-tongue)
Salix candida (hoary willow)
Salix maccalliana (MacCall's willow)
Sisyrinchium septentrionale (blue-eyed grass)
Teucrium canadense ssp. Viscidum (wood sage)

Open Forest and Rocky Outcrop Habitat: This habitat occurs primarily on Quartzite and Eagle mountain area, on Jay Gould Ridge and on rock outcroppings scattered throughout the Chewelah area.

Cyptogramma stelleri (Steller's rock brake)
Physaria didymocarpa (common twinpod)

Non-Native Plants

The protection given to rare plants in the Chewelah area addresses many of the concerns mentioned above, but one threat in particular is difficult to combat: the dominance of non-native plants. During the same time period over the last eighty years that fire exclusion was the norm, old world herbaceous and grass species were introduced to the Chewelah area. With the synergistic effects of ground disturbance coupled with fire exclusion, activities like livestock grazing, mining, and settlement led to colonization of non-native plants in many areas, especially at low elevations. These non-native species, some of which are classified as noxious weeds, have continued to expand, and new species have been introduced into new areas, especially along roads or where heavy equipment is used. Many of these species can out compete native species, including rare plants, for resources and space. The presence of these non-native plants has also changed the pattern of vegetation response following a fire. Wildfire historically helped perpetuate the native herbaceous component of grasslands, and fire exclusion has allowed this component to decrease and the grasses to increase. The composition of the grasslands also shifted over the last century from native forbs and perennial grasses to annual grasses and weedy non-native. Yellow hawkweed, dalmation toadflax, and bull and Canada thistle, are just a few. Fire (prescribed or natural) can perpetuate these native/non-native communities and increase the amount of weeds following a wildfire.

Fisheries in the Chewelah area

The historical distribution of salmonids within the Chewelah area is strongly tied to the Colville River. Currently Meyers Falls on the Colville River at Kettle Falls is a barrier to upstream migration of salmonids and other fish. Historically, after the last glacial retreat, Meyers Falls may have been passable to fish. This is supported by the presence of native fishes in the Colville River. Genetic studies on rainbow trout in the North Fork of Chewelah Creek show some remnant genes from red band trout, a native trout. Red band trout could have been stocked at some time, but the presence of some non-game fish such as redside shiners, sculpins, largescale suckers, and speckled dace indicate that the falls would have been passable.

Non-game fish are usually not stocked. Because fishes in the Columbia would have had access to Meyers Falls, the native trout would have had the opportunity to move into the Colville River. Historically, then, cutthroat trout, bull trout, rainbow trout, and the non-game fish mentioned above could have occupied the Colville River. There appear to be no fish blockages on the tributaries to the Colville in the Chewelah area. It is assumed that coldwater fish, such as trout in the Colville River, migrated freely in the Chewelah area tributaries. Even though Bull trout may have been able to access the Colville Watershed, there is no historical written record of the species in the Colville Watershed. They are assumed to be extirpated from the watershed or have never occupied the watershed. The fish bearing streams in the Chewelah area, to name two, are Cottonwood Creek and Thomason Creek.

In general, riparian timber harvest, gazing, and reading have degraded the streams below the upland in the Chewelah area. The streams have widened and the banks are eroding. Across the Chewelah area, in areas of degraded habitat, brook trout are the dominant fish species.

In fish bearing streams in the Chewelah area with known fisheries the dominant species is the brook trout. The habitat in the area creeks is supporting brook trout better than rainbow trout. Brook trout out-compete rainbow trout in certain habitats. Rainbow trout do best in fast water, deep pools and clean gravels. Brook trout survive best in lower gradient streams and can compete well in shallow habitats.

Betts Meadow is on private lands, and activities in the watershed influence the fisheries of the associated ponds. Brook and cutthroat trout reside in these ponds. An intensive effort is under way to eradicate the brook trout. The landowner intends to restore the meadow's ponds to a native cutthroat trout fishery.

In the local tributaries the channels tend to be similar. Bar formations behind debris jams create multiple channels. The riparian vegetation consists of cedars and forbs. Very little management has occurred in some of these areas, causing a somewhat natural condition to be present. The streams carry high amounts of gravels. This causes the water to flow under ground. Fish only occupy the channels up to the first few subterranean flow barriers. They provide excellent seasonal spawning habitat. These channels move high amounts of bed load.

The non-fish bearing and intermittent streams tend to be steep, narrow and located in v-shaped valleys. The steepness of the valleys in the uplands translates into steep channel gradients. Wood

and boulders form step pools and cascades. Even though these streams are non-fish bearing they supply gravels and cool water to the fish bearing creeks.

Historically, low intensity fire and other natural forces crept into the riparian vegetation form upland sources. The narrow valleys tend to have a tunneling effect on fire, causing a stand replacement fire. These fires were important sources of large woody debris. The fires were infrequent. Because of the steepness of the valleys and the high energy of the systems, after a fire, debris torrents occurred.

Recent silvicultural practices have begun to encourage the enhancement of riparian reserves for fish habitat. Fish habitat is enhanced by the presence of young trees that will eventually keep the water cool with their shade and by the reduction of brush, which helps young trees compete for sunlight. As trees get older and fall into the streams, they produce cover for fish and provide a food source of insects. Additionally, trees that fall into the stream hold back spawning gravels for eggs and produce pools below the logs for fish to live in. Thinning and burning understory levels has enhanced tree growth, which will increase the riparian tree populations suitable for habitat. With renewed efforts to encourage fire- adaptive vegetative species in the ecosystems, fish habitat may be enhanced. Since catastrophic fire decimates declining stream health, strategies to reduce this risk that are carried out with sensitivity for the ecosystem as a whole will benefit the fish.

Wildlife in the Chewelah area

Attention to the wildlife in the Chewelah area is essential as a fire management strategy is developed. Since the arrival of humans in the Chewelah area, people have had an impact on the ability of the habitat to function as home range, dispersal zones, and migration pathways for native wildlife species. The Native Americans used plants and wildlife for products they needed, and they manipulated the land by using natural processes such as fire, which probably benefited their preferred game species on the valley floor and in low elevation conifer forest. Euro/Asian settlers on the other hand burned to expose land for its mineral potential or to increase grazing for sheep and cattle. Game animals and furbearers were hunted and trapped as marketable products to be exported outside the area. Large predators such as grizzly bears, wolves, and mountain lions were extensively hunted because they conflicted with human endeavors. Mining has changed soil composition and landforms, and thus habitat capabilities, within the Chewelah area.

Before fire suppression, occasional intense fires and frequent small fires left many canopy gaps, and understory habitat was generally more open. A mosaic of habitats was likely the rule. Species that did well in this regime included the white-headed woodpecker, blue grouse and mule deer. Species that have benefited from the denser stands caused by fire exclusion include the Pine marten, Pileated woodpecker and barred owl.

By the 1920s fire suppression was a public policy. By then many private lands had already been logged to some degree. Shortly thereafter many of the federal lands began providing lumber to local mills. The larger numbers of acres harvested, the location of harvest units on north and east slopes, and the intensity of the harvest (clear cut vs. select cut), especially in the 1950s, began fragmenting late successional forest vegetation and influencing dispersal and migration of many species. Roads were built into forested lands to access timber harvest areas and to facilitate fire suppression.

More recently, human habitat in the valley bottomlands and low elevation conifer forests has eliminated or substantially altered much of the habitat used for home territories, wintering grounds and avenues for dispersal and migration by wildlife species such as elk.

Riparian areas provide habitat for many of the area's indigenous species, such as the fisher and bald eagles, and they provide dispersal and migration pathways for other wildlife. But human activity in the valley bottoms has had a deleterious effect on these environments. The clearing of land, the introduction of non-native species and human development has interrupted the natural processes and changed river and stream flows and channels. Snag removal, fire exclusion, residents' water needs and the addition of domestic animals have also taken their toll. Many riparian areas that have been managed for timber production no longer provide the structures and canopies. In some of these areas grazing, inadequate culverts at stream crossings, and roads that parallel streams have had additional negative impacts on riparian habitat.

Stands of ponderosa pine were, in their natural condition, relatively open with a variety of grasses and forbs available as wildlife forage; living, large pine trees provided food and shelter, and large pine snags provided maternity and roost sites for bats and nest sites for cavity dependent species. These pine species are being lost in the area at an alarming rate due to bark beetle infestation, selective logging and encroachment of shrub and other conifer species as a result of fire exclusion. Loss of pine stands, lack of replacement stands and the logging of dying trees (mortality salvage) threaten existing and future supplies of high quality snag habitat.

The Douglas fir forests have been altered by fire exclusion: since stands of these species now occur over a greater number of acres and young and mature forests in this condition will take longer to attain the structure and composition of late successional forests. The wildlife species that prefer Douglas fir forests have likewise been affected. These stands do provide habitat for a wide variety of species.

Snags and down logs provide essential habitat for many special status species within the area and contribute to the viability of many other species. Most of the bird and bat species utilizing snags are insectivorous and help regulate insect populations. The number of snags and down logs, the extent of their decay, and their distribution in the area are important contributors to ecosystem health. More research needs to be done to understand the requirements of snag-dependent and snag using species, the interaction of these species as a community, the impact of human activities on snags and down logs, and the result of an increase in forage for insects coupled with a loss of nesting and roosting habitat for birds and bats.

Areas suitable for deer winter range are also a valuable part of the landscape. Most of these areas occur below 2,500 feet in brush fields and are most often south facing. In general white tail deer have increased their distribution in the area. Their population tends to be stable or on the increase, with infrequent interruptions to this trend imposed by hard winters that reduces their numbers. Mule deer have generally declined due to increased roading and fire exclusion. The thick brush stands provide white tail deer with hiding cover for escape from predators, hunters and poachers, but the deer's primary need is for adequate nutrition. Historically, these winter range areas would have been revitalized by periodic fire, which kept some portions producing high quality forage while other patches gained decadency until fire burned through them. When such winter ranges are not managed they can increase the spread of fire to the upland habitat or nearby homes. In the future it will be

desirable to see patches being managed by fire and/or mechanical techniques annually to have the desired mixture on the landscape, taking into account both white tail and mule deer winter range, the habitat needs of various species of concern and the location of threatened and endangered species.

Planning to meet the needs of al of the above species and their habitats could take years. However, meeting the needs of some of the species that have political, economic or legal significance will help to guide planning efforts for fuel modifications across the area. It is desirable to get fire back into these areas as a tool to maintain these habitats and reduce the chances of large-scale conflagrations that remove some or many components of the habitat form the land.

Recreation

A prime attraction of this area is the diverse recreation opportunities and use. Hunting, fishing, camping, berry picking, wood cutting, sight seeing, bike riding, golfing, skiing, all make for a year around recreation experience.

Recreation during fire season brings an increased risk of human caused fires. This presents a danger to homeowners and the public who may be traveling through or playing in the forestland.

Fire management agencies stress fire prevention: signs, putting out campfires, even banning open fires when fire danger is high. In the extreme, fire management agencies can close the forest to keep the public out.

3.2 Population and Employment

Population

Stevens County
Estimated 2000 population=40,066
Makes up 68% of Tri County
Grew by 130% during the 1970-2000 periods

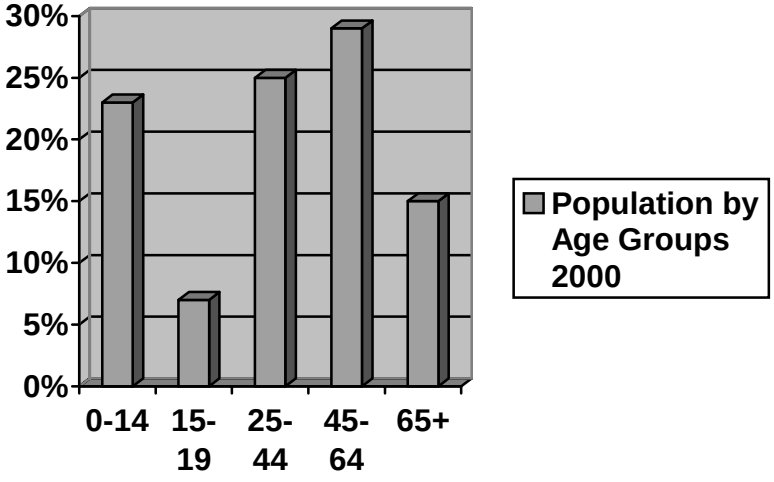
Ferry County
Population in 2000=7,260
Grew by 99%

Pend Oreille
Population in 2000=11,732
Grew by 95%

Native American Indian reservations are found in the Tri Counties:
Colville Indian Reservation is located in South Ferry County
Kalispell Indian Reservation is located and within Pend Oreille County.
Spokane Indian Reservation is located in Stevens County.

Changes in certain age groups can indicate future population changes as well as directly having an impact on labor markets.

- 15-19=Prospective new entrants in the labor force
- 20-24=New entrants into the labor force
- 25-44=Workers in their prime years of work productivity
- 45-64=Mature workers with years of accumulated skills and experience
- 65+=Retirees



Unemployment

The unemployment rate is a measure of those able to work and seeking work as a percentage of the entire labor force. The unemployed do not include retirees, persons in institutions (including students), or those who are known as "discouraged workers." At the national level, the unemployment rate is determined by a monthly survey of households. At the local level, the state's portion of this household survey is integrated with other information to produce unemployment rates at the state and county level.

- *The recessions of the early-1980's hit the counties extremely hard, resulting in depression-era unemployment.*
- *The 1990-91 recession caused an initial large increase in unemployment, followed by gradually rising unemployment rates though much of the decade*

In 2000, the tri-county rate was 9.9 percent, after getting as high as 16.4 in 1996. Ferry County had a 13.7 percent unemployment rate in 2000; Pend Oreille's was 9.6 percent; and Stevens was lowest at 9.5 percent. Between the end of 2000 and the end of 2001, the hardest hit was Stevens County and the state as a whole. It rose from 9.5 to an average of 10.3. Pend Oreille went up moderately from 8.9 to 9.5 as did Ferry, rising from 12.2 to 13.5.

Employment and Wage

Most employment growth has occurred in Stevens County where it has risen by 182 percent since 1970. Pend Oreille experienced the lowest growth rate during this period, expanding by only 115 percent. In the Tri-Counties as a whole, the number of jobs went from 5,430 in 1970 to 14,290 in 2,000, an increase of 163 percent. This averages out to an annualized growth rate of 3.2 percent. Annual average covered wages are based on the total of wages and salaries paid to employees covered by the unemployment insurance program, divided by the annual average number of employees. In 2000, the average wage in the area ranged from $24,231 in Ferry County to $26,517 in Pend Oreille. Stevens was in the middle with $24,614.

Annual Covered Wages and Employment for Tri-Counties, 2000

DESCRIPTION	EMPLOYMENT	AVG WAGE
Agriculture, Forestry, and Fishing	12,708	$24,414
Mining	214	$50,256
Construction	475	$23,178
Manufacturing	2,642	$38,957
Transportation, Communications, & Public Utilities	510	$29,396
Wholesale Trade	233	$23,588
Retail Trade	2,330	$13,567
Finance, Insurance, and Real Estate	317	$21,568
Services	3,890	$18,433
Public Administration	215	$29,265
Government	4,108	$27,340

3.3 Housing and Development Trends

Stevens County Housing

As of the year 2000, there were 17,599 housing units in Stevens County, with an average value of $112,000. Of these, 15,017 are considered households with a median of 2.64 persons living in each. 78.1% of these homes are owned by the resident and only 5.8% were multi-dwelling structures.

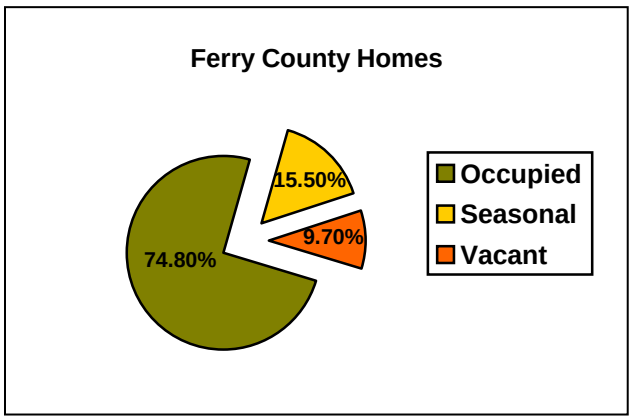
Housing increased in Stevens County at a rate of 17.0% between 1990 and 2000, but slowed to 5.5% between 2000 and 2004. If this trend continues through 2010, the rate of housing growth would be 13.8%. It is interesting to note that Stevens County's population growth raced ahead of its housing growth during the 1990's, with population increasing an incredible 29.5% (compared to 21.1% state-wide).

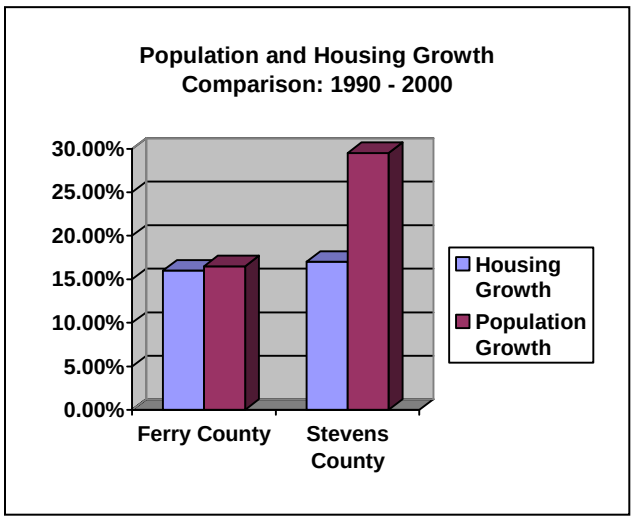
Ferry County Housing

As of the year 2000, there are approximately 3,775 housing units in Ferry County, with a median home value of $92,400. Of the housing units in Ferry Count, 2,823 are classified as households, with an average of 2.49 persons living in each. Most of these homes are traditional, single household dwellings, with 73% owned by the resident. In contrast, only 4.3% of housing unit are multi-dwelling structures (i.e. apartments).

Housing growth in Ferry County has been increasing steadily at a rate of about 16% per 10 years ('90-'00). This approximately matches the population growth of 16.5% over the same time period. Between 2000 and 2004, housing increased only about 3.9%, which when projected through to 2010 would only add up to 9.85%. However, it remains to be seen if the slowing in growth will hold true over that time.

A staggering 25.2% of housing units in Ferry County are vacant, with a majority of these (61.5%) being seasonal homes. This is critical to note because vacant and seasonal properties are far more likely to have fuels (i.e. pine needles, dry brush, etc.) accumulated in their vicinity.





3.4 Transportation and Land Use

Ferry County Transportation

Of the 2,576 workers (aged 16 or over) in Ferry County, nearly 82.2% of them took a personal vehicle to work, with an average occupancy of 1.1 persons per vehicle. The mean travel time to work was 24.0 minutes. Only a very small percentage (0.4%) of workers in Ferry County used any form of public transportation.

Stevens County Transportation

Of the 15,273 workers (aged 16 or over) in Stevens County, nearly 88.1% of them took a personal vehicle to work, with an average occupancy of 1.09 persons per vehicle. The mean travel time to work was 27.0 minutes. Only a very small percentage (0.2%) of workers in Stevens County used any form of public transportation.

Ferry County Airports

There is only one public airport in Ferry County and it is located adjacent to WA Highway 21, 6 miles northeast of Republic. The airport has a single asphalt runway.

Stevens County Airports

There three public airports in Stevens County. The first is Sand Canyon Airport (single asphalt runway) located near Chewelah; the second is Colville Municipal Airport (single asphalt runway) located in Colville; and the third is Cross Winds Airport (two turf runways) located near Clayton. Additionally, there are many private airfields scattered throughout the county.

Roads

Roads are used for commerce, means to explore new places and they allow access to fires. Roads on federal lands were primarily constructed for logging, but these roads are also used for fire suppression, and, as commercial logging activities continue to decline in northeast Washington, more and more for access to recreation.

Roads can also be the source of vehicle-carried garbage, noxious weeds, and dust along creeks or home sites. The more roads are used, the more there is an increased chance of fires starting from vehicles, campsites, and general public use. The introduction of human caused fires is related not only to people on the roads but also to remote campsites of hunters, ORV users, other people in the woods looking for special forest products, etc., all of whom use the roads to get to their remote campsites.

Poorly designed roads do not function as intended or desired. Roads can be a source of erosion, but a road that has been properly designed and constructed and conscientiously located will have less of an impact on resources than others. It does take a few years for grass and other vegetation to grow on roadway cuts and filled slopes. Putting gates on roads to discourage unauthorized access also mitigates environmental impacts.

Agencies in the Chewelah area are currently taking a good look at road networks on public lands and balancing the need for access with environmental concerns. As they consider the role of roads in the development of a fire plan, they must weigh ecosystem health with administrative needs in caring for the land and human needs for access to future home sites and to recreational areas. Federal agencies, it appears, are nearly at the end of constructing new roads for timber removal and are more in the business of land and road stewardship. Although roads in the Chewelah need to be monitored and maintained for current and future users, the agencies are presently studying those roads that might cause heavy resource damage and are not needed for access. Some of these roads are being removed. Because roads on private lands represent a substantial percentage of overall road density, all landowners in the Chewelah area should manage their land for road stewardship. This is not solely a federal and state agency issue.

On public lands and for private landowners, access or lack of access for fire suppression teams can mean the difference between preservation and loss of property or of life. Good road access directly affects fire suppression fire size by allowing more suppression equipment to be applied directly to the fires. Besides providing access for fire suppression equipment and personnel, roads can serve as barrier to overland and creeping fire. In some cases this could be the difference between a few acres being burned or hundreds of acres.

For all the reasons given in the previous paragraph (faster response, quicker containment, etc.), good road access will have a positive impact on total fire suppression costs, including post fire rehabilitation efforts and costs. In addition, because fire suppression costs more where access is poor, land resource managers and the public as a whole should consider the economic consequence of poor roads – including the environmental costs when funds to fight fires are taken away form other needed programs.

Electrical Power Lines

Two major transmission lines cross this area. These rights-of-ways are well maintained and can constitute a fire break. The smaller feeder and distribution lines along most county and private access roads are subject to tree encroachment resulting in wind throw breakage, or tree branch rub. Power line caused fires are a major concern.

3.5 Fire Hazard Rating and Insurance

Fire Hazard Ratings

According to the Department of Interior's *Federal Register*, Republic and the majority of the Ferry County regional lands, and Chewelah, Colville, Kettle Falls, and the majority of the Stevens County regional lands are at *High Risk* for wildfire. A high fire hazard rating causes the insurance costs of residents to be very sensitive to the precautions and plans created by the state and community. With the implementation of various fire protection plans, insurance costs can decrease and aid the community both socially and economically.

According to the State 2000 Fire Rating Map Assessment, in the Chewelah Wildfire Planning Area:

- 50% is rated high fire hazard
- 25% is rated moderate fire hazard
- 25% is rated low fire hazard

Insurance

The majority of insured properties in Stevens and Ferry County are rural homes. Consequently, they lack much of the protection provided by state services (fire fighters, city infrastructure, etc.) Access to these state services causes great concern for residents in these areas for the landowners, in large part, are responsible for the quality of protection provided to their property.

Also, large areas of the county are controlled by the forest industry who has a vested interest in the safety of their land and infrastructure. The forest industry privately insures these lands.

Furthermore, the United States Forest Service that operates under the National Fire Plan to control fire risk and damage controls much of the land that makes up Stevens and Ferry County. The US Forest Service is concerned for the protection of the watershed and forest.

Section 4: WILDFIRE RISK ASSESSMENT
4.1 Fire 4.1.1 Fire History

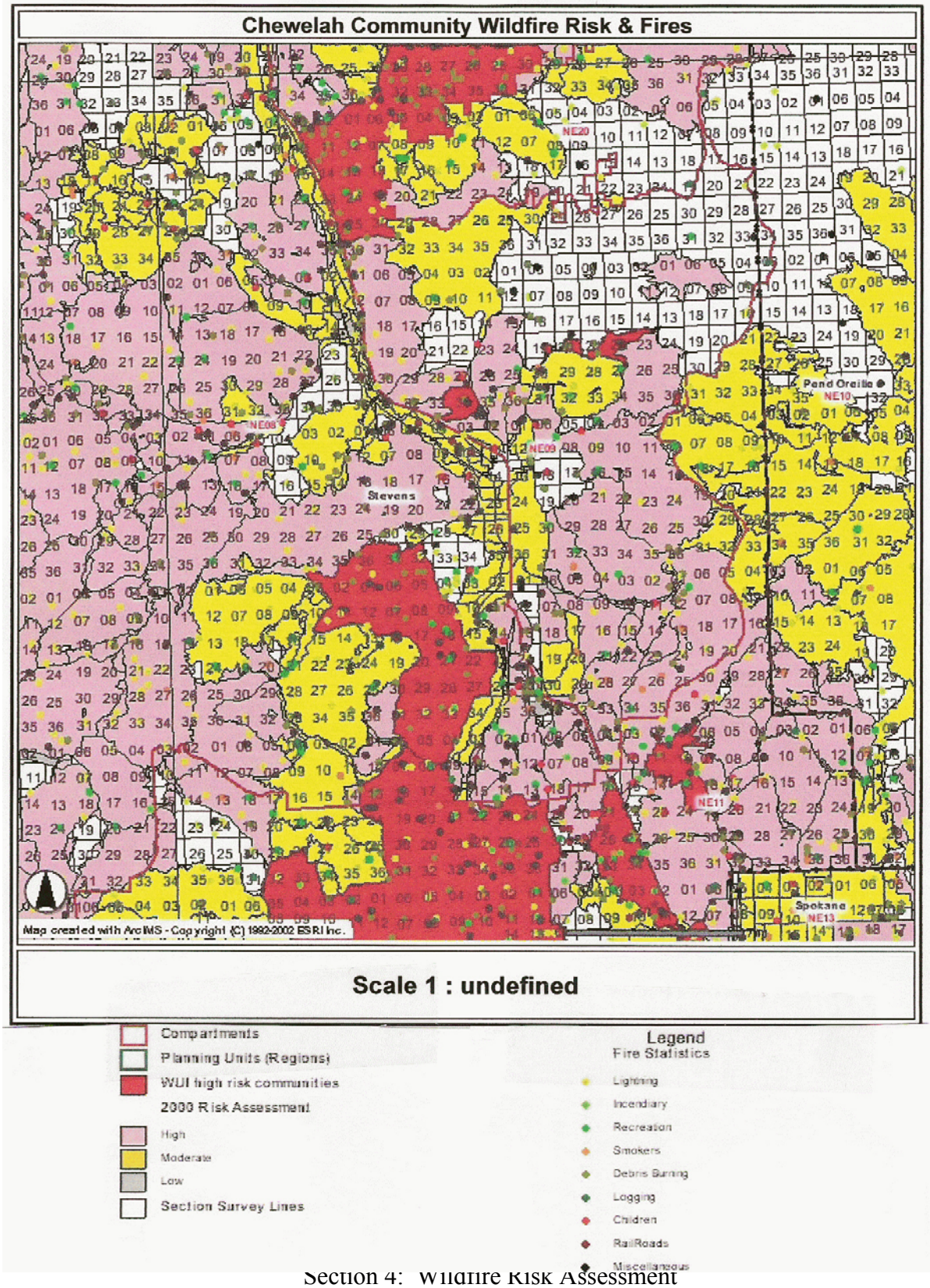
The fire history of an area is a function of forest type, topography, microclimate, ignition sources and past disturbance history. Knowledge of the fire history provides some insight into the kinds and patterns of vegetation that likely existed and provides land managers with information that can be used to create, restore, and maintain sustainable vegetation patterns. The inherent fire disturbance regime for an area is an important reference point for assessing changes in vegetation patterns and the associated exposure of current vegetation patterns to catastrophic disturbances.

The earliest fire documented in the Chewelah area occurred in 1384. Some fires were documented in the fifteenth and sixteenth centuries. The data however is too incomplete to reliably infer fire frequencies or size for those time periods. A reconstruction of the fire history from 1671 to 1920 has been possible with 1920 being the cutoff year due to the abrupt change in fire frequency and size after that time. It is likely that including fires after 1920 would then bias the natural fire history frequency. There was a fire somewhere within the Chewelah area every 2 to 3 years on average before 1920. The average area burned in the Chewelah area between 1671 and 1885 (or pre-settlement Anglo-European) was 1,076 acres (ranging from 15 to 7,251 acres). For the time period of 1886 to 1920 (the settlement era) the average decreased to 300 acres per fire. The actual fire sizes were probably somewhat larger than the estimates. The longest period between successive fires was twenty-five years prior to settlement era and fifteen years during the settlement period. Fire frequency increased and fire size decreased during the settlement period. (Schellhass et al., 2000.)

The fire history shows an inherent fire regime for the Chewelah area as one of high frequency, low severity fires. This type of fire regime is also typical of the dry forest types in the ponderosa pine, Douglas fir, and grand fir series along the eastern slopes of the Washington Cascade Mountains. The low fire frequency interval suggests that the Chewelah area was historically dominated by species more tolerant of fire such as ponderosa pine and western larch, since even low severity fires would kill trees that were more sensitive to fire. Douglas fir would have been a component of early forests, but since it is quite intolerant of fire when very young, it would have been restricted to areas that burned somewhat less frequently or established itself and persisted during one of the lengthier fire free intervals. Fire free intervals greater than about 17 years could have allowed Douglas-fir to establish and grow high enough to create a fuel ladder to the over story. Subsequent fires might then have become stand replacing in those areas. (Schellhass et al., 2000.)

In many instances the Chewelah area is out of sync with historic fire frequency interval by a large degree. Vegetation is connected horizontally and vertically across the landscape, predisposing this area for fires that are of greater severity than those that occurred during the past several centuries.

Research has shown that fire regimes, stand structure, and species compositions in ponderosa pine, Douglas-fir and grand fir series forests have dramatically changed as inherent disturbance regimes have been altered through livestock grazing, roading, and fire suppression. Forests in these vegetation series have progressed farther along climatic successional timelines. Fire regimes in the Chewelah area forests have changed from frequent low-severity fires to less frequent, but high-severity (stand replacement) fires. (Ohlson et al., 2002.)


Chewelah Community Wildfire Risk & Fires
Pend Oreille
Stevens
Spokane
NE08
NE09
NE10
NE11
NE13
NE20
Map created with ArcIMS - Copyright (C) 1992-2002 ESRI Inc.
Scale 1 : undefined
Compartments
Planning Units (Regions)
WUI high risk communities
2000 Risk Assessment
High
Moderate
Low
Section Survey Lines
Legend
Fire Statistics
Lightning
Incendiary
Recreation
Smokers
Debris Burning
Logging
Children
RailRoads
Miscellaneous

4.1.2 Condition Classes [From the Applegate Fire Plan. Applegate, OR.2002.]

Historically, wild land fire frequently burned in most parts of the Chewelah area. In recent decades the nature of fire on these lands has changed due to fire exclusion and other human activities, such as grazing and timber harvest and the ecosystems have also changed dramatically. The extent and impact of this change can often be correlated to the fire regime itself. Fire exclusion would have less impact on the ecology of an area that typically experienced light surface fires every one to twenty-five years. An aggressive fire suppression program that has been in place for approximately eighty years would have more impact on an area where fire historically occurred at frequent intervals, than on an area that historically hosted fire every 100 to 3000 years. The detrimental effects of fire suppression in these latter regimes will take longer to appear. Old, dense stands, covering a large portion of the landscape in these higher frequency regimes, can dramatically increase the size and severity of wildfires and insect epidemics.

A series of Condition Classes has been developed to describe the extent the current fire regime has deviated from "normal". These are based on changes in the species composition, structure, age, and density of a stand and are used to quantify the condition of the land resulting from fire exclusion and other influences (timber harvesting, grazing, insects, disease, and the introduction and establishment of non-native species). This analysis attempts to quantify the extent of the fire management problem and the degree of required restoration and maintenance treatment or stewardship required.

Below is a summary of the three condition classes, the attributes of each class, and general management options.

Condition Class 1
Fire regimes are within or near the historical range; fire frequencies differ from historical rates by no more than one return interval, and the vegetation's species composition and structure are intact and functioning within the historical range. The risk of losing key ecosystem components is low. Where appropriate, these areas can be maintained within the historical fire regime by treatments such as fire use.

Condition Class 2
Fires regimes have been moderately altered from the their historical range; the frequency of fire differs from historical rates by more than one interval. This change results in moderate changes to landscape patterns and/or to fire size, frequency, intensity, and severity. Vegetation has been moderately altered from its historic state. The risk of losing key ecosystem components has increased to moderate. Where appropriate, these areas may need moderate levels of stewardship treatments, such as fire use and hand or mechanical treatments, to be restored to the historical fire regime.

Condition Class 3
Fire regimes have been significantly altered from their historical range; fire frequency is greatly different for its historical pattern. This change results in dramatic changes to landscape patterns and/or to fire size, frequency, intensity, and severity. Vegetation has been significantly altered from its historic state, and the risk of losing key ecosystem components is high. Where appropriate, these areas need high levels of stewardship treatments. Hand or mechanical treatments may be necessary before fire is used to restore the historical fire regime.

Roughly 30% of the Chewelah area currently fits into Condition Class 3, mostly due to fire exclusion. Fire exclusion has created vegetation and fuel conditions for large and catastrophic fires that are more difficult to suppress than smaller fires. Throughout the Chewelah area, the forests present a continuous fuel supply both vertically, in small, thin trees and dead branches (ladder fuels), and horizontally, in an abundance of dead and down material. When a fire gets started in such a forest, the dead branches, sticks, twigs, and other material increase fire intensity and, with ladder fuels present, provide great opportunity for the fire to reach the forest canopy, resulting in a stand-killing crown fire. These conditions also affect the means in which prescribed fire and fuels treatment are applied to the landscape.

4.1.3 Fire Regimes [From the Applegate Fire Plan. Applegate, OR.2002.]

The behavior of fire, how often it occurs, how hot it burns, how big it is, in which season it occurs, and whether it is a crown, surface, or ground fire defines the fire regime. The regime depends on the physical, climatic and biological (including human) environment.

Each vegetative type is adapted to its particular fire regime. The plants that existed in the Chewelah area prior to Euro-American settlement were adapted to a different fire regime from the current one. Years of fire exclusion and climatic change have caused a shift in vegetation away from the more fire-adapted species that formerly predominated. Attempting to restore the vegetation associated with a past climate may not be appropriate.

Several classifications and descriptions of fire regimes have been developed. The one chosen for this document was based on national and regional scales and developed by the Washington State Department of Natural Resources and Pacific Northwest Region of the United States Forest Service.

Natural areas within the Chewelah area fit generally into six categories and subcategories of fire regimes. The following is an identification of each of these fire regimes in the Chewelah area along with a general discussion of the plant community, fire type, and fire severity of each. Keep in mind these two important considerations:

1. Categorization produces simplification, exceptions abound, and combinations of fire regimes are likely to apply to single ecosystems. For example the Quartzite area, at the high elevations, contains regimes 6 and 1.

2. Almost all fires have various proportions of severity and intensity. Thus, under burning and crown fires might occur in the same event.

Fire Regime #1: 0-35 years, Low severity.
Typical climax plant communities include ponderosa pine, eastside/dry Douglas fir, pine-oak woodlands, Jeffery pine on serpentine soils, oak woodlands, and very dry white fir. Large stand-replacing fire can occur under certain weather conditions, but are rare events (i.e. every 200+ years).

Fire Regime #1a: 0-35 years, Stand-replacing, non-forest
Includes true grasslands (Columbia basin, Palouse, etc.) and savannahs with typical return intervals of less than 10 years; mesic sagebrush communities with typical return intervals of 25-35 years and occasionally up to 50 years, and mountain shrub communities (bitterbrush, snowberry, ninebark, ceanothus, Oregon chaparral, etc.) with typical return intervals of 10-25 years. Fire severity is generally high to moderate. Grasslands and mountain shrub communities are not completely killed, but usually only top-killed with resprout.

Fire Regime #2: 35-100+ years, Mixed severity
This regime usually results in heterogeneous landscapes. Large, stand-replacing fires may occur but are usually rare events. Such stand-replacing fires may "reset" large areas (10,000-100,000 acres) but subsequent mixed intensity fires are important for creating the landscape heterogeneity. Within these landscapes a mix of stand ages and size classes are important characteristics; generally the landscape is not dominated by one or two age classes.

Fire Regime #3a: <50 years, Mixed severity
Typical potential plant communities include mixed conifer, very dry Westside Douglas fir, and dry grand fir. Lower severity fire tends to predominate in many events.

Fire Regime #3b: 50-100 years, Mixed severity
Typical climax plant communities include well-drained western hemlock; warm, mesic grand fir, particularly east of the Cascade crest; and eastside western red cedar. The relative amounts of lower and higher severity patches within a given event is intermediate between 3a and 3c.

Fire Regime #3c: 100-200 years, Mixed severity
Typical potential plant communities include western hemlock, Pacific silver fir, and whitebark pine at or below 45 degrees latitude and cool, mesic grand fir and Douglas fir. Higher severity fire tends to dominate in many events.

Fire Regime #4: 35-100+ years, Stand-replacing
Seral communities that arise from or are maintained by stand-replacement fires, such as lodgepole pine, aspen, western larch, and western white pine, often are important components in this fire regime. Dry sagebrush communities also fall within this fire regime. Natural ignitions within this regime that result in large fires may be relatively rare, particularly in the Cascades north of 45 degrees latitude.

Fire Regime #4a: 35-100+ years, Stand-replacing, Juxtaposed
Typified by what would normally be considered long interval regime that lies immediately above a shorter interval or lower severity fire regime. Most often the fire originates lower on the slope and burns uphill into regime 4a. Examples include lodgepole pine immediately above ponderosa pine in the eastside Washington Cascades and aspen imbedded within dry grand fir in the Blue Mountains. This regime is often found in lower elevations or drier sites than is considered typical for regime IV.

Fire Regime #4b: 100+ years, Stand-replacing, Patchy arrangement
Typical potential communities include subalpine fir and mountain hemlock parkland and whitebark pine north of 45 degrees latitude.

Fire Regime #4c: 100-200 years, Stand-replacing
Typical plant communities include subalpine mixed conifer (spruce-fir), western larch, and western white pine. Important potential plant communities include mountain hemlock in the Cascades and Pacific silver fir north of 45 degrees latitude.

Fire Regime #5: >200 years, Stand-replacing
This fire regime occurs at the environmental extremes where natural ignitions are very rare or virtually non-existent or environmental conditions rarely result in large fires. Sites tend to be very cold, very hot, very wet, very dry or some combination of these conditions.

Fire Regime #5a: 200-400 years, Stand-replacing
Plant communities are at least somewhat fire adapted. Typical plant communities include Douglas fir, noble fir, and mountain hemlock on drier sites in parts of western Washington.

Fire Regime #6: 400+ years, Stand-replacing
Plant communities are weakly fire adapted or not fire adapted. Typical plant communities include Douglas fir, Pacific silver fir, western hemlock, western red cedar, and mountain hemlock on moister sites in western Washington.

No Fire
This regime includes plant communities with no evidence of fire for 500 years or more. Stands often have extremely deep duff layers on poorly developed soils. Typical plant communities include Sitka spruce and Pacific silver fir along the Oregon and Washington coast and very wet western red cedar sites.

Non-forest
Typical plant communities include black sagebrush, salt desert scrub, alpine communities, and subalpine heath. Most species tend to be small and low growing. Bare ground is common.

4.1.4 Fire Hazard [From the Applegate Fire Plan. Applegate, OR.2002.]

A number of factors determine the fire hazard of an area that include a fire's ability to spread and affect the difficulty of suppressing the fire. The fire hazard rating for this analysis is based on five elements: vegetation, canopy cover, slope, aspect, and elevation.

Vegetation
Directly influences rate of spread, flame length, fire line intensity, heat per unit area, and other elements of concern in the suppression of wildland fire. A hillside with a lot of highly volatile vegetation has a higher hazard rating for vegetation than one with more fire-resilient species such as Ponderosa pine.

Canopy Cover
Canopy cover and ladder fuels are closely related when it comes to hazard rating. A greater percentage of ladder fuels means a greater likelihood of a surface fire moving into the crown canopy, increasing the difficulty of suppressing the fire. An area with thick shrub cover has a higher hazard rating than a grassy area, which has neither canopy cover nor ladder fuels. A conifer or conifer/hardwood mixed forest has a higher hazard rating than a hardwood forest if both have the same amount of ladder fuels. If there are no ladder fuels present, a closed canopy will not, by itself, cause a crown fire.

Slope
Fire travels uphill faster than downhill because warmer air rises. Thus, slope is a factor in the rate of fire spread. As the slope increases or becomes steeper, fire increases in speed. On flat terrain, the rate of spread of the fire is influenced more by wind speed.

Aspect
Aspect affects fire spread because southern aspects are dries and warmer, promoting a more active fire, whereas the typically cooler and damper northern aspects have a lower level of fire behavior.

Elevation
Lower elevations get a slightly higher rating than higher elevations because they receive less precipitation. A number of other factors come into play with elevation, such as length of fire season, variations in weather conditions (cool, damp, warm, wet), density of vegetation, etc.

A review of all five elements is necessary before a hazard rating can be assigned to an area: the higher the rating, the worse the hazard. An area dominated by a thick canopy of shrub with a steep, south slope at a lower elevation would have a higher hazard rating than a grass meadow with a slight northerly slope at a high elevation. Hazard, combined with other considerations such as risk and value-at-risk, can be useful in understanding and planning for fire management problems, identifying opportunities, and prioritizing areas to meet goals, objectives, and desired future conditions for the Chewelah Fire plan area. (Rawitzer, 2003.)

Wildfire Hazard Severity Form NFPA 299

Wildfire Hazard Severity Form
NFPA 299

Landowner / Community Name:	Qtr-Qtr / Sec / Town / Range	Prevention Officer
Address	Lat. / Long.	Date
	RAMS Comp.	

A. Means of Access		2. Defensible space		2. Setback from slopes >30%	
1. Ingress and egress		More than 100 ft.	1	More than 30 ft. to slope	1
Two or more roads in/out	0	More than 71 – 100 ft.	3	Less than 30 ft. to slope	5
One road in/out	7	30 – 70 ft.	10	Not applicable	0
2. Road width		Less than 30 ft.	25	**G. Available Fire Protection**	
Greater than 24 feet	0	**C. Topography**		1. Water source availability (on site)	
Between 20 and 24 feet	2	1. Slope		500 gpm pressurized hydrants < 1000 ft apart.	0
Less than 20 feet	4	Less than 9%	1	250 gpm pressurized hydrants < 1000 ft. apart	1
3. All-season road condition		Between 10 – 20%	4	More than 250 gpm non-pressurized, 2 hrs	3
Surfaced, grade <5%	0	Between 21 – 30%	7	Less than 250 gpm non-pressurized, 2 hrs	5
Surfaced, grade >5%	2	Between 31 – 40%	8	No hydrants available	10
Non-surfaced, grade < 5%	2	Greater than 41%	10	2. Organized response resources	
Non-surfaced, grade > 5%	5	**D. Additional Rating Factors**		Station within 5 miles of structure	1
Other than all-season	7	1. Topography that adversely affects wildland fire behavior	0-5	Station greater than 5 miles	3
4. Fire service access		2. Area with history of higher fire occurrence	0-5	3. Fixed fire protection	
< = 300 ft, with turnaround	0	3. Areas of unusually severe fire weather and wind	0-5	Sprinkler system (NFPA 13, 13R, 13D)	0
> = 300 ft, with turnaround	2	4. Separation of adjacent structures	0-5	None	5
< = 300 ft, no turnaround	4	**E. Roofing Material**		**H. Utilities (Gas and Electric)**	
> = 300 ft, no turnaround	5	1. Construction material		All underground utilities	0
5. Street signs		Class A roof	0	One underground, one aboveground	3
Present (4 in. in size and reflective)	0	Class B roof	3	All aboveground	5
Not present	5	Class C roof	15		
B. Vegetation (Fuel Models)		Non-rated	25		
1. Predominant vegetation		**F. Existing Building Construction**		**Total Score**	
Light	5	1. Materials			
Medium	10	Noncombustible siding/deck	0		
Heavy	20	Noncombustible siding/wood deck	5		
Slash	25	Combustible siding and deck	10	**Risk Rating**	

Low Hazard: <39 Points; Moderate Hazard: 40 – 69 Points; High Hazard: 70 – 112 Points; Extreme Hazard >113 Points

NOTES:

4.1.5 Fire Risk and Occurrence

Fire Risk

Fire risk is determined by the likelihood that a fire will start. The technical definition is the chance of fire starting as determined by the presence and activity of causative agents. Human activity is one of these causative agents, so human actions greatly influence the pattern of fire risk. Human activities are high on the list of causative agents and include mowing, landscape maintenance, "backyard" burning, farming, ranching, timber management, light manufacturing, mining and quarry operations, recreation, tourist and travel activities and electrical transmission. A typical human-caused fire in the Chewelah area starts at low elevations along roads and in the wildland-urban interface and burns up to the ridge tops. When these fires occur under conditions of high and extreme fire danger, they are often costly, difficult to suppress, and highly damaging. Because of the frequent threat to life, property, and other resources of high value, they require a large and complex response to suppress. (Graham et al., 1999.)

Fire Occurrence

Fire occurrence (or fire incidence) is the average number of fires in a specified area during a specified time. In the Chewelah area between 1970 and 1999, a specified time period with available data, fire occurrence averaged about 11 fires per year. 75% of the 337 fires in the Chewelah area during those 29 years were human caused. The remaining 25% were started by lightning. (WA DNR, 2003.)

In assessing an area's complete fire situation, these factors need to be considered: historical fire regime, the area's history of fire occurrence, the area's current condition call and fire hazard rating, and the area's fire risk.

4.2 Values

The Washington State Department of Natural Resources (DNR) and the United States Forest Service (USFS) have mandated protection priorities for wildfire. These two agencies and the fire department have prioritized "values-at-risk" that they must protect. The three "values-at-risk" categories are defined as such:

LIFE. Life refers to human beings such as residents, fire fighters, and the general public.
PROPERTY. Property is things that humans have constructed or own.
RESOURCES. Resources refers to the natural environment such as trees, air, water, wildlife, scenic vistas, etc.

DNR (by law)
- Priority 1: LIFE
- Priority 2: RESOURCES
- Priority 3: PROPERTY

USFS
- Priority 1: LIFE
- Priority 2: PROPERTY
- Priority 3: RESOURCES

Fire Department
- Priority 1: LIFE
- Priority 2: PROPERTY
- Priority 3: RESOURCES

Concerned citizens of the Chewelah area were questioned at community meetings in early March 2005 to assess the values of their community. Many residents expressed concern that fuel reduction work is the main goal in thinning the forests, putting care for the forests first and protecting homes second.

Community members also expressed concern about fuel buildup and its relationship with fire safety and forest health issues. They repeatedly mentioned areas directly around their homes, including agency-managed lands adjacent to their own property considered safety liabilities. They felt that the highest priorities should include private, state and federally managed lands around communities at risk.

The respondents in the Chewelah area were concerned primarily with their home and property (including a significant number who owned a personal business or farm). Many respondents stated that they had multiple structures on their property, including barns, carports, garages and outhouses. Others placed economic value on the timber in their area.

Chewelah area respondents placed high value on the quality of life in the area. In addition, nearly all respondents stated that the valued privacy and/or the sense of community. Several respondents also placed value on wildlife, natural surroundings, and recreation.

Section 5: MITIGATION ACTION PLAN

5.1 Community Strategy for Risk Reduction
5.1.1 Stevens County Fire Safety Recommendations

Stevens County Fire Safety Recommendations and Guidelines

Guide For Rural Residential Fire Protection Zones
Stevens County Permit Center
July 2003 Customer Service Bulletin #B-6

The rural areas of Stevens County are popular places to build a home. However, these areas have a potential fire danger higher than that experienced in developed urban or suburban areas where water hydrants and fire stations are often close by. **Only 25% of the property in the County lies within the 12 fire districts that provide dwellings fire protection.** The twelve districts are manned by volunteers only. Due to distance, type of road access to properties and available volunteers, response time from these fire districts can be limited.

The increasing building activity in previously undeveloped areas that interface with forests or wildlands also increases the potential for structure fires and wildfires. The State Department of Natural Resources (DNR) will respond to protect and suppress wildland fires only. As a property owner, you are responsible for providing your dwelling's initial methods during your site development and building construction.

Many building code requirements are designed to prevent the spread of fire within your home. The following guidelines can assist your effort to protect your home from wildfire. These steps can be easily incorporated into your building construction, as well as your site development planning and maintenance.

Site Design for Maximum Fire Protection:

Roads

Utilize your driveway as a potential firebreak and construct it to provide safe ingress/egress for yourself and emergency response vehicles. The recommended standards are:

- Provide a 12-foot wide, all-weather driving surface consisting of gravel or equivalent.
- Limit the grade to a 14% maximum.
- Provide a surfaced turn-around for driveways longer than 150 feet.
- Provide surfaced turn-outs, one per 500 feet (20 feet total width for 50-foot length).

If your property is adjacent to bodies of water, access points should be developed (and signed) where fire trucks can drive within 16 feet of creeks, river, lakes or ponds to fill pumps. Swimming pools should be designed to allow access for fire apparatus.

Utilities

1. Electric Power Lines: When possible, electrical service lines leading to houses or outbuildings should be installed underground. If aboveground, power line right-of-ways need to be wide enough that wind-blown branches will not hit the lines.

2. Water Service: If your water supply is a private well, an electrical service separate from the house should service the pump. Auxiliary power (i.e., generator or gas driven engine) for the pump is recommended in remote areas where wildfires can destroy main power lines.

3. Gas Piping: Know the location and size of all piping and shut-off values on your property.

Building Construction

Utilize fire-resistant building materials in the construction of your home to help prevent or minimize fire damage.

1. Roof covering meeting a "Class C" rating or better is recommended (for example, metal roofing or roof tiles). Other coverings, such as shakes, should be treated with a fire-resistant protection on a regular basis.

2. Decks should be constructed with minimum 2" dimensional wood or non-combustible materials.

3. The undersides of decks tend to trap heat and are often the first part of the building to catch fire. These areas should be protected with materials approved for one-hour fire resistive construction, or with non-combustible materials (for example, cement board or stucco).

Know What Protection is Available

Does your property lie within a fire protection district? If you are not sure, check your property tax statement. For example, if there is reference to an "F7," you lie within Fire District 7's boundary. You can also check the Fire District map in the Auditor's Office or the Building Department. DNR will respond to protect and suppress wildland fires called in to Emergency Dispatch "911." The tax code for property covered by DNR is referenced as "fire patrol."

Fire Protection Review for Building Permits

If you are building a new home or placing a mobile home, please provide certain information related to fire protection in your building permit application materials. Your plot plan should help identify the steps you will take to provide a defensible space around your residence. If your project is within a Fire District, we will forward copies of your plot plan to the appropriate district. This will assist them in identifying and responding to a fire on your property.

Defensible Space Plot Plan Information

- Location, width and grade (slope) of road
- Turnaround or turn-outs
- Access points to surface water
- Location of underground gas piping or electrical lines
- Location of water standpipes
- Identify slope of building site (up-slope & down-slope from residence)
- Identify trees or groups of trees; maintain 15' spacing between
- Identify a 10-foot clear area around the residence

This plot plan information will be reviewed by the Building Department. During the inspection stages of your project, the Building Inspector will examine your site for defensible fire protection standards and review the findings with you.

Address Standards and Identification

Your address is more than just a method to receive mail delivery; it is important tool used by emergency response vehicles to identify and locate your residence. All buildings shall be issued an address and street number by the Stevens County Planning Department. To ensure that the addresses are visible, the following standards apply:

1. Individual letters, numbers and symbols indicating addresses shall be a minimum of 4 inches in height and ½ inch wide, shall contrast with background colors, and shall be visible from the road.

2. If the building is in excess of 100 feet from a public right-of-way, the address, consistent with above paragraph, shall be placed on a sign or post not less than 3 feet, nor more than 6 feet, above the ground, be adjacent to the access driveway and not more than 25 feet away from the public right-of-way.

5.1.2 Defensible Space Around Your Home

Defensible Space Around Your Home: A Six-step Guide

STEP 1: Determining the Size of your Defensible Space

The size of the defensible space area is usually expressed as a distance extending outward from the sides of the house. This distance varies by the type of wildland vegetation growing near the house and the steepness of the terrain.

For example, if your property is surrounded by wildland grasses such as cheatgrass and is located on flat land, the distance of your recommended defensible space would extend 30 feet from the sides of the house. If your house is on a 25% slope and the adjacent wild-land vegetation is dense, tall brush, the distance would be 200 feet.

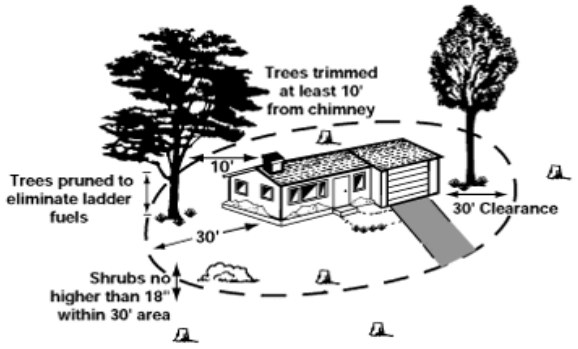
Recommended Distances – Steepness of Slope

Types	Flat to Gently Sloping 0 to 20%	Moderately Steep 21% to 40%	Very Steep +40%
Grass	30 Feet*	100 Feet	100 Feet
Shrubs	100 Feet*	200 Feet	200 Feet
Trees	30 Feet*	100 Feet	200 Feet

* Always refer to your county's building codes and recommendations first.
Grass: Wildland grasses, weeds, and widely scattered shrubs with grass understory
Shrubs: Includes shrubs dominant areas
Trees: Includes forested areas. If substantial grass or shrub understory is present, use those values shown above.

If the recommended distance goes beyond your property boundaries, contact the adjacent property owner and work cooperatively on creating a Defensible Space. The effectiveness of Defensible Space increases when multiple property owners work together. The local assessor's office can provide assistance if the owners of adjacent properties are unknown. Do not work on other people's property without their permission.

Temporarily mark the recommended distance with flagging or strips of cloth tied to shrubs, trees, or stakes around your home. This will be your Defensible Space area.



STEP 2: Remove Dead Vegetation within the Recommended Defensible Space

Dead vegetation includes dead trees and scrubs, dead branches lying on the ground or still attached to living plants, dried grass, flowers and weeds, dropped leaves and needles, and firewood stacks. In most instances, dead vegetation should be removed from the recommended defensible space area. A description of the types of dead vegetation you're likely to encounter and the recommended actions are listed below.

Dead Fuel Type	**Recommended Practice**
Standing Dead Tree	Remove all standing dead trees from within the defensible space area.
Down Dead Tree	Remove all dead trees within the defensible space area if they have recently fallen and are not yet embedded into the ground. Downed trees that are embedded into soil and which cannot be removed without soil disturbance should be left in place. Remove all exposed branches from an embedded downed dead tree.
Dead Shrubs	Remove all dead shrubs from the Defensible Space Area.
Dried Grass/Wildflowers	Once grasses and wildflowers have dried out or "cured", cut down and remove from the defensible space area.
Dead Material on Ground	Remove thick layers of pine needles to a depth of two inches. Do not remove all needles. Take care not to disturb the "duff" layer (dark area at the ground surface where needles are decomposing) if present. Remove dead leaves, twigs, cones, and branches.
Dead Material not on Ground	Remove all dead leaves, branches, twigs and needles still attached to living trees and shrubs to a height of 15 feet above the ground. Remove all debris that accumulates on the roof and in rain gutters on a routine basis (at least once annually).
Firewood & Combustibles	Locate firewood and other combustible debris (wood scraps, grass clippings, leaf piles, etc.) at least 30 feet uphill from the house.

STEP 3: Breaking Up Any Continuous Dense Covers of Shrubs or Trees within the Recommended Defensible Space

Sometimes wildland plants can occur as an uninterrupted layer of vegetation as opposed to being patchy or widely spaced individual plants. The more continuous and dense the vegetation, the greater the wildfire threat. If this situation is present within your defensible space area, you should "break it up" by providing a separation between plants or small groups of plants.

Not only are steep slopes often considered high wildfire areas; they are also highly erodible. When removing shrubs and trees from steep slopes, keep soil disturbance to minimum. Also, it may be necessary to replace flammable vegetation with other plant materials to prevent excessive soil erosion.

Ladder fuels are created when vegetation of different heights is close enough to allow a ground fire to climb up into tree tops.

STEP 4: Taking Care of Ladder Fuels within the Recommended Defensible Space

Vegetation is often present at varying heights, similar to the rungs of a ladder. Under these conditions, flames from ground-level fuels, such as thick layer of pine needles, can be carried to shrubs which can ignite still higher fuels like tree branches. Vegetation that allows a fire to move from lower growing plants to taller ones is referred to as "ladder fuel." The ladder fuel problem can be corrected by providing a separation between the vegetation layers.

Within the defensible space area, a vertical separation of three times the height of the lower fuel layer is recommended. For example, if a shrub growing adjacent to a large pine tree is three feet tall, the recommended separation distance would be nine feet. This could be accomplished by removing the lower branches, reducing the height of the shrub, or both. The shrub could also be removed.

STEP 5: Keep it Lean, Clean, and Green within the Recommended Defensible Space

The area immediately adjacent to your house is particularly important in terms of an effective defensible space. It is also the area that is usually landscaped. Within an area extending at least 30 feet from the house, the vegetation should be kept:

Lean – Having small amounts of flammable vegetation
Clean – allowing no accumulation of dead vegetation or other flammable debris
Green – keeping plants healthy and green during the fire season

The Lean, Clean and Green Zone Checklist

- Emphasize the use of low growing herbaceous (non-woody) plants that are kept green during the fire season through irrigation if necessary. Herbaceous plants include lawn, clover, a variety of ground covers, bedding plants, bulbs, perennial flowers, and conservation grasses.

- Emphasize use of mulches, rock, and non-combustible hard surfaces (concrete sidewalks, brick patios, and asphalt driveways).

- Deciduous ornamental trees and shrubs are acceptable if they are kept green and free of dead plant material, ladder fuels are removed, and individual plants or groups of plants are arranged so that adjacent wildland vegetation cannot convey a fire through them to the structure. Shorter deciduous shrubs are preferred.

- Minimize the use of ornamental coniferous shrubs and trees (such as juniper, arborvitae and mugo pine) and tall exotic grasses (such as pampas grass).

- Where permitted, most wildland shrubs and trees should be removed from this zone and replaced with desirable alternatives (see Fire-Wise Plants list Appendix I). Individual specimens or small groups of wildland shrubs and trees can be retained so long as they are kept healthy and free of dead wood, are pruned to reduce the amount of fuel and height, and do not contain ladder fuels.

- For some areas, substantial removal of wildland vegetation may not be allowed. In these circumstances, wildland vegetation should conform to the recommendations presents in steps 2 through 4. Please become familiar with local requirements before removal of wildland vegetation.

- Tree limbs within 15 feet of a chimney, encroaching on powerlines, or touching the house should be removed.

STEP 6: Maintaining the vegetation within the Recommended Defensible Space

Keeping your defensible space effective is a continual process. Review these defensible space steps annually, at least, and take action accordingly. The effectiveness of your work to create a defensible space can be quickly diminished through neglect.

5.2 Fuels Reduction

Community Wildland Urban Interface Protection [From the Applegate Fire Plan]

Fire cannot burn without fuel. Anything that can burn is potentially fuel, including structures and homes. A great deal can be done in reducing fire hazards when selecting a home site and building structures to "fire proof" these places (see "6 steps" above.) Agencies such as the Forest Service and Department of Natural Resources can also help reduce fuels for the whole community.

Suggested methods for reducing the bulk and spreading of fuel are:

1. Mechanical and manual treatments suitable for homeowners as well as agencies.
2. Prescribed burns.
3. Thinning and Stand Treatment for fire behavior suitable to agency land managers.

The methods described apply to surface fuels (those on the ground or close to the ground) and aerial fuels (tree crowns), and the type, amount, size and distribution of fuel, the height of a tree from its bottom to its crown, and the amount of crown fuel within a given area. Depending upon the site, only a few methods might be considered complete treatments in that they can be used to treat most (if not all) of a site's hazardous fuels. Most are partial treatments that must be used with other treatments to effectively reduce fuel hazard.

Prior to deciding to use any particular treatment, the landowner should understand clearly his or her objectives for the land and consider many other aspects of land management. It would be a good idea to consult with a professional in fire prevention and vegetation treatment before designing any hazardous fuel reduction project. The following are some issues that a landowner might wish to consider when deciding on a treatment strategy:

1. Treatment objective (the overall objective and any site-specific objectives);
2. Site conditions (access; topography; type; amount and distribution of fuels or vegetation; soils; existing site development; etc);
3. Cost of treatment;
4. Source and amount of available funds;
5. Time available to complete the project;
6. Size of area to be treated;
7. Concerns about resources and values (For example: How much damage to residual trees, lawns, soils is acceptable? What consideration do I need to give wildlife habitat?);
8. Acceptability of risk to landowner (How much risk am I willing to accept if something goes wrong: damage to residual trees, escaped prescribed burn, etc.?);
9. Availability of liability insurance, etc.;
10. Personal interest, experience, and physical capability and skill in use of the equipment (How much, if any, of the work do I want to do myself?)

Methods of Fuel Reduction [From the Applegate Fire Plan]

1. Mechanical and Manual Treatments

These treatments use hand tools, such as axes and chain saws, or heavy equipment, such as bulldozers and backhoes. Several mechanical treatments may be used on the same unit.

Thinning

The purpose of thinning is twofold: (1) to increase the distance between the tree crowns, thereby strengthening the vigor of the forest and lessening the probability that a fire will spread through the crowns, and (2) to reduce ladder fuels to prevent surface fire from turning into crown fires. Thinning is done with hand tools or heavy equipment. The cost for thinning non-commercial size material with hand tools depends on site access and the size and amount of material to be thinned. Prices range from $230 to $850 an acre.

Pruning

Pruning, the removal of lower branches to specified height, is usually limited to hand tools. For safety, pruning is usually done up to ten feet, or not more than one-third of the tree's height. Pruning increases the distance between the surface fuels and the tree crown, decreasing the likelihood of a crown fire and increasing tree height. The resulting fuel is usually piled and burned. Pruning costs depend on pruning height and the number of trees per acre to be pruned. Prices range from $50 to $250 an acre.

Slashing

Slashing is the manual or mechanical severing of one particular type of unwanted or surplus vegetation. This could include live and dead conifers, hardwood trees, and shrubs not selected as leave vegetation or designated as reserved vegetation. Care must be taken not to get carried away with this technique and create an undesired clear cut. Costs range from $200 to $850 an acre.

Lopping and Scattering

Lopping and scattering is a method in which the worker cuts unwanted vegetation and scatters it around the land. This method is gentle on the land and costs little, but it is time-consuming and labor intensive. Also, it may not remove all the fuel, so it is usually used in combination with other methods.

Fuel Pullback

This is a method of fuel reduction that pulls fuel back from items to be protected such as houses, specimen or seed trees, or planned burns.

Crushing

This fuel treatment uses a piece of heavy equipment to "walk" across the fuel to pack it so densely the fire cannot burn well. Crushing is most effective on dead and down woody material but can be used on some live fuels. The fuel should be so brittle it snaps and breaks into smaller pieces when the machine walks over it. These pieces then nestle closer to each other in the fuel bed. Crushing is mostly used on brush and is usually done with tracked equipment, such as a bulldozer. To be effective the equipment must cross all the fuel, and often more than once.

Grinding

The primary target of grinding as opposed to crushing is live fuels, such as brush and small trees. Grinders usually consist of a rotating head attached to an articulating arm on a tracked vehicle or a vehicle with self-leveling cabs. The teeth on the rotating head bite into the fuel, breaking it into smaller pieces and leaving a chewed up fuel bed less than six inches in depth, which can be burned later. The cost of grinding ranges from $200 to $480 an acre depending on accessibility to the site, on the amount, type and size of material targeted for grinding, and on the slope of the area being treated.

Chipping

Chipping uses a stationary device to grind thinned or pruned material into small pieces. The chipped material is often used as mulch or as biomass. The largest chippers can handle material up to seventeen inches in diameter. Chips may be blown into a dump truck and hauled away or blown back onto the land. This type of operation is generally limited to gentle slopes and areas that have good access; it costs between $575 to $1,600 an acre.

Piling and Pile Burning

Piling is done by hand or by machine, usually in places where the size of the trees and their species make broadcast burning undesirable. Hand piling generally removes smaller material than machine piling, since it is hard to pile large, down wood by hand, especially material greater than eight inches in diameter.

Grapple piles are constructed with a variety of devices designed to grab bundles of fuel and stack them using an articulated arm, usually bulldozers or grapple pilers attached to backhoes or excavators. Because the grapple piler lifts the fuel to pile it, piles are virtually dirt-free and the operator can be very selective about the material he grapples. Grapple piles can operate on a ski trail system.

Piling specification, whether for piles built by hand or by machine, deals with the size of the material to be piled, the size of the piles, and the minimum distance of piles from each other and from tree boles. Piles are covered so they can be burned in wet or snowy weather. Most hand piles burn within a few hours. Hand piling alone could cost anywhere from $250 to $1,300 an acre, depending on site accessibility and the amount of material to be piled. The cost of pile burning depends on the ease or difficulty of access and the number of piles per acre to be burned. Prices range from $26 to $140 an acre. Pile burning often requires a future entry, so this work is not usually included in hand piling costs.

Raking

Raking is a limited type of treatment that uses hand tools to reduce the fuel around the base of trees remaining in a unit that will be under burned. The area may or may not be raked down to mineral soil, but material is generally reduced to at least two inches or less. The accumulated material is raked away from the tree bole. Raking is gentle on the land; it reduces the potential heat load to the fine roots on residual trees and protects surface roots on pines. If fewer than twenty trees are raked, the cost can be as low as $40 an acre; three times this number of trees will cost twice as much.

2. Prescribed Fire

In addition to the methods described above, prescribed fire can be used to reduce fuel loads, either by broadcast burning or by pile burning. In broadcast or jackpot burning scattered surface fuels or concentrations of fuels are set on fire. Broadcast burning (also called under burning) is used when fuels are more or less evenly distributed across the project area. It is called broadcast burning when there is no over story, as in meadow burning or clear-cut burning. Under burning is done with an over story present. Jackpot burning is the term used when fuels are not evenly distributed.

Using fire to reduce fuel build up is always potentially dangerous, especially without proper training. Private landowners most frequently burn hand piles of slash because this is easier to control than a broadcast burn.

Broadcast Burning

Because broadcast burning requires extensive planning, personnel, and equipment, it is seldom used by the private landowner. Potential liability is also a factor. Most broadcast burning requires some sort of control line, or fireline, around the burn block. Roads, major streams, rocky areas, and other natural or human made barriers serve as control lines when they are available. Otherwise a barrier must be constructed. Following is a list of various types of barriers and their means of construction.

1. Handline: The most common barrier is a handline, a fireline constructed with chain saws, pulaski, shovels and other hand tools that pare the ground down to mineral soil for a width of one to three feet. In light fuels such as grass or duff the line is narrow; in heavier fuels such as large amounts of down woody material and brush, the line is wider. The topography and the position of the fire on the slope also determine the size of the handline.

2. Dozer line: The next more common barrier is the dozer line, a fireline constructed with a bulldozer, or sometimes with a blade on a skidder. Usually the smaller bulldozers are used. The width of the line is usually equal to the width of the blade mounted on the dozer or skidder. The dozer line is restricted by slope.

3. Wetline: Another type of fireline is a wetline. No lines are built down to mineral soil in this technique. Instead, fuels are wetted slightly in advance of the actual ignition, using either water or, more often, foam, since foam penetrates deeper and lasts longer. In order to construct a wetline, vehicles need access along the edge of the burn block, such as flat ground with light fuels. A wetline is sometimes used in conjunction with other barriers, such as a narrow road, to increase the effectiveness of the barrier.

The time of year is important to the cost of broadcast burning because it determines the amount of mop-up needed. Other factors that influence cost are difficulty of access to the site, the size of the unit, the type and size of material to be burned, the type of equipment needed, and the proximity of private property. Prices range from $60 to $400 an acre.

3. Landscape Thinning for Agencies

In the West, thinning and partial cuttings are being considered for treating millions of forested acres that are overstocked and prone to wildfire. The objectives of these treatments include:

- Tree growth redistribution
- Tree species regulation
- Timber harvest
- Wildlife habitat improvement
- Wildfire hazard reduction

Depending on the forest type and its structure, thinning has both positive and negative impacts on crown fire potential. Crown bulk density, surface fuel and crown base height are primary stand characteristics that determine crown fire potential. Thinning from below, free thinning and reserve tree shelterwoods have the greatest opportunity for reducing the risk of crown fire behavior. Selection thinning and crown thinning that maintain multiple crown layers, along with individual tree selection systems, will not reduce the risk of crown fires except in the driest ponderosa pine forests. Moreover, unless the surface fuels created by using these treatments are themselves treated, intense surface wildfire may result, likely negating positive effects of reducing crown fire potential.

No single thinning approach can be applied to reduce the risk of wildfires in the multiple forest types of the west. The best general approach for managing wildfire damage seems to be managing tree density and species composition with well designed silvicultural systems at landscape scale that includes a mix of thinning, surface fuels treatments, and prescribed fire with proactive treatment in areas with high risk to wildfire.

5.3 Recommended Action for the Strategic Planning Units

Stevens County Fire District # 4 (District Fire Chief Tim Van Doren, Commissioners Gary Skok and Fred Nussbaum) has reviewed the Chewelah fire plan and prioritized the units from the standpoint of a Fire Protection District. The priority of the Fire District is life, followed by structural protection as it pertains to the wildland urban interface. The following recommendations have been developed by the CWPC and prioritized by the Fire District.

With all the information listed below it will be possible to be strategic, tactical and calculated. A scenario like the one below may take place:

> An existing shaded fuel break here, a cluster of brush fields thinned by homeowners over there, a river and a couple of wide driveways, could all be used to effectively protect a small community from nearby wildfire. Fuel thinning along roads in highly hazardous areas might reduce the number of human caused fires, which start small but may rage out of control. Individual fuel breaks could be connected to protect a small watershed from a neighboring high hazard area. (NEW FC, CWPC 2004.)

Considering the SPAs regardless of ownership delineation is vital for strategic review. Identifying areas of high risk and high hazard and reviewing treated areas is also important for risk reduction. Some SPAs will have high risk (i.e. lot of homes) and very high hazards or fuel buildups. Other SPAs may have high population but relatively flat land green from irrigation. Others may have virtually no homes but have forests that are rated very high hazard with many lightning fire starts.

The Strategic Planning Areas are listed in decreasing priority with the following information:

- SPA number
- Description (First paragraph by SCFD #4, and second paragraph by CWPC)
- Recommendation (By CWPC)

Priority 1: SPA 12 RFD #4 West 23,614 acres

Description: Waitts Lake, Little Sweden, Deer Creek and Red Marble - Mountain View areas, are high structural areas that are in close proximity to wildland urban interface. These areas have a high potential for large fire growth. The roads in these areas are difficult to navigate in the winter months, creating a concern for ingress and egress. SCFD #4.

A mix of Industrial, NIPFL, State, and BLM forestland, with agricultural land in the valleys. Much of the forestland has had harvest activity over many years, with the associated roads (some closed), in place. Scattered homes are located in and adjacent to forestland in increasing numbers. This SPA is mostly included within SCFD #4, with fire stations from Chewelah and Valley providing structure, improved property and wildland fire protection, along with the WADNR.

a. Quarry Road/ Browns Lake - Scattered homes, in and adjacent to forestland, off of the Quarry Rd. corridor to Browns Lake. Recreational use, and access route to Red Marble bring traffic count up. Fuels build-up, Defensible space, access and egress are issues. Moderate to High Risk.

b. Red Marble/ Mountain View - Scattered homes in and adjacent to forestland. Some light fuels with agricultural lands. Access approximately Five(5) miles on Red Marble Rd. and three(3) miles on Mountain View Rd., with structures along and off of these roads. Fuel build-up, Defensible Space, access and egress are issues. Moderate to High Risk.

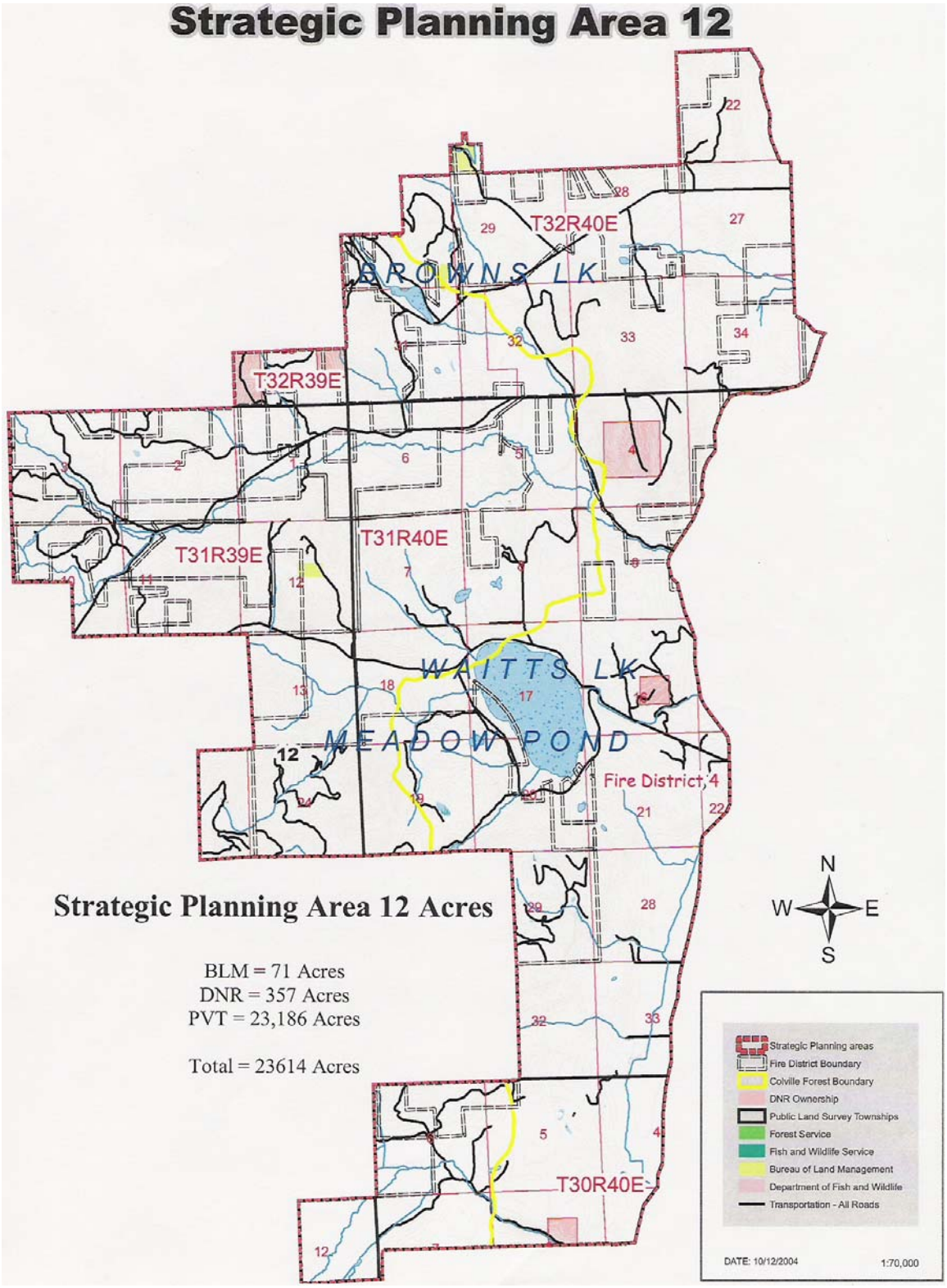
c. Waitts Lake - Homes all the way around lake. Low Risk. Homes off Waitts Lake road are in and adjacent to forestland. Fuel build-up, Defensible Space, access and egress are issues. Moderate to High Risk.

d. Carrs Corner - Outside of RFD. Scattered homes in and adjacent to forestland. Fuel build-up, Defensible Space, access and egress are issues. Moderate to High Risk.

e. Little Sweden - Homes inside and outside of RFD, in or adjacent to forestland. Approximately three (3) miles of access along Little Sweden Rd. Fuel build-up, Defensible Space, access and egress are issues.

f. Deer Creek - Homes inside and outside of SCFD along and off of Deer Creek Rd. Haviland Meadows agricultural area provides a natural fuel break, Defensible Space, fuel build-up, access and egress are issues. Low Risk in agricultural area. Moderate to High Risk on forestland.

Recommendation: Secure grant to identify and establish Defensible Space for homes, identify and establish fuel breaks, identify and widen access roads and some structural mapping of these areas.


Strategic Planning Area 12
T32R40E
T32R39E
T31R39E
T31R40E
T30R40E
BROWNS LK
WAITTS LK
MEADOW POND
Fire District 4
Strategic Planning Area 12 Acres
BLM = 71 Acres
DNR = 357 Acres
PVT = 23,186 Acres
Total = 23614 Acres
N
W
E
S
Strategic Planning areas
Fire District Boundary
Colville Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/12/2004
1:70,000

Priority 2: SPA 11 RFD South 36,540 acres

Description: Flyckt Road, Lower Cottonwood Creek Road, Skok Loop, Beity Lake Road, Jumpoff Joe Road, and Heine Road areas. These are structural areas, not quite as populated as in unit 12, but are also in close proximity to wildland urban interface. This unit concerns us because of a lack of defensible space, ingress and egress. SCFD #4.

A mix of NIPFL, industrial, and State forestland, with scattered homes and structures. This SPA is included within SCFD #4, with fire stations from Chewelah and Valley providing structure, improved property and wildland fire protection, along with the WADNR. Most forest land has had past harvesting activity, with associated roads. Risk ranges from Low to Moderate depending on proximity to fuels, aspect, and access.

a. Flyckt Road - Homes and structures mostly near either end of Flyckt Rd. Mixed forest and agriculture fields. Fuels buildup, Defensible Space, access and egress are issues. Low Risk around agriculture. Moderate Risk on forestland.

b. Lower Cottonwood Creek Road - Homes and structures located and accessed along four(4) miles of lower Cottonwood Creek Rd. Fuels build up, Defensible Space, access and egress are issues. Low risk around agriculture and creek. Moderate Risk on forestland.

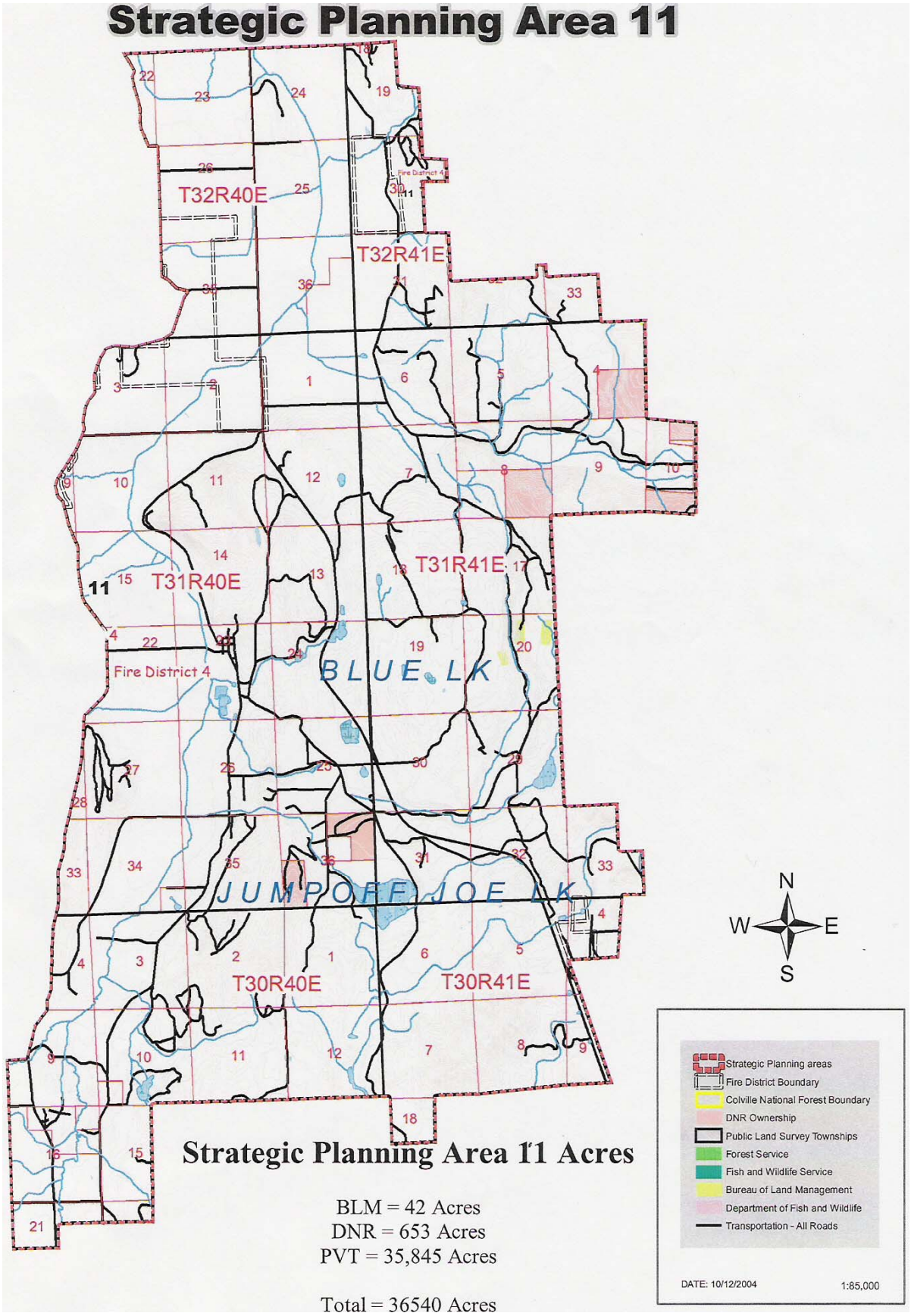
c. Skok Loop Vicinity - Homes and structures located on mixed forest and agricultural land. Defensible Space, Fuels build up on adjacent forestland, access and egress are issues. Low Risk near agriculture. Moderate Risk on forestland.

d. Beity Lake Road. - Homes and structures accessed off of Beity Lake. Mostly forestland, with some agriculture. Access and egress, Fuels build up, and Defensible Space are issues. Low Risk near agriculture, Moderate Risk on forestland.

e. Jump Off Joe - Scattered homes in or adjacent to forestland. Some agricultural lands. Defensible Space, fuel build-up, access and egress are issues. Moderate Risk.

f. Heine Road - Scattered homes in and adjacent to forest and agricultural land. Defensible Space, fuels build-up, access and egress are issues. Low to Moderate Risk

Recommendation: Secure grant to identify and establish Defensible Space for homes, identify and establish fuel breaks, identify and widen access roads and structural mapping of this unit.


Strategic Planning Area 11
T32R40E
T32R41E
T31R40E
T31R41E
BLUE LK
JUMPOFF JOE LK
T30R40E
T30R41E
Fire District 4
11
N
W
E
S
Strategic Planning Area 11 Acres
BLM = 42 Acres
DNR = 653 Acres
PVT = 35,845 Acres
Total = 36540 Acres
Strategic Planning areas
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/12/2004
1:85,000

Priority 3: SPA 5 Thomasan Creek 6,335 acres

Description: Thomasan Creek, Flowery Trail, and Six Mile areas, are very High risk areas for wildland fire. There are a moderate number of structures in this area. The Districts concern for this area is its large concentration of fuels, defensible space, ingress, egress and structural mapping of the area. SCFD #4.

a. Thomasan Creek - Mixed forest ownership, of USFS, State, BLM, Industrial, and NIPFL. Forest Health issues and fuel build-ups exist on all forest ownership. USFS has had several timber sales, which are a start in reducing risk. The Flowery Trail Rd. is main access route the length of this drainage. There is high recreational as well as cross-mountain use of this road. The lower part of drainage is within SCFD #4 boundary. High Risk potential to upper drainage. Moderate risk lower drainage.

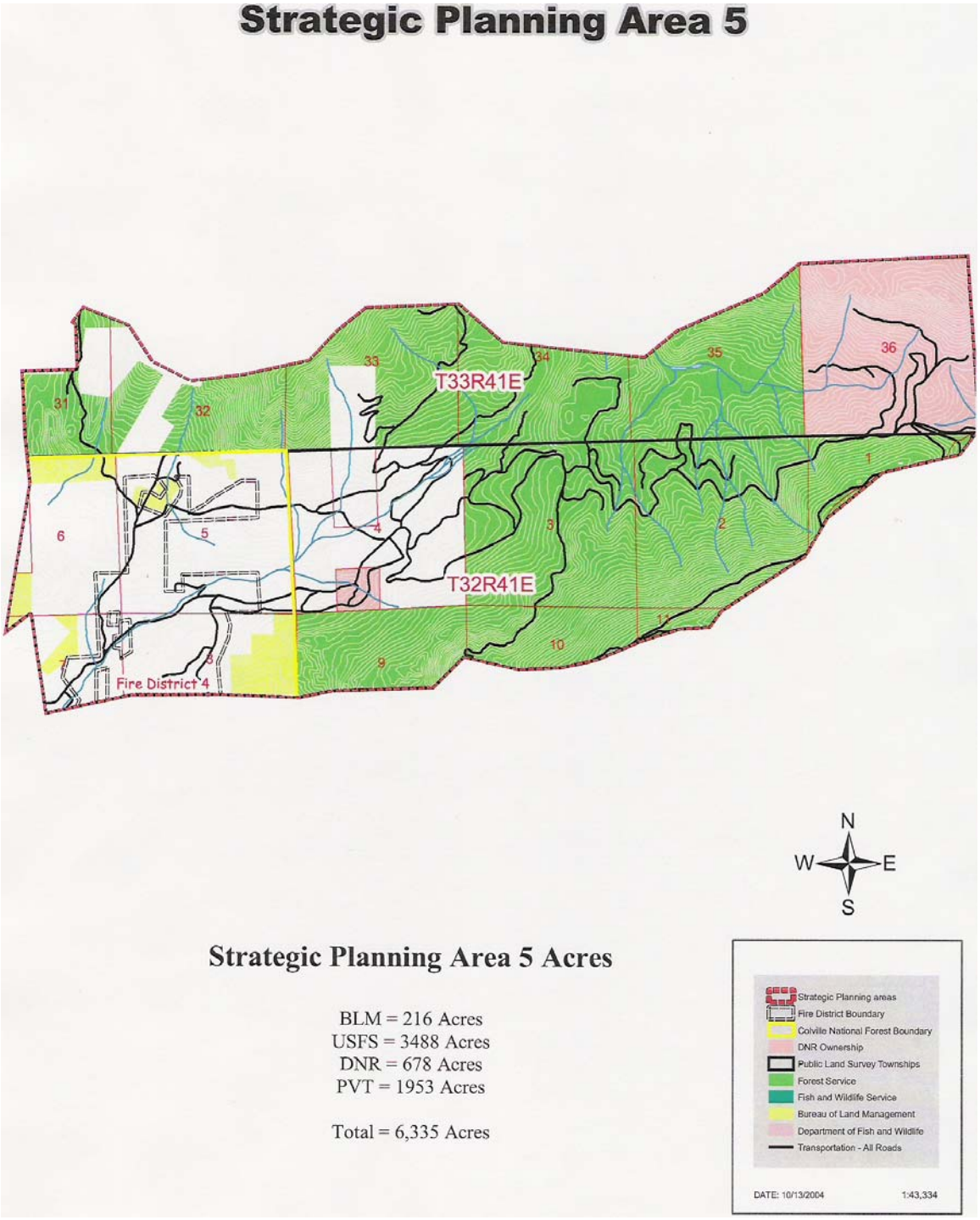
Recommendation: Assess and initiate fuels reduction projects to reduce risk to upper drainage. Complete forest health assessment, implement fuels reduction projects.

b. Flowery Trail Summit - The Flowery Trail Development, and the Chewelah Peak Learning Center (CPLC) are located in or just over the upper drainage. Some Defensible Space projects have been completed within the development and adjacent to the CPLC. Adjacent forest land has high fuel loading, as well as topographic channeling that will move fire into the development. Two homes have burned in the past, but fires occurred during winter. 49°N Ski Area would also be at risk if fire moved into this area. Very High Risk

Recommendation: Obtain Fuels Reduction Grant to identify, and establish Defensible Space around remaining homes, and identify and create fuel breaks needed on State, and USFS forest land.

c. Six Mile - Scattered homes and structures accessed from Flowery Trail Rd. and Six Mile Rd. Some are located adjacent and within forestland, with fuels build up. Lower Six Mile is located within SCFD #4. Flowery Trail to USFS boundary is without protection. High Risk.

Recommendation: Obtain Fuels Reduction Grant to identify and establish Defensible Space around homes, assess access and egress, and identify and implement forestland fuel breaks.


Strategic Planning Area 5
T33R41E
T32R41E
Fire District 4
31
32
33
34
35
36
1
2
3
4
5
6
7
8
9
10
11
N
W
E
S
Strategic Planning Area 5 Acres
BLM = 216 Acres
USFS = 3488 Acres
DNR = 678 Acres
PVT = 1953 Acres
Total = 6,335 Acres
Strategic Planning areas
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/13/2004
1:43,334

Priority 4: SPA 4 South Fork Chewelah Creek 15,900 acres

Description: South Fork Chewelah Creek and Burnt Valley areas have scattered structures. The Districts concern in this area is ingress, egress and structural mapping of the area. SCFD #4.

a. South Fork Chewelah Creek - Primarily USFS forestland, some managed industrial forestland, and NIFPL. Private agricultural, forests and homes are located in lower half of drainage. Past harvest activities have established road systems, many closed off. Forest health issues have been identified on USFS, with mechanical thinning, and prescribed fire, fuel reduction projects planned adjacent to private ownership.

Recommendation: Implement identified fuels reduction projects. Complete forest health assessment, implement management projects.

b. Burnt Valley - Scattered structures, homes, accessed primarily from county road. Some set within forests, needing defensible space. Parcels of forestland need thinning and fuels reduction. Within SCFD #4. Moderate Risk

Recommendation: Fund Fuels Reduction Grant to identify and establish Defensible Space around homes, structures; assess road access and egress adequacy; and identify and create fuel breaks needed on private forestland.


Strategic Planning Area 4
JOHNSON MTN
T33R41E
T33R42E
Fire District 4
Strategic Planning Area 4 Acres
USFS = 11224 Acres
PVT = 4676 Acres
Total = 15,900 Acres
N
W
E
S
Strategic Planning Area
Fire District Boundary
DNR Ownership
Colville National Forest Boundary
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/13/2004
1:57,848

Priority 5: SPA 8 Upper Cottonwood Creek 10,962 acres

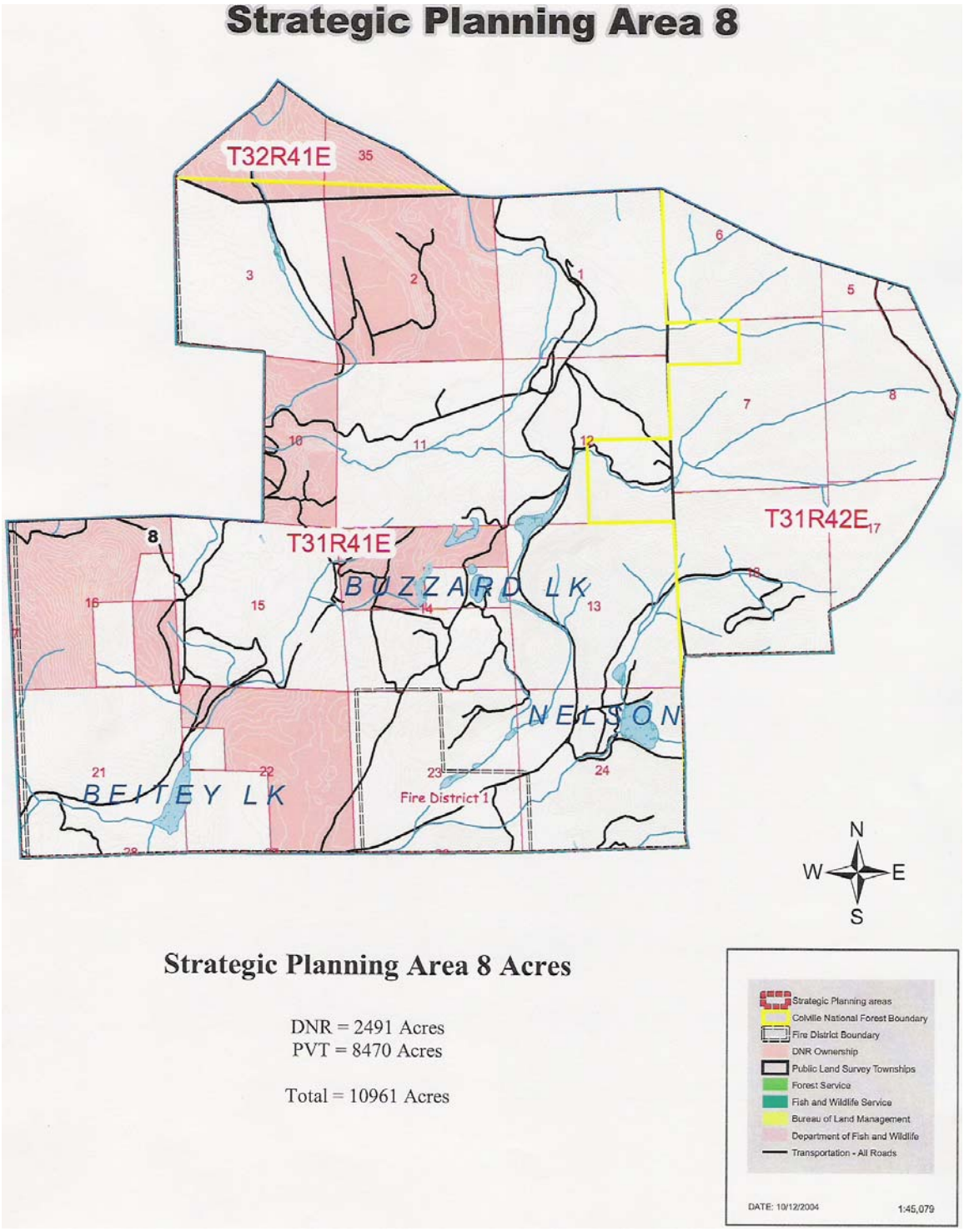
Description: Grouse Creek and Buzzard Lake are areas the District has concerns with fuel loading, ingress, egress and structural mapping. The roads in this area are extremely difficult to navigate in the winter months. SCFD #4.

a. Upper Cottonwood Creek - A mix of State, Industrial, and NIPFL forest land. No Federal lands in this SPA. Most forestland has had past harvest activity. Roads exist, with some closed off. Fuel build up exists on some ownership. Scattered homes/structures access off of Cottonwood Crk. and Grouse Crk. County Rds. This SPA is outside SCFD. Risk Threat to homes and property is Moderate.

b. Grouse Creek Junction - Scattered homes in the forests. Some with narrow driveways, amid fuel build up, needing Defensible Space.

c. Buzzard Lake - Scattered homes along Buzzard Lake Rd. Some need Defensible Space, area needs fuel breaks, access and egress evaluated.

Recommendation: Obtain Fuels Reduction Grant to identify and establish Defensible Space, identify and establish fuel breaks, and identify and widen narrow access roads.


Strategic Planning Area 8
T32R41E
35
3
2
1
6
5
7
8
10
11
12
T31R42E17
T31R41E
8
BUZZARD LK
16
15
14
13
NELSON
21
22
23
24
BEITEY LK
Fire District 1
N
W
E
S
Strategic Planning Area 8 Acres
DNR = 2491 Acres
PVT = 8470 Acres
Total = 10961 Acres
Strategic Planning areas
Colville National Forest Boundary
Fire District Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/12/2004
1:45,079

Priority 6: SPA 10 RFD #4 North 12,891 acres

Description: Well Head, and Golf Course areas are high structural areas with a low wildland urban interface. The Districts concern in this area would be structural mapping. Lower Chewelah Creek - North Fork Chewelah Creek, Highline, Cozy Nook, and Embrey Hill: these areas have many structures that would require fuel reduction, ingress egress work. We would also like to see mapping of the structures in the area. SCFD #4.

A mix of mostly NFPL, some State and BLM forestland, agricultural, and scattered homes within SCFD #4 boundary. Most forestland has had past harvesting activity, with associated roads. The fire station is located in Chewelah, providing structural, improved property, and wildland fire protection along with the WADNR. Forest health, fuels buildup, Defensible Space, and access issues exist through out this SPA. Risk ranges from Low to High.

a. Well Head - Approximately 10 acres around the wellhead supplying the City of Chewelah. Fuels build up is a threat to the wellhead, as well as adjacent to the golf course sub-division to the North. Moderate Risk.

Recommendation: Secure grant for fuels reduction on this parcel, which will protect the wellhead, and act as shaded fuel break for the Chewelah Golf and Country.

b. Golf Course - Chewelah Golf and Country Club, sub-division in forest land setting part of but away from the city of Chewelah. Some lots and homes have Defensible Space. Fuel breaks around the sub-division are needed. Moderate Risk.

Recommendation: Secure grant to identify and reduce fuel build up within and adjacent to this sub-division. Identify and establish Defensible Space on remaining homes.

c. Lower - North Fork Chewelah Creek - Scattered homes within and adjacent to forestland. Defensible Space, access and egress, and fuel build up are issues. Moderate Risk.

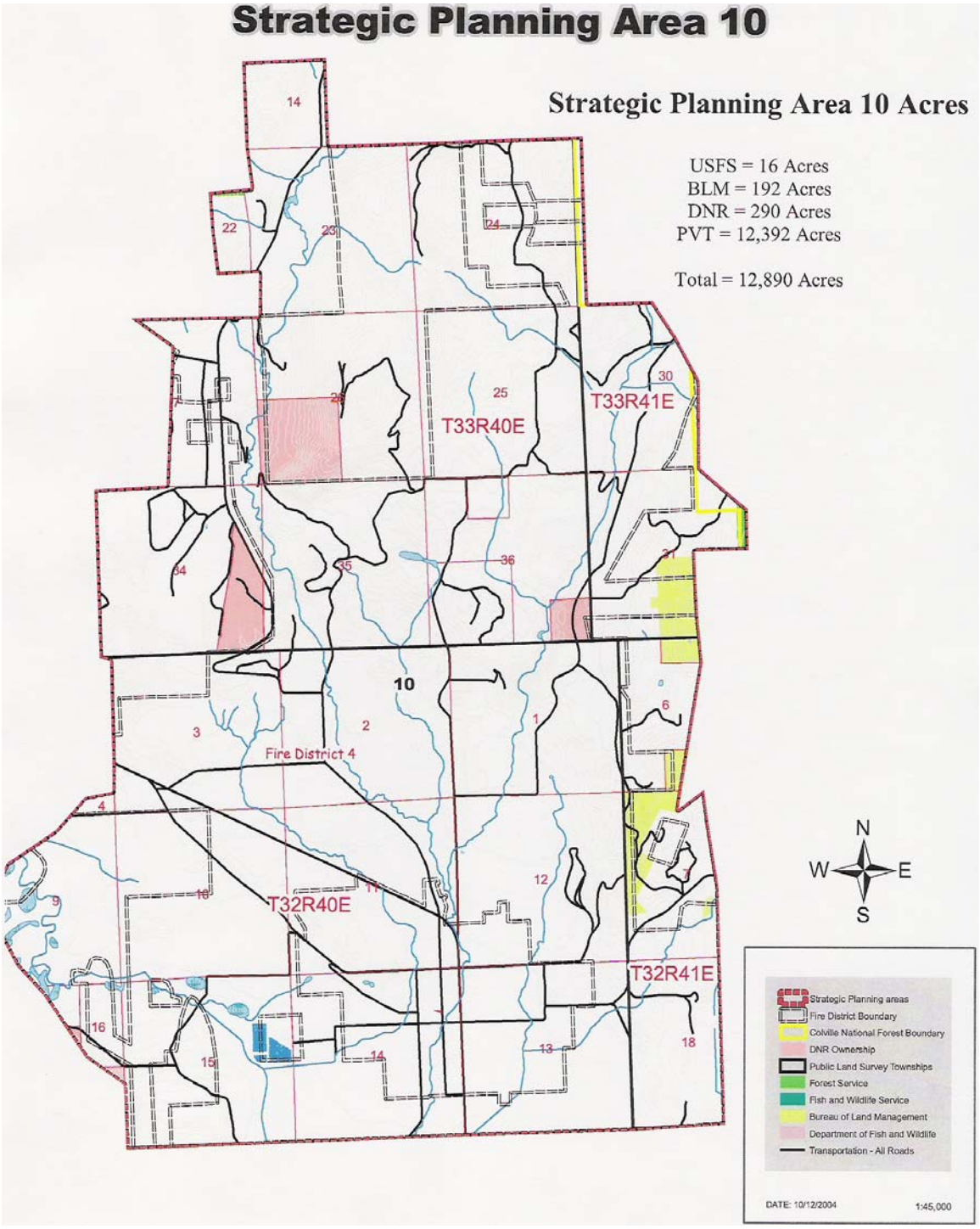
d. Highline - Scattered homes on forest and agricultural lands. Defensible Space, access and egress and fuel build up are issues. Low Risk.

e. Cozy Nook - Scattered homes within and adjacent to forest and agricultural land. Defensible Space, fuel build up, access and egress are issues. High Risk.

f. Embrey Hill - Scattered homes within and adjacent to forest and agricultural land. Accessed from Lower Burnt Valley Rd., Eagle-Lambert Rd., and Lower Flowery Trail. Defensible Space, fuels build up, and access and egress are issues. Moderate Risk.

Recommendation: Secure grant to identify and establish Defensible Space for homes, identify and establish fuel breaks, identify and widen access roads.

g. City of Chewelah - Residential neighborhoods around core business area. Hwy 395 and SFBN railroad run through town. Little wild fire risk, but hazardous chemical spills and fires associated with transportation system are possible. The City of Chewelah Fire Department provides both structural and wildland fire protection to the City proper and the Chewelah Golf and Country Club 3 miles distant.

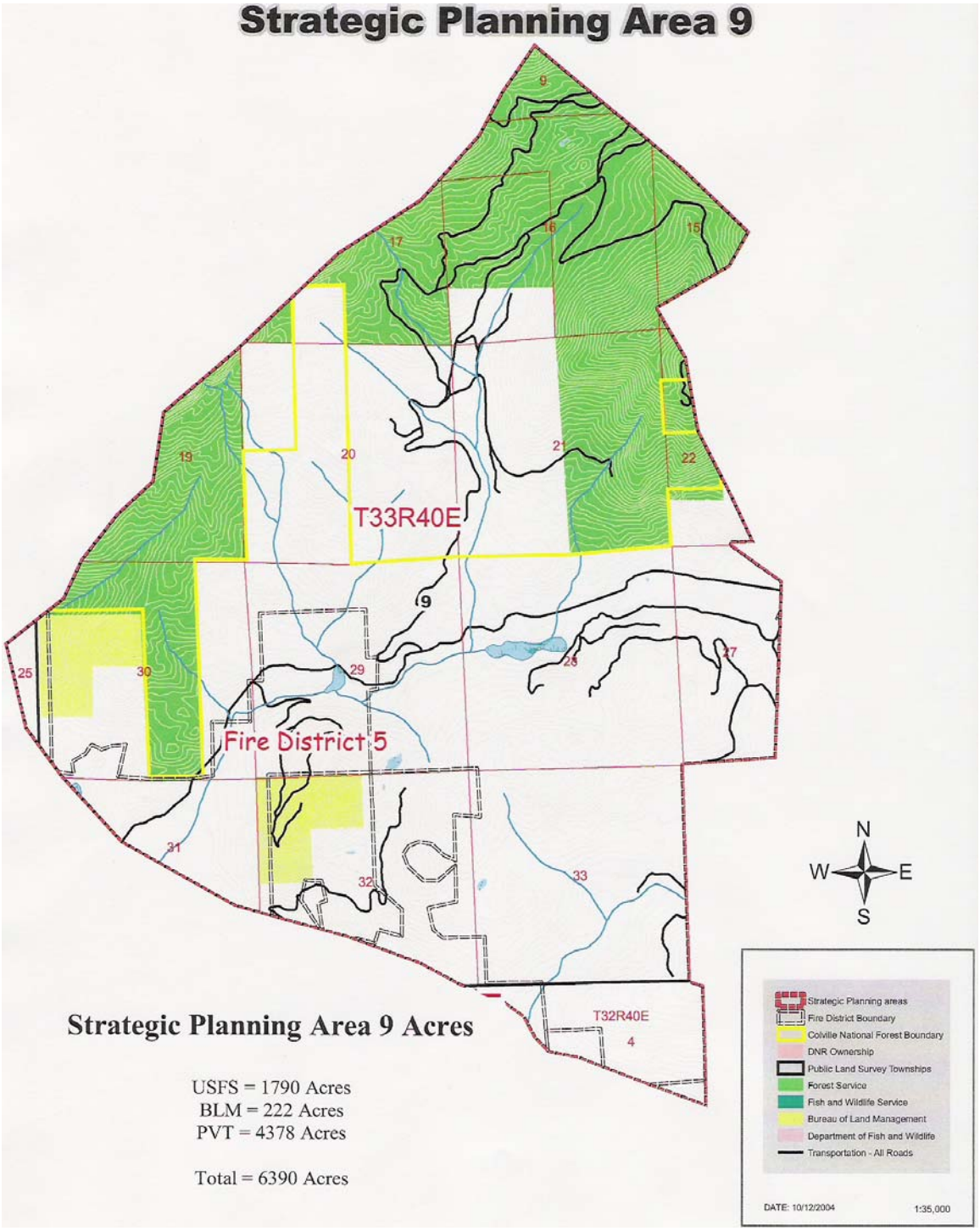

Strategic Planning Area 10
Strategic Planning Area 10 Acres
USFS = 16 Acres
BLM = 192 Acres
DNR = 290 Acres
PVT = 12,392 Acres
Total = 12,890 Acres
T33R40E
T33R41E
T32R40E
T32R41E
10
Fire District 4
N
W
E
S
Strategic Planning areas
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/12/2004
1:45,000

Priority 7: SPA 9 Gold Hill-Immel Road 6,390 acres

Description: The structures on Immel road have fairly good defensible space. The Districts concern is heavy fuels and structural mapping. SCFD #4.

A mix of USFS, Industrial, BLM, and NIPFL forest land. Much forestland has had past harvest activity. Roads exist, with some blocked off. Forest health and fuel build up issues exists in some areas. Scattered homes access from Immel Rd. and off of HWY 395(#1763). This area is partially within the SCFD#5 boundary. Access and egress are limited. Risk is Low from Immel Rd. Moderate risk on South slopes from HWY 395.

Recommendation: - Secure grants to identify and establish Defensible Space, identify and establish fuel breaks, and identify and widen narrow access roads. Complete forest health assessments on forestland and implement projects.

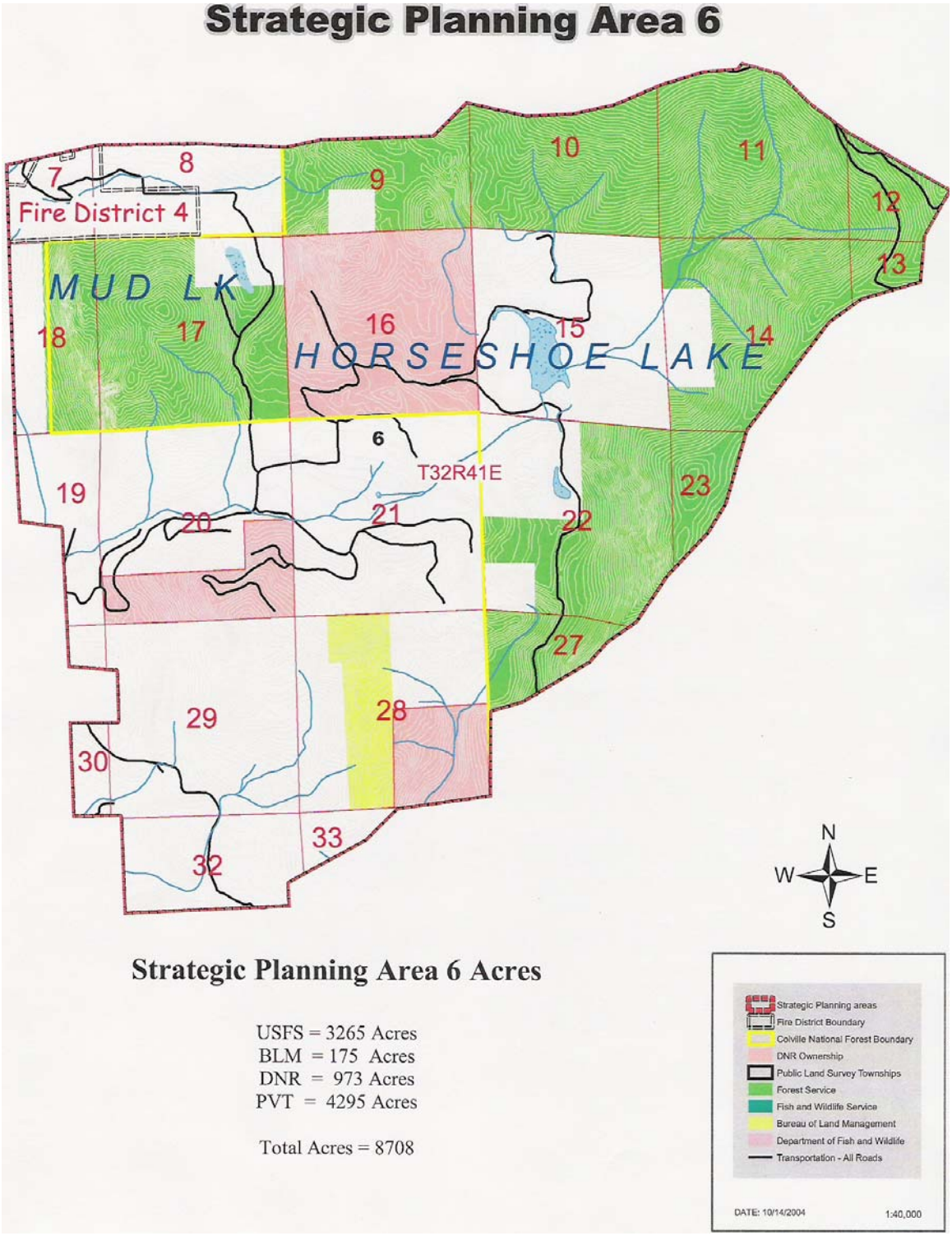

Strategic Planning Area 9
T33R40E
Fire District 5
T32R40E
Strategic Planning Area 9 Acres
USFS = 1790 Acres
BLM = 222 Acres
PVT = 4378 Acres
Total = 6390 Acres
N
W
E
S
Strategic Planning areas
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/12/2004
1:35,000

Priority 8: SPA 6 Sherwood Creek – Horseshoe Lake 8,708 acres

Description: This area has few structures. The Districts concern would be a high concentration of fuel in this unit, and the lack of structural mapping. SCFD #4.

A mix of USFS, State, Industrial, and NIFPL forest land. All but the USFS have had past harvest activity and are roaded. USFS forest land stretches from Chewelah Peak to Quartzite Mt., with a few old harvest areas. There are some serious forest health issues, but harvest plans have been postponed or canceled. Some homes and structures are scattered in the lower drainage, with areas of agricultural fields. These structures are outside the SCFD boundary. Fuel build up on USFS forestland is a threat to adjacent forestland, as well as a threat to 49°N Ski Area to the East. Risk to Structures is Moderate.

Recommendations: Assess forestland for fuel buildups threatening adjacent property or structures. Implement projects. Assess structures for Defensible Space needs and implement with grant funding.

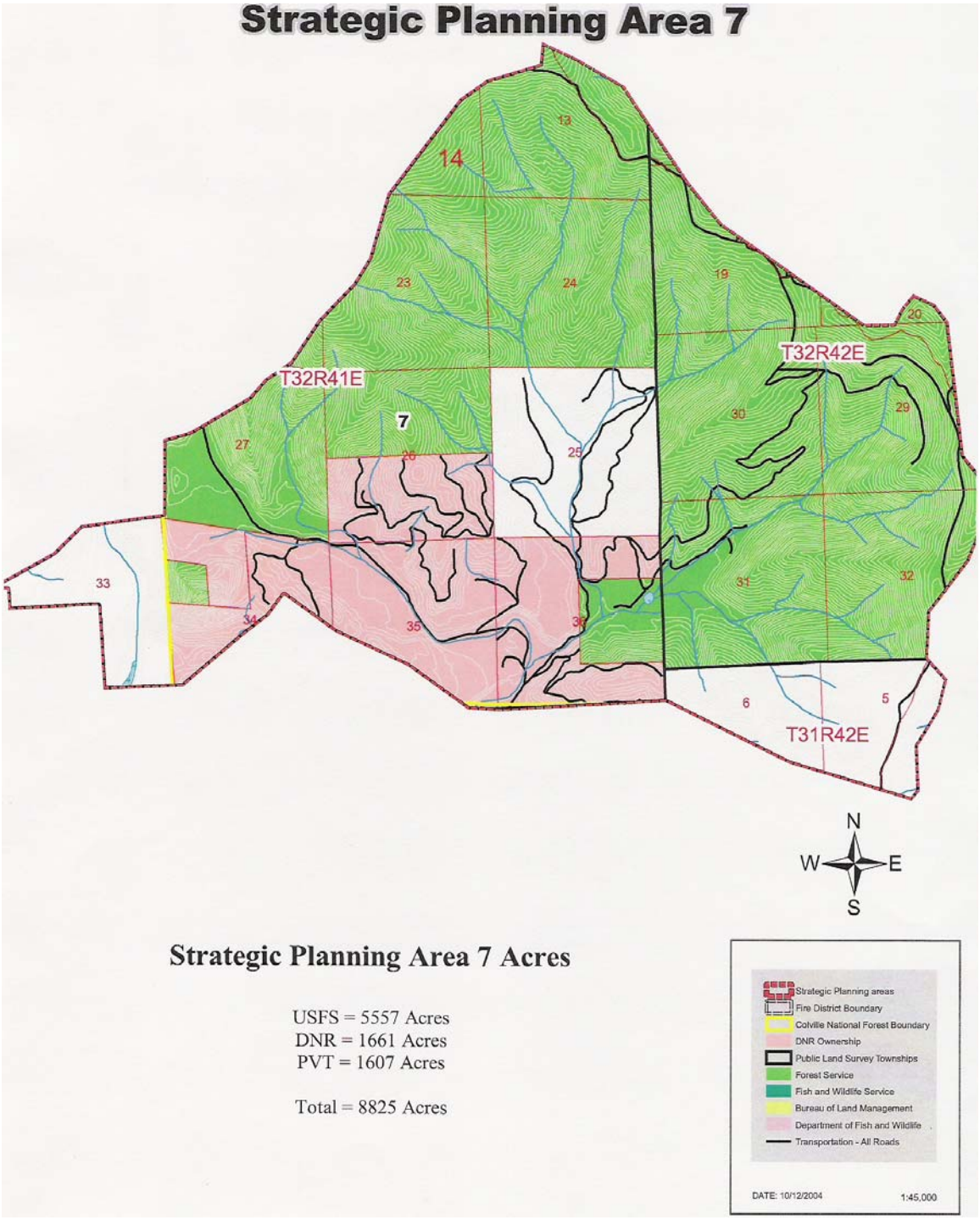

Strategic Planning Area 6
Fire District 4
MUD LK
HORSESHOE LAKE
T32R41E
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
27
28
29
30
32
33
N
W
E
S
Strategic Planning Area 6 Acres
USFS = 3265 Acres
BLM = 175 Acres
DNR = 973 Acres
PVT = 4295 Acres
Total Acres = 8708
Strategic Planning areas
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/14/2004
1:40,000

Priority 9: SPA 7 Betts Meadow 8,825 acres

Description: There are no structures in this unit. The Districts concern would be fuel loads that promote fire spread in to District structural areas. SCFD #4.

A mix of USFS, State, Industrial, and NIPFL forest land. All but the USFS has had harvest activity on most of the forestland. Wetland restoration has occurred on private land adjacent to USFS. Several unimproved campsites exist on State land. Neither homes nor structures are in this SPA. Some forest health issues and fuel build-ups exist. Risk to improvements is Low.

Recommendation: - Assess USFS and State forestland for forest health specifics, fuel build up, and implement projects.


Strategic Planning Area 7
14
13
23
24
19
20
T32R41E
T32R42E
7
27
26
25
30
29
33
31
32
34
35
36
6
5
T31R42E
N
W
E
S
Strategic Planning Area 7 Acres
USFS = 5557 Acres
DNR = 1661 Acres
PVT = 1607 Acres
Total = 8825 Acres
Strategic Planning areas
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/12/2004
1:45,000

Priority 10: SPA 2 West – North Fork Chewelah Creek 17,225 acres

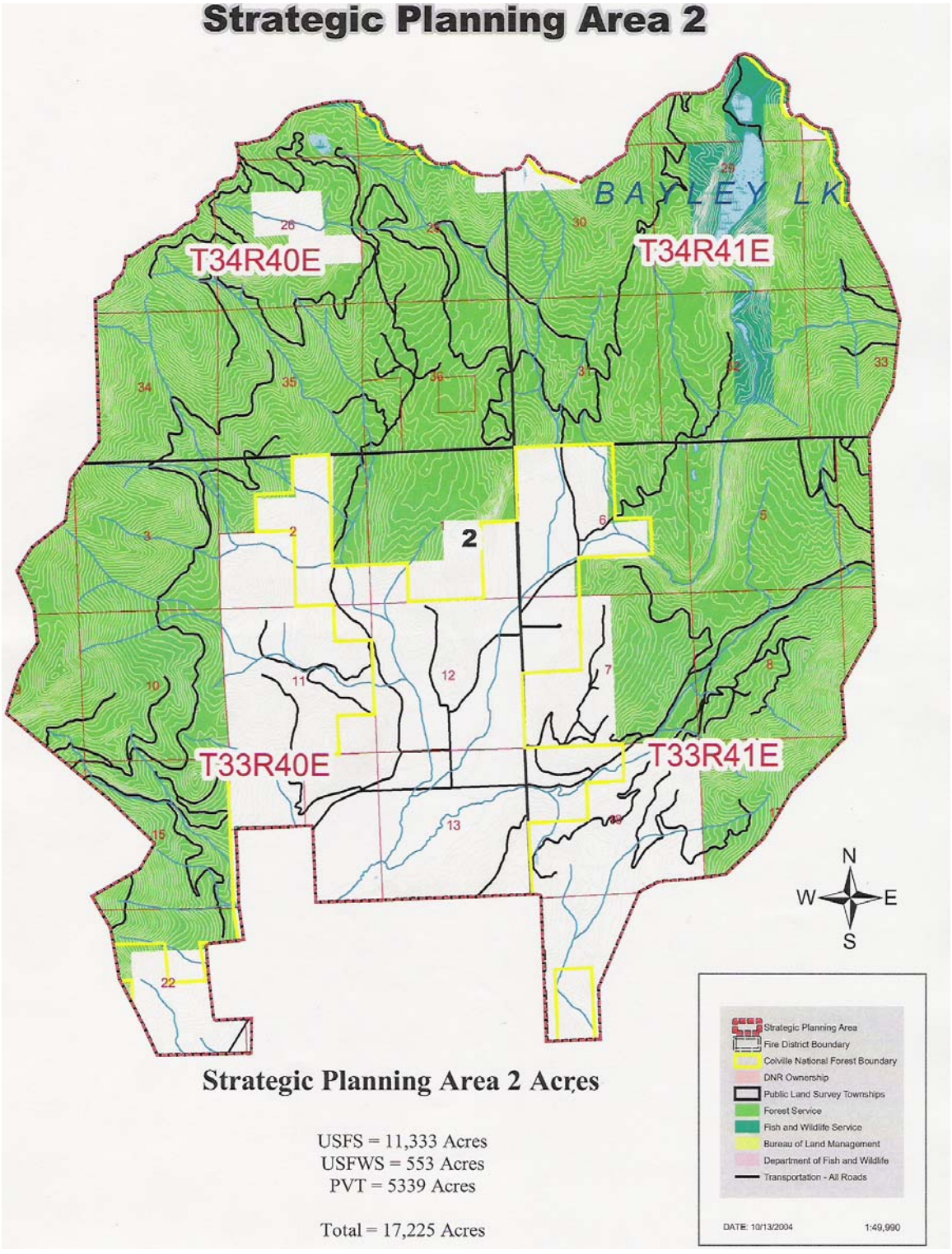
Description: This unit is outside of the SCFD # 4's boundary. Do to the heavy fuel loads our concern would be fuel reduction to prevent fire spread to District boundaries.

a. West - North Fork Chewelah Creek - Mostly USFS, with some industrial and NIPFL. Past timber harvests have roaded some areas. Some forest health issues. Bounded on North by Little Pend Oreille Wildlife Refuge. There are scattered structures along County road, Leslie Creek, and Major Rd. towards Bayley Lake, which is a recreation route. Outside of Fire District.

Recommendation: Assess and plan for needed forest health and fuels reduction, especially adjacent to lower Leslie Creek, and along lower Major Rd.

b. Leslie Creek - Major Rd. - Some scattered structures in lower valley. Open agricultural ground and farming reduce risk. Some adjacent forestland. Moderate Risk.

Recommendation: Assess structures for Defensible Space needs. Assess, plan for adjacent Private and USFS Forest land fuel reductions. Assess access and egress. Reduce fuels around homes and create buffers along roads.



Strategic Planning Area 2 Acres

USFS = 11,333 Acres
USFWS = 553 Acres
PVT = 5339 Acres

Total = 17,225 Acres

Priority 11: SPA 1 West Iron Mountain 9,708 acres

Description: This unit is also outside of the SCFD # 4's boundary. Do to the heavy fuel loads our concern would be fuel reduction to prevent fire spread to District boundaries.

a. West Iron Mountain - Mostly USFS forestland, relatively well roaded, (many closed), with past timber harvests. Some forest health issues. Bounded on North by the Little Pend Oreille Wildlife Refuge and private forestland, with varying density of structures in 12 Mile Creek area. The town of Addy, WA is on West-Central edge. Few structures at risk because they are located at bottom of slopes. Low Risk.

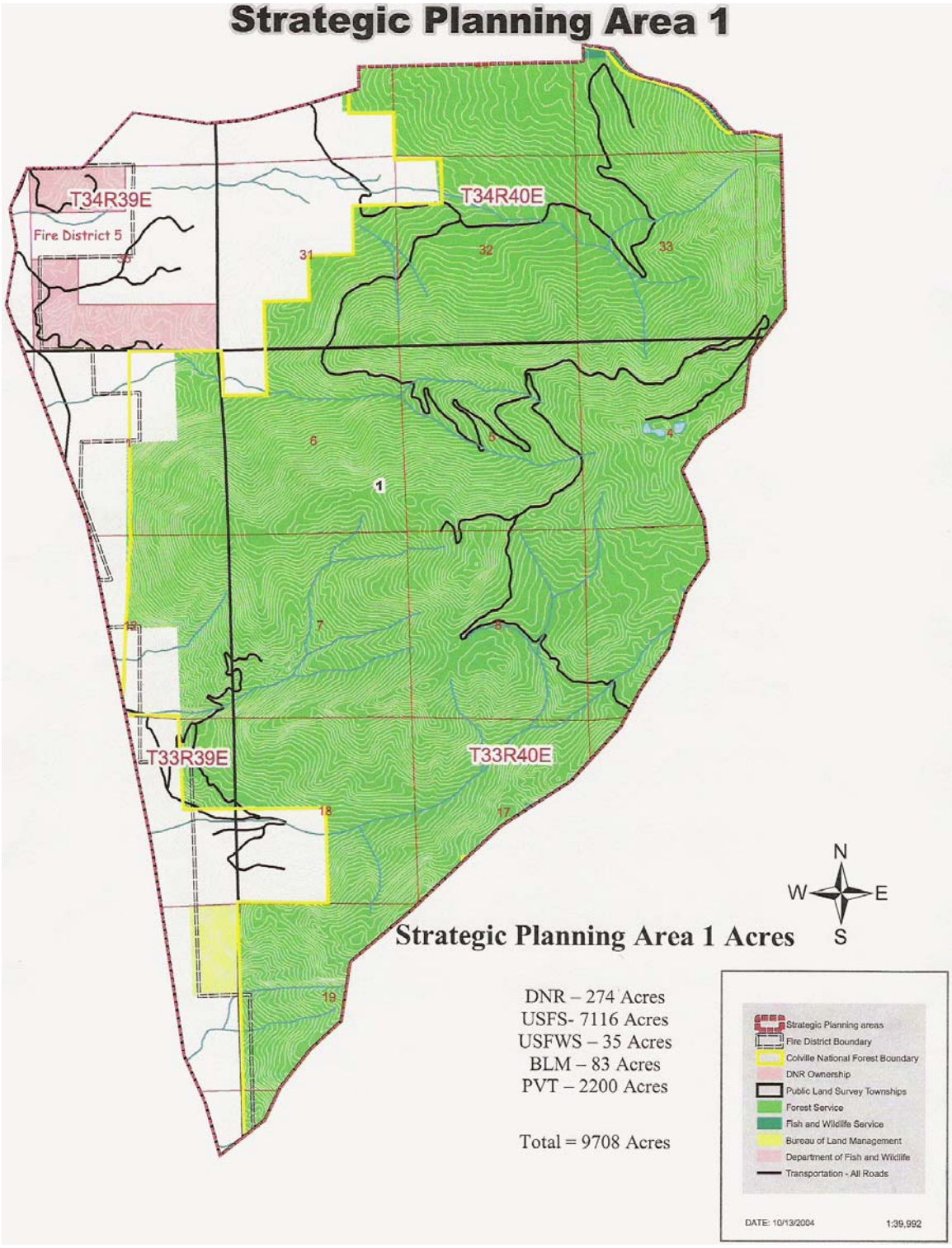
Recommendations: Complete forest health assessment, however Low priority for fuels reduction, except adjacent to 12 Mile and Addy.

b. 12 Mile - Scattered residences with access from Slide Creek Rd., and Moran Creek Rd. Past harvests on private forestland have reduced some fuels. Within SCFD #5. Moderate Risk.

Recommendation: Assess individual structures for Defensible Space, and roads for access and egress. Reduce fuels around homes and create buffers along roads. Assess adjacent private forestland for fuel reduction needs.

c. Addy - Few structures close to forestland. Some Private Industrial forestland managed well with fuels reduced. Some adjacent USFS forestland harvest activities have reduced risk. Within SCFD #5. Low risk.

Recommendation: Assess both Private and USFS Forest land for fuels risk and plan/ reduce fuels.

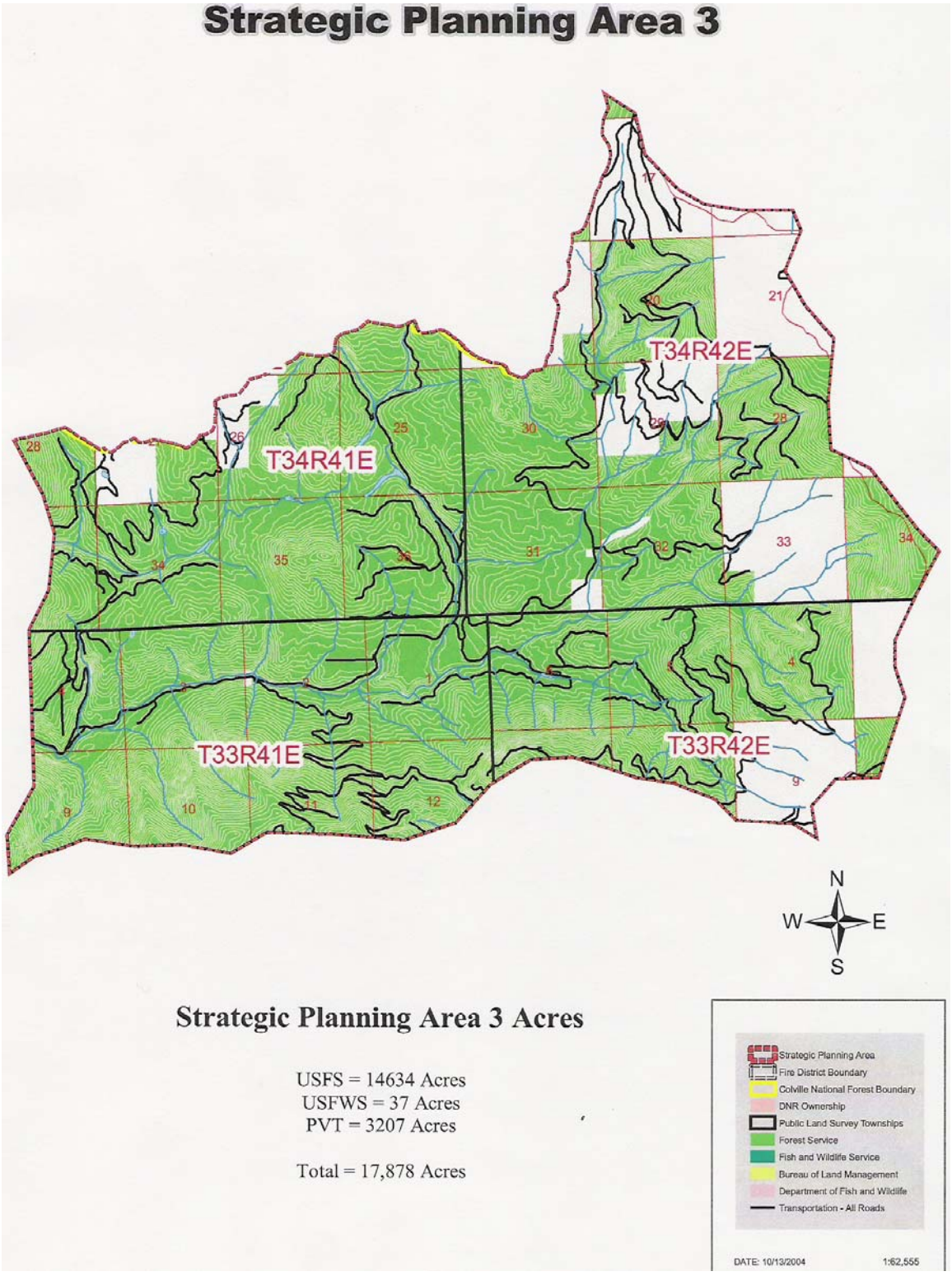

Strategic Planning Area 1
T34R39E
Fire District 5
T34R40E
31
32
33
6
1
7
T33R39E
T33R40E
18
17
19
N
W
E
S
Strategic Planning Area 1 Acres
DNR – 274 Acres
USFS- 7116 Acres
USFWS – 35 Acres
BLM – 83 Acres
PVT – 2200 Acres
Total = 9708 Acres
Strategic Planning areas
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/13/2004
1:39,992

Priority 12: SPA 3 East – North Fork Chewelah Creek 17,878 acres

Description: This unit is also outside of the SCFD # 4's boundary. Do to the heavy fuel loads our concern would be fuel reduction to prevent fire spread to Fire District boundaries.

All forestland, predominately USFS. No structures, includes Seed Orchard. Moderate recreational use, with several primitive campgrounds. Heavy hunter use in fall. Some past harvest activities, with associated roads. Some forest health issues. Bounded on North by Little Pend Oreille Wildlife Game Refuge. A few private forestland inholdings. Relatively Low Risk to private resources.

Recommendation: Assess Federal Forest land for forest health and fuel reduction especially along travel corridors. Implement projects.


Strategic Planning Area 3
T34R42E
T34R41E
T33R41E
T33R42E
N
W
E
S
Strategic Planning Area 3 Acres
USFS = 14634 Acres
USFWS = 37 Acres
PVT = 3207 Acres
Total = 17,878 Acres
Strategic Planning Area
Fire District Boundary
Colville National Forest Boundary
DNR Ownership
Public Land Survey Townships
Forest Service
Fish and Wildlife Service
Bureau of Land Management
Department of Fish and Wildlife
Transportation - All Roads
DATE: 10/13/2004
1:62,555

5.4 Education and Community Outreach

Education and outreach is an inherent component of the CWPP. Residents of the Chewelah area were engaged before and after the implementation of the fuel reduction projects. Ongoing activities, such as door-to-door outreach are the core of our education efforts. The CWPC aims to reach a diverse audience from seniors to children and homeowners to business owners.

Timeline	Activity	Description
2001- Ongoing	Door-to-Door Outreach	Reached over 1,500 homes in Stevens County, talking face to face with residents about wildfire protection.
2001- Ongoing	Defensible Space Planning	Completed over 150 Defensible Space Plans for homeowners in the Chewelah area.
Spring 2002	Country Homes Living Expo	Talked to hundreds of people, reaching a diverse audience of rural homeowners.
Spring 2003	Rotary Club South Defensible Space Planning	Presented Defensible Space Planning to about 30 Club members.
Spring 2004	Agriculture Trade Show	Reached hundreds of people, yet most attendees of the Ag Trade Show were not in need of Defensible Space Planning.
Summer 2004	Burnt Valley Field Trip	Local residents joined CWPC and the Forest Service on a walk into the Burnt Valley forested stands to discuss the proposed WUI project on National Forest Land.
2001- Ongoing	"Living With Fire" Guideline	The Pacific Northwest Wildfire Coordinating Group produced a twelve-page guideline for Defensible Space Planning. We have distributed the guideline to over 2,000 residents.
Summer 2004	"Wildfire News" Distribution	The Lands Council and six other conservation groups produced a four-page newspaper insert for rural homeowners. It includes a short "how to" for Defensible Space and discusses the ecology of wildfires and the effects of logging.
2001-2005	Video Distribution	"Protecting Your Home From Wildfire" produced by Jack Cohen, Research Physical Sciences Laboratory Rocky Mountain Research Station. We have distributed this to over 2,000 residents.
2004 Pre to Post Implementation	4 Step Community Meetings	Introduction to the Fire Plan – November 2004 Resident's Protection Needs -- March 2005 Implementation Plan --To be determined Post Implementation – To be determined

The CWPC has held several radio interviews and contributed to numerous print articles in the Chewelah and Colville area. This has been an effective tool to reach citizens in rural areas. The CWPC will continue to build a relationship with the press.

Press Contacts in the Colville and Chewelah Area:

Outlet	Contact	Phone	Fax	Email
KCVL Colville Radio	Eric Carpenter	509-684-5032	509-684-5034	news@kcvl.com
KCHW Chewelah Radio		509-935-8923		info@kchw.com
KITR - LP Kettle Falls Radio		509-738-3101		Info@kipr.org
North Columbia Monthly		509-684-3109	509-684-3109	monthly@plix.com
Statesman Examiner	Chris Cowbrough	1-800-488-5676	509-684-3849	editor@statesmanexaminer.com
The Chewelah Independent	Liz Riley editor	509-935-8422	509-935-8426	

Social Services

The following is a list of community social services to help in the case of a fire and after a fire.

Emergency 911: Dial 911 for more information call Chewelah Emergency 911 Center (509)-684-2555

Chewelah Fire Station: (509)-935-8375

Ambulance: (509) 684-8261

St. Joseph's Hospital: (509)-935-8211 500 E. Webster, P.O. Box 197 Chewelah 99109

American Red Cross, Inland Northwest Chapter: (509)-326-3330 315 W Nora Ave. Spokane, WA 99205 www.spokaneredcross.org

Habitat for Humanity: Colville Valley Partners HFH (509)- 684-2319 930 S. Elm St. Colville, WA 99114

Counseling Center Chewelah: (509)-935-4808 301 E. Clay #201, Chewelah, WA 99109

Senior Citizens of Chewelah Valley: (509)-935-6204 302 E Main, Chewelah, WA 99109

Land Services: (509)-684-2401

Also visit www.co.stevens.wa.us to find more information about Stevens County, Washington.

Section 6: MONITORING AND EVALUATION

6.1 Plan Adoption

To ensure recognition by the public, as well as partner agencies and organizations, The Community Wildfire Plan Committee presented the Fire Plan to the Board of County Commissioners for adoption by resolution. The Stevens County Fire District #4, the City of Chewelah, and the State of Washington Department of Natural Resources are also signatories. The United States Forest Service has supported the plan in recognition of the collaborative development process.

The Chewelah Fire Plan is designed to enhance the County-wide Fire Plan by providing detailed information about Strategic Planning Areas. It will be used by the Fire District, the Washington Department of Natural Resources, in conjunction with the Forest Service, for WUI National Fire Plan projects.

The Healthy Forests Restoration Act authorities for Community Wildfire Protection Plans require adoption of this plan, as does the FEMA Disaster Mitigation Act of 2000. With formal adoption of this plan, the CWPC is more competitive for funding that may assist with plan implementation. Furthermore, adoption of this plan highlight the collaborative process between fire districts, local government, community-based organizations and public agencies.

6.2 Funding

The NEW FC received a Matching Awards Grant from the National Forest Foundation in the amount of $15,000 for the two Community Wildfire Protection Plans. NEW was also able to match that $15,000 with contributions from Vaagen Bros. Lumber, Inc., Columbia Cedar, 49 Degrees North Ski Basin, Northwest Ecosystem Alliance and The Lands Council. Because of the matching funds, each protection plan received $15,000. Coalition members, the Forest Service, local Fire Districts and community members have contributed in-kind donations as well.

The work has been to conduct the outreach with the local community, collaborate with the FS in the design and permitting of the Forest Service WUI projects, hold neighborhood meetings, field trips, educational seminars and provide media notices. We have done the actual collection of data and maps and put them together in the writing of the CWPP. This will be distributed to authorities and necessary parties and will be approved as acceptable by Fire Districts, County Commissioners and DNR. We have created a multi-party monitoring of the WUI project that includes photo stations to determine the next project prescriptions.

6.3 Monitoring

Plan Oversight

The primary objective of the Chewelah Wildfire Protection Committee is to provide guidance for all elements of planning and implementation of the Chewelah Fire Plan. The CWPC will continue to provide oversight through quarterly meetings and coordination through the NEW FC. The specific actions identified by the CWPC are listed below with strategies for monitoring outcomes. All activities are ongoing.

Monitoring

The purpose of this monitoring strategy is to track implementation of activities and evaluate how well the goals of the CWPC are being met over time. The monitoring strategy also provides a way for the CWCP, Forest Service and Fire Department to be accountable to the public about the outcomes of the Fire Plan.

Monitoring is the collection and analysis of information to assist with decision making, to ensure accountability, and to provide the basis for evaluation and learning. It is a continuing function that uses methodical collection of data to provide management and the main stakeholders of an ongoing project or program with early indications of progress and achievement of objectives. The following are the types of monitoring:

- Implementation Monitoring: Did you do what you said you would do?
- Effectiveness Monitoring: Did treatments meet objectives?
- Verification Monitoring: Evaluates whether our objectives helped to meet broad CWPC goals. Did our actions lead to the outcomes we expected?

Multiparty Monitoring*

A multi-party monitoring process is a process which seeks to engage community based groups, local/regional/national interest groups, and public agencies to ensure that natural resource management is responsive to diverse interests and objectives. The multi-party process not only legitimizes monitoring and evaluation, it helps build bridges between a variety of parties and interests through effective and meaningful public involvement. A multi-party approach improves the process through increased collaboration, improved public education, and an increase in the overall understanding of project efforts and impacts.

Multiparty monitoring is critical to the success of the project since it involves local, state, and federal agencies along with private citizens. At its most effective, multiparty monitoring provides all those impacted by a project the opportunity to be involved in the monitoring process. This provides for a transparent planning process, which builds community trust.

* Multiparty Monitoring and Assessment Guidelines for Community-based Forest Restoration in Southwestern Ponderosa Pine Forests - http://www.fs.fed.us/r3/spf/cfrp/monitoring

Adaptive Management
Adaptive management is a process of learning from our management actions. As applied to the CWPC, it involves implementing an approach to current projects, monitoring and analyzing the effects of that approach, and then incorporating these findings into the next round of projects. At the end of each project (or monitoring period), the following questions will be asked:

- Were the mitigation measures implemented as planned?
- What went right and what went wrong?
- Are there opportunities for improvement?
- Were objectives met?
- Were the mitigation measures effective at protecting the resources?
- If the mitigation measures successfully protected the resources, were they overprotective and did they place unnecessary constraints on the ability to accomplish project objectives?

Multiparty Monitoring for Fuels Treatment Projects
The NEW FC, local fire districts and community organizations are actively pursuing grant funding and implementing fuels reduction projects. Grants submitted for the National Fire Plan and the BLM and Forest Service funds have included elements for multi-party monitoring. In the section below, we provide strategies for multi-party monitoring.

1. Identify Stakeholders: To truly be accountable, monitoring must involve those who are interested and concerned about their community from an economic standpoint to an ecological view. The NEW FC is built of diverse individuals and organizations. The Vaagen Brothers Mill, 49º North Ski Area, The Lands Council a conservation group and Washington State University are just a few representatives.

2. Goals: General statements of anticipated project outcomes; usually, more global in scope than objectives and not expected to be measurable; if used, goals should be supported by well-stated objectives. Example: Reduce hazardous fuels in the wildland urban interface.

3. Objectives: A specific statement describing the desired accomplishments or outcomes of a project at different levels (short to long term). Objectives should be:

- Realistic and achievable. Create objectives that are meaningful and achievable within the bounds of management possibilities. In addition, if you have multiple objectives, make sure that they do not conflict. For example, you may have trouble meeting both of the following objectives: 1. dramatically reducing fuel load and 2. maintaining all your overstory trees.

- Specific and measurable. Your objectives should be quantifiable (measurable). They should also identify a target/threshold condition or include the amount and direction of change desired. Specific quantitative elements will allow you to evaluate the success or failure of your management.

- Clearly articulated and focused. Clear and focused objectives will allow current and future stakeholders to have focused discussions regarding the desired state of the resource.

Example: Coordinate treatment of hazardous fuels to reduce the threat of severe wildland fires to communities-at-risk in the Burnt Valley SPA.

4. Actions: Shows specifically, what will be or has been accomplished.
   - Acres with fuels reduction treatments;
   - Number of fuels reduction projects.

Example: Track acres with fuels reduction treatments (prescribed fire, mechanical, and other) completed by class 1-3, WUI and non-WUI.

5. Performance Measures: Shows the progress of an action against the plan. Indicates to what extent the goals have been reached.

Example: Percent of acres in fire-adapted ecosystems in condition classes 2 and 3 (moderate to high risk) compared to condition class 1(low risk.)

Overall Monitoring Strategy

Each functional element of the Chewelah Area Fire Plan (risk assessment, fuels reduction, and education and outreach) provides monitoring tasks for recommended action items. Below is a summary of monitoring task for each of these functional areas.

Risk Assessment

1. Maintain information on up-to-date technologies and data for risk assessment. Ongoing
2. Continue to use reliable data that is compatible among the partner agencies. Annual
3. Review existing CAR's list and any jurisdictional boundary changes. Annual
4. Monitor changes in the Federal WUI boundaries. Annual
5. Update risk assessment with new data or changing conditions. Annual
6. Continue to reflect community input from meetings as a risk assessment. Annual
7. Inventory private, county, state and federal existing and planned fuels projects. Annual
8. Upon plan completion, monitor acres treated, location and relative risk rating. Annual
9. Track grants and utilize risk assessment data in new applications. Ongoing
10. Document number of residents that maintain treatment. Every 3 years
11. Monitor evacuation routes treated on county, private, state and federal roads. Annual
12. Track grant dollars and projects directed to citizens with special needs. Annual

Fuels Reduction

1. Identify and provide contractor training and opportunities. Bi-annual

2. Review emergency management policies and procedures. Annual

3. Update map illustrating arterial routes and shelter sites. Annual

4. Coordinate with the Fire Department to identify and prioritize fuels treatment projects. Annual

Education and Outreach

1. Evaluate techniques used to mobilize and educate citizens. Quarterly

2. Report on techniques and lessons learned. Annual review

3. Random sample of "certified" homes to measure whether or not they continue to meet standards. Every 3 years

4. Evaluate # and type of fire education programs delivered to community. Annual

6.4 Evaluation

Evaluation of ongoing Fire Plan activities, increased public awareness and collaboration between partners will strengthen the value and impact that the fire plan has within the Chewelah area. The monitoring tasks within the Fire Plan specifically address evaluation. The CWCP will administer annual evaluations of the fire planning process. At each evaluation, new recommendations will be made and new issues addressed.

APPENDICES

Appendix A: Notes From Public Meetings

December 2, 2003

COLVILLE COMMUNITY
FORESTRY COALITION
P.O. Box 888
Twisp, WA 98856
(509) 997-2295

(509) 997-2295

Jim Doran, Exec. Director
doran@mymethow.com

Meeting Notes – December 2, 2003

The Colville Community Forestry Coalition met with Forest Service employees on December 2nd including Deputy Regional Forester Jim Golden, National Fire Plan Coordinator Bonnie Wood, Supervisor Rick Brazell and several Colville National Forest (CNF) staff members. WA – DNR, Upper Columbia RC&D and WSU Extension representatives were also in attendance. The main focus of attention was on the Wildland Urban Interface (WUI) fuels reduction needs, the use of "stewardship" tools, and the creation and implementation of community fire plans.

Jim Golden expressed his sincere appreciation for the work that the Coalition has done thus far. He was very encouraging and hopeful. He did not, however, bring any commitments for additional financial or personnel resources to bear upon the work that is needed in the CNF. It is expected that the new "Healthy Forests" legislation, if funded, will bring financial resources to the CNF. The National Fire Plan funding will be a good source for Community Fire Plan efforts, if we are successful in grant applications. However, neither of these sources will provide resources within the next 18 months to 24 months.

Several important conclusions were made during the course of this meeting:

1. A Categorical Exclusion (CE) such as at the Burnt Valley WUI Project can be done with the use of "stewardship" tools. These tools allow the USFS to use private contractor design input so that the project generates positive net cash flow when implemented. This positive net fund can be used to plan the next CE project with a portion of the fund to go to the creation of the Community Fire Plan. If done "smartly" these funds can be self-perpetuating.

2. Each WUI/CE can contain 4,500 acres, with as much as 1,000 acres to be mechanically thinned. The full use of stewardship tools, including "goods for services" and "designation by description" and "retention of receipts" could stretch the Forest Service budget from the funded 5,000 acres for 2004 to a possibility of significantly more acres funded for treatment.

3. The Colville Coalition and The Lands Council encourages the Forest Service to plan and implement as many as 10 simultaneous CE's in the WUI, with the use of stewardship tools.

4. The ability to begin the use of stewardship tools within the anticipated WUI/CE projects, let alone upon a broader basis, depends upon manpower and funding for the required minimum soils analysis, cultural/archaeological analysis and the biological analysis. This needed funding and personnel are scarce.

5. Substantial private forest landowners would support the fuels reduction treatments upon the Forest Service lands adjacent to their own property. These private owners would join with treatments upon their own lands if the Coalition were to provide the leadership and education regarding Community Fire Plans and potential funding for private landowners.

6. The Phillips Ranch "Stewardship" Model shows how local area private forest landowners are able to implement fuels reduction and forest health prescriptions in a project that generates an overall positive cash flow. The Coalition urges the Forest Service to develop a landscape level project using the Phillips Ranch model.

The Coalition Board met briefly after the discussion and approved the private foundation fundraising "Letter of Inquiry" and the program described therein. This program includes an educational track, the continuation of our collaborative planning with the Forest Service, and our continued involvement in the creation of Community Fire Plans. The Coalition also continued its discussion of the possibility of becoming the General Contractor for stewardship projects within the CNF. The Board also discussed making an effort to reach out into Pend O'Reille County to include those communities more closely within the Coalition.

The Coalition will plan a Forum for early January 2004 for all likely applicants for the 2004 National Fire Plan grant cycle. The Forum will include a representative from the National Fire Plan Coordinator's Office and other funding source representatives to assist the coordinated application for project funding.

Finally, in discussion it was determined that the greatest obstacle to, and therefore the greatest opportunity for, the success of the several proposed WUI/CE projects is the immediate need for funding and personnel for the soils, biological and cultural/archaeological assessments that are needed for those CEs. The Coalition will work with the Forest Service to determine the extent of funds needed for these scientific services with the possibility of securing a loan to fund these services from private consultants, with the loan to be repaid from the "retention of receipts".

March 3, 2005

Chewelah Community Fire Planning Meeting
March 3, 2005 6:30pm the Miner's home.

The meeting lasted about an hour and a half with an hour of presentation and a half hour of question/ answer. Fire Chief Tim Van Dorn touched on the Fire District's goals. Dick Dunton explained the Fire Plan and NEW FC's role in the community. Chuck Johnson explained the funding process. Lynn Miner answered questions for the Fire District. Ellen Picken opened the question answer period.

About 10 community members attended.

Q: How long are the fire trucks?
A: 42 feet – if we go to an area and there is no safe access, we won't take in the trucks.

Q: Addresses are a large problem, how will the emergency crews find my place?
A: The Fire District put on a program that paid in full signs for addresses, postage, manufacture, installation, yet only 1/3 of residents participated. We put announcement in paper.
Comment: Not every one gets the paper.

<u>Questions from handout need to be addressed:</u>

Q: I am concerned about not having an alternate egress.
I am concerned about access to remote areas of our property with steep terrain.
I don't know if a fire truck can maneuver on our property: Thorton's 2763-A Highline.

Q: Is there a cost-share program for the Interface? Kurrle's 2511-C Highline.

Q: There is no water access near my home.

This group most likely had been to a few of these meetings already and had few questions. We may be able to extrapolate a few more issues from the handouts. The Lands Council's interns (technical writing students from EWU) will compile the handouts.

(Note, we invited the FS to participate. They said someone would attend. We repeatedly reminded them of the dates, yet no FS rep attended.)

Your Fire Safe Needs

Name: William + Bern Potts

Contact info: 935-8296
Phone email

Home address: 2523 Burnt Valley Rd. Chewelah WA.

SPA: 10

Some basic questions to get started:

Do you live adjacent to Forest Service, BLM, State, industry, other forest land?
No

Is your property around your home in need of defensible space thinning?
No

Do you have forest land in need of fuels reduction?
Yes

What condition are the roads leading to your home? Can a fire engine turn around?
Yes

Do you have additional structures on your property besides your home?
Yes

Is there a water access near your home? Creek, pond, vehicle or helicopter access?
Yes

What are your economic values (farm, timber, private business, home etc.)

What are your social values (connected to living in this area – ie, privacy, community, quality of life, appreciation for natural surroundings)

What are your needs and concerns?

Your Fire Safe Needs

Name: Steve + Kathy MURBACH

Contact info: 509 935 6246
Phone email

Home address: 2584 Burnt Valley Rd Cheweleh

SPA: 10

Some basic questions to get started:

Do you live adjacent to Forest Service, BLM, State, industry, other forest land? NO

Is your property around your home in need of defensible space thinning?

Some

Do you have forest land in need of fuels reduction?

not Really

What condition are the roads leading to your home? Can a fire engine turn around?

single lane gravel – good access with turn around at house or drive through possible

Do you have additional structures on your property besides your home?

yes

Is there a water access near your home? Creek, pond, vehicle or helicopter access?

no

What are your economic values (farm, timber, private business, home etc.)

What are your social values (connected to living in this area – ie, privacy, community, quality of life, appreciation for natural surroundings)

What are your needs and concerns?

Appendix A: Notes From Public Meetings

Your Fire Safe Needs

Name: Lynn Miner

Contact info: 509 - 935-6897 miner1@theoffice.net.com
Phone email

Home address: 2716 Moser Rd Chewelah WA 99109

SPA: 10

Some basic questions to get started:

Do you live adjacent to Forest Service, BLM, State, industry, other forest land?

Y

Is your property around your home in need of defensible space thinning?

Y

Do you have forest land in need of fuels reduction?

Y

What condition are the roads leading to your home? Can a fire engine turn around?

Very good

Do you have additional structures on your property besides your home?

Y

Is there a water access near your home? Creek, pond, vehicle or helicopter access?

N

What are your economic values (farm, timber, private business, home etc.)

500K

What are your social values (connected to living in this area – ie, privacy, community, quality of life, appreciation for natural surroundings)

Wildlife enhancement

What are your needs and concerns?

Fire protection

Appendix B: 2005 Western States WUI Grant Application for SPA 5 from the Flowery Trail Home Owners Association

2005 Western States Wildland Urban Interface Grant Application

State Submitting Project:

State Priority #:

	Applicant Information	
1	Applicant:	Flowery Trail Home Owners Association, Colville Community Forestry Coalition, Washington Dept Nat Resources
	Contact Person:	Chuck Johnson, WADNR Community Fire Planner
	Address:	
	City/Zip Code:	Colville, WA 99114
	Phone(Work/Cell):	509 684-7474/ 509 995-7967
	Email	chuck.johnson@wadnr.gov
	Fax:	509 684-7484

	Requested Grant Amount/Project Description/Scope of Work	
2	Dollar Amount Requested: **$ 100,000**	Projected Match: **$ 100,000**

Name of Project: Flowery Trail Sub-Division Defensible Space and Fuels Reduction

Please provide a description of the entire project. (If applying for a fuels reduction project, please identify vegetation types.)

This project starts the implementation of the Draft Chewelah Community Fire Plan, by finalizing tactical planning for a Community at Risk, and applying fuel reduction mitigation measures. It augments and enhances completed Defensible Space, and will address remaining Defensible Space needs, fuels reduction work on private lots, and adjacent State Dept. Natural Resources lands. It will provide defensible space for approximately 28 homes, and the Chewelah Peak Learning Center.. Over-story vegetation is mostly Lodge Pole Pine and Douglas Fir

Provide a brief scope of work: (The scope of work should be more specific than the project description. Provide a short, detailed explanation of how grant funds will be used.)

This project is located in the upper part of Chewelah Basin, 10 miles East of Chewelah, WA.

The homes sit at the head of an old wildfire burn, having dense stocking of Lodge Pole Pine, and Douglas Fir. Area is on moderately steep slopes with all homes on a West aspect. Approximately 125 acres would be treated. (Approximately 100 acres of state trust land, 25 acres are 76 lots including 14 homes.)

This Fuels Reduction Project will implement the Chewelah Community Fire Plan by creating Defensible Space around non treated homes; and fuels reduction on private lots. Fuels reduction on adjacent Washington Dept. of Natural Resources land, will establish fuel breaks around this community. A completed mitigation plan is part of this proposal.

Individual Defensible Space, and fuel breaks needs will be developed by consultants, and implemented by contractors utilizing hand and mechanical methods. Those homes at risk will have Defensible Space created by thinning, pruning, and slash disposal. (Chipping, piling and burning at a safe time by land owner.) Fuels reduction will be accomplished by thinning, pruning, chipping and slash disposal. Washington State Environmental Protection Act (SEPA) applies, and environmental, cultural and historical resources protection measures will be in place.

	Timeline
3	What is the duration of this grant request? (check one) One Year _____ Two Years ___X__ Anticipating WADNR fuels reduction would carry into 2nd year. Is this a continuing project from previous year/s? (check one) Yes ___X__ No ____ 29 0f 105 lots have had fuels reduction previously. This includes 14 of 28 existing homes. Please provide a timeline for the project. Months 1-2 (March-April) Defensible Space Plans for 14 homes, Fuel Reduction Plans for 63 lots. Months 3-4 Contracts Bid, Media notification/Coverage, Defensible Space, Fuels Reduction treatments. Months 4-8 Monitor/assist WADSNR fuels reduction preparation. Contract quality Control/compliance. Fuels reduction treatments. Months 9-15 Monitor/assist WADNR fuels reduction implementation.

	Project Summary			
	Project Category: (check all that apply)		Project Type: (check all that apply)	
4	Hazardous Fuels Reduction	X	Assessment/Scoping	
	Information & Education		Planning	
	Homeowner & Community Action	X	Information/Education	
			Implementation/Treatment	X
			Monitoring/Evaluation	

5

Community Information			
Community Name:	Flowery Trail Sub Division		
County:	Stevens	Congressional District:	5
Population/Number of Visitors:	@ 250	Number of Homes/Structures:	28
Latitude (decimal degrees):	N48.31366	Longitude (decimal degrees):	W117.56918
Number of Acres to be treated: (for fuels reduction projects)	175 (75 of lots)	Estimated Cost Per Acre: (for fuels reduction projects)	$500
Number of citizens to be reached: (for educational/prevention projects)		Number of Residences Affected: (for planning projects)	

Identify what organization in the community is providing leadership for the project?

Homeowners Association:	
Fire Department or Protection District:	
Local Government:	
County Government:	
Non-Profit Group:	Colville Community Forestry Coalition
Other (Please Specify):	

Threat Description (Check what is threatened)

Homes:	X
Businesses:	
Watersheds:	
Infrastructure:	X
Economic Viability:	
Historic Structures:	

Hazard Description (Check appropriate type of interface) See page 4 of Criteria and Instructions for definitions.

Interface:	
Intermix:	X
Occluded Interface:	
Rural Interface:	

6

Interagency Collaboration

Identify the private, local, tribal, state, federal organizations and/or other (please specify) that are contributing or participating in completion of this project. Please identify how each partner will contribute to the completion of the project (funding, personnel, equipment, etc.)

Colville Community Forestry Coalition - Planning, organizing, and coordinating project.
Flowery Trail Home Owners Association - Contributing help, and implementation follow-up.
Wash DNR - Administering project, contracts. Preparing project implementation on state managed forest land.

7	**Grant Contributors (Matching Share)** **(Applications will be disqualified if insufficient match is identified; federal dollars DO NOT qualify)** **Please specify each match contributor and the dollar amount of each contribution.**							
	Contributors: (please specify)	WADNR	FT Home Owners Asc	Col Com For Coal	**USFS**			**TOTAL**
	Dollars (Hard Match):							
	In-Kind (Soft Match):	$96,500	$1,000	$2,500				
	TOTAL:	$96,500	$1,000	$2,500				$100,000

8	**Total Project Expense** (include matching share from above)				
		Grant Share ($ Amount Requested)	**Match** (from above)		**TOTAL**
			Dollars	**In-Kind**	
	Personnel/Labor :			$97,000	
	Operating :			$2,500	
	Travel :			$500	
	Contractual Services :	$92,000			
	Equipment :				
	Indirect Costs :	$8,000			
	TOTAL:	$100,000		$100,000	$200,000

9	**Planned Project Maintenance/ Community Wildfire Protection Plan (CWPP)**
	Please describe all planned project maintenance if funded. Does this community have a wildfire protection plan in place? (check one) Yes__X___ No _____ If yes, does it follow CWPP guidelines? (Briefly describe) The Flowery Trail Sub-Division is identified as a Community At Risk within the Thomason Creek SPA, as part of the Chewelah Community Fire Plan (DRAFT July 2004). The Chewelah Community Fire Plan, presently in review for step 7, follows the CWPP guide lines. If no, is this a request to develop a plan? (Briefly describe)

10	**Additional Information**

Project Summary Form

Id Number **2006-220**

NATIONAL FIRE PLAN COMMUNITY ASSISTANCE AND WILDLAND URBAN-INTERFACE PROJECTS

Application for Fuels Treatment Projects

Applicant

Applicant/Organization:
State of Washington, Department of Natural Resources

Phone: (111 111-1111 x 1111) 509-684-7474	Type of Applicant: (*enter appropriate letter in box*) [A]
FAX: (111 111-1111 x 1111) 509-684-7484	A. State B. County C. Municipal D. Township E. Interstate H. Independent School District I. State-Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Nonprofit Organization
Please Call Ahead For FAX [ ]	

Address *(Street or P. O. Box, City, State, Zip)*:
P.O. Box 190 Colville, WA 99114

Project Coordinator

Project Coordinator *(Name and Title)*:
Mr. Chuck Johnson Community Fire Planner

Organization/Jurisdiction:
Washington Dept. of Natural Resources, Northeast Region

Phone: (111 111-1111 x 1111) 509-684-7474	FAX: (111 111-1111 x 1111) 509-684-7484 Call Ahead For FAX [ ]	Email: chuck.johnson@wadnr.gov

Project Information

Project Title:
Upper Chewelah Basin Wildland Urban Interface Fuels Reduction Project

Proposed Project Start Date: 05/01/2006	Proposed Project End Date: 04/01/2007
Federal Funding Request: $ 120,000	Total Project Funding: $ 150,320

Are you submitting multiple projects? If so, please explain and prioritize:

Yes, DNR is submitting multiple projects. They will all be prioritized by Local Coordinating Groups.

Brief Project Summary: Who, What, Where, Desired Outcomes in relation to NFP Goals and Community Risk Assessment and Mitigation Plans (This should summarize page 2).

This project begins implementation of the Chewelah Community Wildfire Protection Plan by initiating a high priority fuel reduction project approximately 10 miles East of Chewelah. It complements and enhances adjacent fuels reduction work on a large project being accomplished by State Dept. of Natural Resources. It is also adjacent to a large US Forest Service Proposal. This project will also be referenced in the Stevens County CWPP, currently being prepared.

Project Location: Latitude: 48.28598 Longitude: 117.729	County: Stevens	Federal Congressional District: 5

Name of Federal, State or Tribal contact with whom you coordinated this proposal:	Telephone number of Contact:
Loren Torgerson, Asst. Region Mgr., DNR Northeast	509-684-7474 Ext.
Don Strand, District Mgr.,DNR Northeast	509-684-7474 Ext.
Al Garr, Fire Staff, Colville N.F.	509-684-7000 Ext.

Project Narrative Description

Applications for funding must include a narrative response that describes the proposal. Please do not submit responses longer than one page, single space, 12-pitch font.

Describe project including, but not limited to:

Address these items as applicable:

- project location (e.g., Watershed, neighboring community)
- anticipated outcomes
- community partners and their role(s)
- project relationship to the community risk assessment and mitigation plan
- amount or extent of actions (acres, number of homes, etc.)
- project timeline and matching or contributed funds
- proponent's ability to complete project

For this project, explain the level of cooperation, coordination or strategic planning, through a "Local Coordination Group." If you have not worked with a local coordination group, why not?

This project is supported by the Stevens County Local Coordination Group

Is this project adjacent to a current prescribed burn project on federal lands or to one that is planned within the next three years? (Yes/No) No

Please indicate planned treatments and associated acres:

* Treatment	Thinning	Acres	100	Treatment	Hand Pile Burning	Acres	100
Treatment	Hand Piling	Acres	100	Treatment		Acres	0

If you have a treatment type other than standard types above:

Other 1	Fuel Ladder Removal	Acres	100	Other 2	Pruning	Acres	100

This project is located in the upper part of Chewelah Basin, 10 miles East of Chewelah, WA. The proposal would implement mitigation needs as identified in the Chewelah Community Fire Plan.

This Fuels Reduction Project will implement the Chewelah Community Fire Plan by initiating fuels reduction near the community of Flowery Trails in conjunction with adjacent fuels reduction on Washington Dept. of Natural Resources land, establishing fuel breaks around this community. Fuel prescriptions will be developed by the Dept. of Natural Resources and implemented by local contract crews utilizing hand and mechanical methods. Fuels reduction will be accomplished by thinning, pruning, and slash disposal. Washington State Environmental Protection Act [SEPA] applies, and environmental, cultural and historical resources protection measures will be in place.

The Chewelah Community Fire Plan has identified these areas as Condition Class 3, needing mechanical or hand treatment prior to fire reintroduction.

The Chewelah CWPP completed a risk assessment and prioritized these mitigation measures. In addition, the multi-agency Stevens County Local Coordinating Group has reviewed, and concurred with this proposal. The Colville Community Forestry Coalition and The Lands Council have agreed to partner in this project for outreach and education, as well.

The project would start as soon as funding is secured, with the finalization of specific prescriptions. Work could start in May 2006 and should be completed by Dec. 2006. Past grant projects in Northeast Washington by this proponent have demonstrated capability for accomplishment in a timely manner.

Project Evaluation Criteria

Applications for funding must include narrative responses that address the following three criteria. Be sure you address every one briefly, yet thoroughly. **Limit your responses to the area provided.**

1. **Reducing Hazardous Fuels (50 points)**

A. Describe the community infrastructure that will be protected.
B. Explain how the proposal reduces fire behavior in high hazard areas by describing the fuels to be disposed or removed, and the techniques and timing of the treatments.
C. How will the proposed treatments be maintained in future years?
D. How will you use multi-party monitoring to improve this and future projects?

Response:

This project reduces wildfire risk to landowners in this community, by significantly reducing existing hazardous fuels. Community and firefighter safety is increased by creation of fuel breaks between the community and adjacent forest land. Adjacent Federal land will benefit by reducing the risk of catastrophic wildfire and enhancing the future federal fuels reduction planned in the vicinity.

This community sits at the head of an old wildfire burn area, having dense stocking of Lodgepole Pine and Douglas Fir. The area is on moderately steep slopes with a West aspect. Approximately 100 acres would be treated by thinning, removal of fuel ladders, pruning, and slash disposal [Chipping or piling and burning at a safe time]. The DNR would accomplish at least an equal acreage.

Participating landowners will be required to sign an agreement to maintain the project into the future.

The area is not in a Fire Protection District, and has no structure protection capability. The Flowery Trail Homeowners Association realizes the importance of creating fuel breaks around their community and actively supports the project.

Project Evaluation Criteria

2. Increasing Local Capacity (25 points)

A. How would the proposal improve or lead to the improvement of the local economy in terms of jobs and sustainable economic activity?
B. How many jobs are expected to be created or retained and for how long? (Please distinguish between essentially year-round and seasonal jobs).
C. What tools and skills will be gained or utilized as a result of this project?
D. Will biomass be utilized; if so, in what manner and how much?

Response:

Response:This project will improve local economic conditions by providing work that local contractors can bid on. Resulting paychecks will enhance local business. Most of the jobs provided by this project would be seasonal in nature, as fuels reductions work is not as efficient during winter. This type of work could keep a small crew busy during the life of the project. Skills learned will help contractors compete for future fuels projects and anticipated US Forest Service Stewardship Projects. This would be the first project implemented of 15 potential Strategic Planning areas identified in the Chewelah CWPP and could serve as a model and demonstration to integrate with larger Stewardship Fuels Reduction projects.As market conditions improve, bio-mass could be supplied for power generation, and other small wood products. Hauling chips to Pend Oreille Valley Fiber is being considered.

3. Demonstrating Community and Intergovernmental Collaboration (25 Points)

A. How will this project implement a community risk assessment and mitigation plan? Include name of plan, date it was prepared, and local contact to get a copy of the plan if requested.
B. How has this treatment been coordinated with adjacent landowners and local/State/Tribal/Federal agencies?
C. Identify the cooperators/partners involved in implementation of this project.
D. Describe the extent of current local support for the project, including any cost-sharing agreements.

Response:

This project will begin the implementation of the Chewelah Community Wildfire Protection Plan which was recently completed. The plan was coordinated by Colville Community Forestry Coalition, developed by the Community Fire Plan Committee, John Emminger Chair [49Degrees North] 509-935-6649.

The project proposal has been coordinated with interested individuals, WADNR, USFS, The Lands Council and other members of the Colville Community Forestry Coalition.

These same cooperators will be involved in implementing this project.

Local support includes enthusiastic landowners, WADNR, USFS, Stevens County RFPD #4 and Coalition members. Department of Natural Resources will be the major in kind match for administration and fuels treatment activities. The community has collaborated with DNR on a previous project that was successful.

Project Work Form		
Tasks	**Time Frame**	**Responsible Party**
Obtain Funding Advertise for Contractors	May 2006	Grant Administrator
Finalize Fuels Prescriptions	May 2006	Dept. of Natural Resources
Develop Fuel Reduction Plans	June 2006	Grant Administrator and Contractor
Hold Community Meetings	June 2006	Grant Administrator and Colville Community Coalition partners
Implement Fuels Reduction Activities	July to November 2006	Contractor
Monitoring	July to November 2006	Grant Administrator and partners
Project Accomplishment Report	April 2007	Grant Administrator

Project Budget

Cost Category Description	Federal Agency	Applicant	Colville Coalition Partner 1	Homeowners Assn. Partner 2	Partner 3	Total
Personnel						
Administration	$0	$5,640	$0	$0	$0	$5,640
Monitoring, outreach	$0	$5,640	$1,000	$1,000	$0	$7,640
Subtotal	$0	$11,280	$1,000	$1,000	$0	$13,280
Fringe Benefits						
Indirect Costs	$0	$2,260	$0	$0	$0	$2,260
	$0	$0	$0	$0	$0	$0
Subtotal	$0	$2,260	$0	$0	$0	$2,260
Travel						
Mileage, perdiem	$0	$2,780	$0	$0	$0	$2,780
	$0	$0	$0	$0	$0	$0
Subtotal	$0	$2,780	$0	$0	$0	$2,780
Equipment						
Digital cameras, GPS Uni	$0	$500	$0	$0	$0	$500
Laptop, printer	$0	$500	$0	$0	$0	$500
Subtotal	$0	$1,000	$0	$0	$0	$1,000
Supplies						
signs, education material	$0	$1,000	$0	$0	$0	$1,000
	$0	$0	$0	$0	$0	$0
Subtotal	$0	$1,000	$0	$0	$0	$1,000
Contractual						
Fuels Consultant	$12,000	$0	$0	$0	$0	$12,000
Contract Crew	$108,000	$0	$0	$0	$0	$108,000
Subtotal	$120,000	$0	$0	$0	$0	$120,000
Other						
DNR Fuels Reduction	$0	$10,000	$0	$0	$0	$10,000
	$0	$0	$0	$0	$0	$0
Subtotal	$0	$10,000	$0	$0	$0	$10,000
Total Costs	$120.000	$28.320	$1.000	$1.000	$0	$150,320
Project (Program) Income[1]	$0	$0	$0	$0	$0	$0

[1] Program income is the gross revenue generated by a grant or cooperative agreement supported activity during the life of the grant. Program income can be made by recipients from fees charged for conference or workshop attendance, from rental fees earned from renting out real property or equipment acquired with grant or cooperative agreement funds, or from the sale of commodities or items developed under the grant or cooperative agreement. The use of Program Income during the project period may require prior approval by the granting agency.

Appendix C. National Fire Plan Community Assistance and WUI Projects

Enclosure 3A - Project Summary Form

NATIONAL FIRE PLAN COMMUNITY ASSISTANCE AND WILDLAND URBAN INTERFACE PROJECTS
Application for Fuels Treatment Projects

Applicant

Applicant/Organization:
Colville Community Forestry Coalition - Washington Department of Natural Resources

Phone: (360) 902-1300 FAX:(360) 902 1757 Email: Mark.gray@wadnr.gov	Type of Applicant: (*enter appropriate letter in box*) M Community Coalition

Address *(Street or P. O. Box, City, State, Zip)*:
P.O. Box 47037 Olympia, WA 98505-7037

Project Coordinator

Project Coordinator *(Name and Title)* Chuck Johnson, WA DNR - Community Fire Planner

Organization/Jurisdiction: WASH Dept. of Natural Resources, Northeast Region

Phone:	FAX:	Email:
(509) 684-7474	(509) 684-7484	chuck.johnson@wadnr.gov

Project Information

Project Title:
Burnt Valley/Copper Mines Fuels Mitigation - Chewelah Community Fire Plan

Proposed Project Start Date: March 15, 2005	Proposed Project End Date: Sept, 30, 2006
Federal Funding Request: $200,000	Total Project Cost: $223,000

Are you submitting multiple projects? If so, please prioritize, and explain if the projects are stand alone, sequential or other:
This project proposal stands alone, while interfacing with other proposals from FireSafe Spokane, City of Chewelah, and Upper Flowery Trails Road/Pass Community Project.

Brief Project Summary: Who, What, Where, Desired Outcomes in relation to NFP Goals and Community Risk Assessment and Mitigation Plans (This should summarize page 2).

This project starts the implementation of the Draft Chewelah Community Fire Plan, by finalizing a sub-basin Strategic Planning Area and applying fuel reduction mitigation measures. It augments and enhances adjacent fuels reduction /Stewardship work on the Colville National Forest. It will provide defensible space for approximately 50 homes

Project Location:S 19,20,21,22 27,28,303,32 T 33N R 41E Burnt Valley, Approx. 5 mi. NE Chewelah,	County: Stevens	Federal Congressional 5

Name of Federal, State or Tribal contact with whom you coordinated this proposal:	Telephone number of Contact:
Steve Rawlings, Colville National Forest Chuck Johnson, Wash Dept Natural Resources	509 684 7222 509 684 7474

Enclosure 3A (Page 1 of 3) - Project Narrative Description

Applications for funding must include a narrative response that describes the proposal. Please do not submit responses longer than one page, single space, 12-pitch font.

Describe project including, but not limited to:

Address these items as applicable:

- project location (e.g., Watershed, neighboring community)
- anticipated outcomes
- community partners and their role(s)
- project relationship to the community risk assessment and mitigation plan
- amount or extent of actions (acres, number of homes, etc.)
- project timeline and matching or contributed funds
- proponent's ability to complete project

For this project, explain the level of cooperation, coordination or strategic planning, through a "Local Coordination Group." If you haven't worked with a local coordination group, why not?

The Burnt Valley/ Copper Mines is a rural agricultural/forested area comprising approximately 50 homes along 3 miles of county road. Many, but not all residences are located within Stevens County Fire Protection District #4.

This Fuels Reduction Project will implement the Chewelah Community Fire Plan by creating Defensible Space around these homes, in conjunction with adjacent fuels reduction on the Colville National Forest. A completed mitigation plan is part of this proposal. Individual Defensible Space needs, and Fuel Breaks will be developed and implemented by contractors utilizing hand and mechanical methods. Fuels reduction will be accomplished by thinning, pruning, and slash disposal. The Washington State Environmental Protection Act (SEPA) applies, and environmental, cultural and historical protection measures will be in place.

The Colville Community Forestry Coalition, Fire Plan Committee has identified, assessed risk, and prioritized mitigation measures needed. The Coalition has representation from agencies, local government, business, industry, and environmental groups. The local Fire Protection District is an active participant. In addition, the multi-agency Local Coordinating Group has reviewed and concurred with this proposal.

The DRAFT Chewelah Community Fire Plan (Oct 2003), identified the Burnt Valley and Copper Mines area as 2 of 15 Strategic Planning Area (SPA) with Communities-at-Risk. Hazard Reduction around homes is the #1 priority. Fuel breaks adjacent to National Forest projects will be identified and implemented as funding is available. The Burnt Valley and Copper Mines SPAs, are the highest priority because of there adjacency to the Colville National Forest -fuels reduction projects that are being implemented contiguous to three (3) sides of this area.

The Chewelah Community Fire Plan has identified these areas as Fuel Condition Class 2 & 3. Needing mechanical or hand treatment prior to fire reintroduction.

Combining Burnt Valley and Copper Mines areas in a treatment area is a more efficient working circle approach. Approximately 50 homes need defensible space fuels reduction in this working area. The Colville National Forest has fuels reduction work planned in the adjacent federal forestland. These projects enhance the total fire risk mitigation.

The project would start as soon as funding in secured, with the finalization of specific plan actions (FireSafe Spokane). Defensible Space Plans will be written for individual homes, with implementation by contract bids. Anticipate work starting March 2005 thru Sept 2006. Past grant projects have shown the capability for accomplishment of this project in a timely manner.

Enclosure 3A (Page 2 of 3) - Project Evaluation Criteria

Applications for funding must include narrative responses that address the following three criteria. Be sure you address every one briefly, yet thoroughly. **Limit your responses to the area provided**.

1. Reducing Hazardous Fuels (50 points)

A. Describe the community infrastructure that will be protected.
B. Explain how the proposal reduces fire behavior in high hazard areas by describing the fuels to be disposed or removed, and the techniques and timing of the treatments.
C. How will the proposed treatments be maintained in future years?
D. How will you use multi-party monitoring to improve this and future projects?

Response:

The South Fork Chewelah Creek has had long time residences, and more recently new homes, situated in mixed agriculture and forestland. Approximately 50 homes are located along and off of 4 miles of county roads. Many, but not all are located within Stevens RFD #4. The RFD has been encouraging homeowners to join into the District with positive results. Some of the private timberlands have been logged, reducing fuels. Other parcels are candidates for future fuels reduction.

This project reduces hazardous fuels and promotes wildfire risk reduction to homeowners in the Burnt Valley/Copper Mines area of the Chewelah Community Fire Plan. Thick conifer (Lodge Pole Pine, Ponderosa Pine, Douglas Fir) and understory brush and reproduction exist around some homes. Those homes at risk will have Defensible Space created by thinning, pruning, and slash disposal. (Chipping, piling and burning at a safe time by land owner.) Tactical fuel breaks will be identified, and implemented as funding is available.

Assisted landowners will be required to sign an agreement to maintain their defensible space into the future.

Fire District personnel, living in area will monitor and provide feedback for improvements.

Enclosure 3A (Page 3 of 3) - Project Evaluation Criteria

2. Increasing Local Capacity (25 points)

A. How would the proposal improve or lead to the improvement of the local economy in terms of jobs and sustainable economic activity?
B. How many jobs are expected to be created or retained and for how long? (Please distinguish between essentially year-round and seasonal jobs).
C. What tools and skills will be gained or utilized as a result of this project?
D. Will biomass be utilized; if so, in what manner and how much?

Response:

This project will improve local economic conditions by providing work that local contractors can bid on. Resulting paychecks will enhance local business. Most of the jobs provided by this project would be seasonal in nature, as fuels reductions work is not as efficient during winter. This type of work could keep a small crew (4-5 forest workers), busy for 6-9 months, when combined with other project areas, or Stewardship work. This would be the first, two (2) of 15 potential Strategic Planning areas, serving as a model and demonstration to integrate with larger Stewardship Fuels Reduction projects.

As market conditions improve, biomass could be supplied for power generation, and other small wood products.

3. Demonstrating Community and Intergovernmental Collaboration (25 Points)

A. How will this project implement a community risk assessment and mitigation plan? Include name of plan, date it was prepared, and local contact to get a copy of the plan if requested.
B. How has this treatment been coordinated with adjacent landowners and local/State/Tribal/Federal agencies?
C. Identify the cooperators/partners involved in implementation of this project.
D. Describe the extent of current local support for the project, including any cost-sharing agreements.

Response:

This project will start the implementation of the draft (Oct 2003) Chewelah Community fire Plan, coordinated by Colville Community Forestry Coalition, developed by the Community Fire Plan Committee, John Emminger Chair (49Degrees North) 509 935-6649.

The project proposal has been coordinated with interested individuals, Fire District, WADNR, USFS, The Landsl Council, as well as other members of the Colville Community Forestry Coalition. These same cooperators will be involved in implementing this project.

Other Northeast Region potential Grant Proponents met to discuss potential duplication, conflict, or means to cooperate. Local support includes land owners, Fire District, WADNR, USFS, and Coalition members

Enclosure 3A - Project Work Form		
Tasks	**Time Frame**	**Responsible Party**
Presentation to Grant Advisory Board and Local Coordinating Group	Ongoing, as needed	Grant Administrator, Colville Community Forestry Coalition Sponsor
Fire Plan Specifics	Months 1-2	FireSafe Spokane
Defensible Space Plans written Fuels Treated	Months 2-9	Contract Administrator, Fire Safe Spokane, The Lands Council Contractors
Media notification and coverage	Months 3-5	Colville Community forestry Coalition, Grant Administrator, FireSafe Spokane, The Lands Council
Quality Control/Compliance	Months 3-10	Contract Administrator
Field tours	Months 6-7	Contract Administrator, Grant Administrator
Reporting requirements	Ongoing, as needed	Grant Administrator, DNR Olympia

Enclosure 3D Project Budget

Cost Category Description	Federal Agency	Applicant	Partner 1	Partner 2	Total
Personnel		WADNR	STV RFD # 4	Colville Community Forestry	
		$15,000	$1,000	$2,000	**$18,000**
Subtotal		**$15,000**	**$1,000**	**$2,000**	**$18,000**
Fringe Benefits					
		$3,100			**$3,100**
Subtotal		**$3,100**			**$3,100**
Travel					
		$1,900			**$1,900**
Subtotal		**$1,900**			**$1,900**
Equipment					
Subtotal					
Supplies					
Subtotal					
Contractual	$200,000				**$200,000**
Subtotal					
Other					
Subtotal					
Total Costs	**$200,000**	**$20,000**	**$1,000**	**$2,000**	**$223,000**
Project (Program) Income[1] (using deductive alternative)					

[1] Program income is the gross revenue generated by a grant or cooperative agreement supported activity during the life of the grant. Program income can be made by recipients from fees charged for conference or workshop attendance, from rental fees earned from renting out real property or equipment acquired with grant or cooperative agreement funds, or from the sale of commodities or items developed under the grant or cooperative agreement. The use of Program Income during the project period may require prior approval by the granting agency.

Appendix D: Fire District Approval

Stevens County Fire District # 4
PO Box 190
Valley, Washington 99181
(509) 937-2012
scfd4@centuryte1.net

Fire Plan Recommendations: To Whom It Concerns:

Stevens County Fire District #4 has reviewed the Chewelah fire plan and prioritized the units from the standpoint of a Fire Protection District. Please remember that the priority of the Fire District is structural protection, and our concern as it pertains to the wildland urban interface. We request the following recommendations be considered to help mitigate some of the issues of Fire District # 4 in the areas of defensible spaces, ingress, egress, fuel loads reduction, and structural mapping of the areas.

Priority 1. Unit 12. RFD #4 West
Priority 2. Unit 11. RFD South
Priority 3. Unit 5. Thomasan Creek
Priority 4. Unit 4. South Fork Chewelah Creek
Priority 5. Unit 8. Upper Cottonwood Creek
Priority 6. Unit 10. RFD #4 North
Priority 7. Unit 9. Gold Hill-Immel Road
Priority 8. Unit 6. Sherwood Creek - Horseshoe Lake
Priority 9. Unit 7. Betts Meadow
Priority 10. Unit 2**.** West - North Fork Chewelah Creek
Priority 11. Unit 1. West Iron Mountain
Priority 12. Unit 3. East - North Fork Chewelah Creek

Commissioners:

12/14/04	Gary Skok S/S	Tim VanDoren S/S
Date	Commissioner	District Fire Chief:
12/14/04	Fred Nussbaum S/S	
Date	Commissioner	

Appendix E: Acronym List

BLM: Bureau of Land Management

CAA: Clean Air Act

CAR: Communities-at-Risk

CE: Categorical Exclusion

CWA: Clean Water Act

CWPC: Community Wildfire Planning Committee

CCWPP: Chewelah Community Wildfire Protection Plan

DNR: Washington Department of Natural Resources

EPA: Environmental Protection Agency

FEMA: Federal Emergency Management Act

FS: Forest Service

GIS: Geographic Information Systems

NAAQS: National Ambient Air Quality Standards

NEW FC: Northeast Washington Forestry Coalition

NIPFL: Non-Industrial Private Forest Land

RAC: Resource Advisory Committee

RFD: Rural Fire District

SCFD: Stevens County Fire District

SPA: Strategic Planning Area

USFS: United States Forest Service

WUI: Wildland-Urban Interface

Appendix F: Definitions

Community

Defined by Firewise

According to Webster's dictionary, a community is 'a body of people living in one place or district...and considered as a whole' or 'a group of people living together and having interests, work, etc. in common'. Homeowner associations and similar entities are the most appropriate venue for the Firewise Communities/USA recognition program. These smaller areas within the wildland/urban interface offer the best opportunities for active individual homeowner commitment and participation, which are vital to achieving and maintaining recognition status.

Communities at Risk

Defined by the Healthy Forests Restoration Act

Title I – Hazardous Fuel Reduction on Federal Land, SEC. 101. Definitions:
(1) AT-RISK COMMUNITY.—The term ''at-risk community'' means an area—
(A) that is comprised of— (i) an interface community as defined in the notice entitled ''Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire'' issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with title IV of the Department of the Interior and Related Agencies Appropriations Act, 2001 (114 Stat. 1009) (66 Fed. Reg. 753, January 4, 2001); or (ii) a group of homes and other structures with basic infrastructure and services within or adjacent to Federal land;
(B) in which conditions are conducive to a large-scale wildland fire disturbance event;
(C) for which a significant threat to human life or property exists as a result of a wildland fire disturbance event.

Defined by the Federal Register /Vol.66, No.160 /Friday, August 17, 2001 /Notices

In January 2001, then Agriculture Secretary Dan Glickman and Interior Secretary Bruce Babbitt released a proposed list of communities eligible for enhanced federal wildfire prevention assistance. The preliminary list of over 4000 communities included many that are near public lands managed by the federal government. The initial definition of urban wildland interface and the descriptive categories used in this notice are modified from ''A Report to the Council of Western State Foresters— Fire in the West—The Wildland/Urban Interface Fire problem'' dated September 18, 2000. Under this definition, ''the urban wildland interface community exists where humans and their development meet or intermix with wildland fuel.''

There are three categories of communities that meet this description. Generally, the Federal agencies will focus on communities that are described under categories 1 and 2. For purposes of applying these categories and the subsequent criteria for evaluating risk to individual communities, a structure is understood to be either a residence or a business facility, including Federal, State, and local government facilities. Structures do not include small improvements such as fences and wildlife watering devices.

Category 1. Interface Community:
The Interface Community exists where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures and wildland fuels. Wildland fuels do not generally continue into the developed area. The development density for an interface community is usually 3
or more structures per acre, with shared municipal services. Fire protection is generally provided by a local government fire department with the responsibility to protect the structure from both an interior fire

and an advancing wildland fire. An alternative definition of the interface community emphasizes a population density
of 250 or more people per square mile.

Category 2. Intermix Community:
The Intermix Community exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of between 28–250 people per square mile.

Category 3. Occluded Community:
The Occluded Community generally exists in a situation, often within a city, where structures abut an island of wildland fuels (e.g., park or open space). There is a clear line of demarcation between structures and wildland fuels. The development density for an occluded community is usually similar to those found in the interface community, but the occluded area is usually less than 1,000 acres in size. Fire protection is normally provided by local government fire depts.

Condition Classes

A classification system using key components of the ecosystem to describe the degree of departure from historic fire regimes.

Defensible/Survivable Space

Defined by Jack D. Cohen in Home Ignition Zones – Wildland- Urban Fire—A different approach
Recent research focuses on indications that the potential for home ignitions during wildfires including those of high intensity principally depends on a home's fuel characteristics and the heat sources within 100-200 feet adjacent to a home (Cohen 1995; Cohen 2000; Cohen and Butler 1998). This relatively limited area that determines home ignition potential can be called the *home ignition zone*.

Defined by NFPA 1144
An area as defined by the AHJ (typically with a width of 9.14 m (30 ft) or more) between an improved property and a potential wildland fire where combustible materials and vegetation have been removed or modified to reduce the potential for fire on improved property spreading to wildland fuels or to provide a safe working area for fire fighters protecting life and improved property from wildland fire.

Defined by Fire Free
A buffer zone -- a minimum 30-foot fire-resistive area around a house that reduces the risk of a wildfire from starting or spreading to the home. Although a 30-foot distance is standard, additional clearance as great as 100 feet may be necessary as the slope of your lot increases.
http://www.firefree.org/ffreenew/subpages/gitz.htm.

Historic Fire Regime
A term used to refer to the frequency, intensity, seasonality, duration, and extent of fire.

Fire Hazard
The likelihood of a specific area to have a catastrophic wildfire, based upon five physical elements (vegetation, canopy cover, slope, aspect, and elevation).

Fire Occurrence
The average number of fires in a specified area during a specified time.

Fire Risk
The chance of fire starting as determined by the presence and activity of causative agents.

Wildland Urban Interface

Defined by CWPC
The Chewelah Community Wild Fire Protection Plan has not used a mapped WUI boundary. All SPA's, except #3 East-North Fork Chewelah Creek, have significant private land ownership and residences. This ownership configuration makes it difficult to establish continuous meaningful WUI boundary lines. As such, by our definition, we are including all of the SPA's, except #3, within the WUI boundary. Saying this, we also recognize and encourage needed hazardous fuels treatment projects be prioritized to create defensible space for the protection of homes, businesses, and infrastructure.

Defined by the Federal Register /Vol.66, No.160 /Friday, August 17,2001 /Notices
The Federal Register states, "the urban-wildland interface community exists where humans and their development meet or intermix with wildland fuel." This definition is found in the Federal Register Vol.66, Thursday, January 4, 2001, Notices; and in "Fire in the West, the Wildland/Urban Interface Fire Problem", A Report for the Western States Fire Managers, September 18, 2000.

Defined by the National Fire Plan 10-Year Comprehensive Strategy
The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. 1996.

Defined by the Oregon Senate Bill 360 Forestland Urban Interface Protection Act of 1997
Forestland Urban Interface 477.015 Definitions. (1) As used in ORS 477.015 to 477.061, unless the context otherwise requires, "forestland-urban interface" means a geographic area of forestland inside a forest protection district where there exists a concentration of structures in an urban or suburban setting.

Defined by NFPA 1144
Standard for Protection of Life and Property from Wildfire 2002 Edition Wildland/Urban Interface is an area where improved property and wildland fuels meet at a well-defined boundary. Wildland/urban intermix is an area where improved property and wildland fuels meet with no clearly defined boundary.

Appendix G: Literature Cited

Applegate Partnership. Applegate Fire Plan. Applegate, OR.2002.
http://www.grayback.com/applegatevalley/fireplan/index.asp

Bureau of Land Management. Interim Guidance for Community Risk Assessment and Mitigation Plans. 2003.

California Community Fire Plan Workgroup. California Fire Plan Template.
http://www.cafirealliance.org/downloads/CommunityFirePlanTemplate.pdf July 2003.

Central Oregon Partnership for Wildfire Risk Reduction, Central Oregon Intergovernmental Council.
http://csfd.springsgov.com/wildfiremitigation.pdf December 2002

Cohen, Jack D. Preventing disaster: Home ignitability in the wildland-urban interface. Journal of Forestry 98 (3): 15-21. 2000.

Cohen, Jack D. Wildland-Urban Fire—A different approach.
http://firelab.org/fbp/fbresearch/wui/pubs.htm

Colorado State Fire Plan. http://www.dola.state.co.us/oem/PublicInformation/wildfire.htm

Colville National Forest, USFS. Draft Wildland-Urban Interface Fuels Reduction Environmental Assessment Chapter 1. May 2003

Colville National Forest; USFS. Quartzite: Watershed Scale Ecosystem Analysis; Ecosystem Analysis Report. December 1998.

Dukes, E. Franklin, et al. Collaboration: A Guide for Environmental Advocates. University of Virginia's Institute for Environmental Negotiation. June 2001.

Department of the Interior and the Department of Agriculture. A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy. August 2001.

Federal Emergency Management Agency (FEMA). "Pre-Disaster Mitigation Program." Federal Register. Vol. 67, No. 38
http://www.access.gpo.gov/su_docs/fedreg/a020226c.html February 26, 2002

Federal Emergency Management Agency. Report on Costs and Benefits of Natural Hazard Mitigation.
Publication 331. 1996.

Firewise. www.firewise.org

Firefree www.firefree.org

Graham, R. et al. The Effect of Thinning and Similar Stand Treatments on Fire Behavior in Western Forests. PNW Research Station, Interior Columbia Ecosystem Management Project, PNW-GTR-463, USFS. September 1999.

Healthy Forests Restoration Act of 2003. Community Wildfire Protection Plans. http://agriculture.house.gov/h.r.1904confrpt.pdf

Jefferson County. Colorado Fire Plan. http://www.co.jefferson.co.us/ext/dpt/admin_svcs/emergmgmt/index.htm

Institute for Business and Home Safety. Is Your Home Protected from Wildfire Disaster? A Homeowner's Guide to Wildfire Retrofit. http://www.ibhs.org/publications/

Josephine County Integrated Fire Plan, 2003-2004. Josephine County Article 76: Wildfire Safety Standards (Proposed Amendments 2003) http://www.co.josephine.or.us/wildfire/index.htm

Kinsley, Michael J. Economic Renewal Guide: A Collaborative Process for Sustainable Community Development. Rocky Mountain Institute. 1997.

Lower Mattole Fire Plan, Mattole Restoration Council, September 2002. http://www.mattole.org/html/publications_publication_2.html

National Association of State Foresters Field Guidance: Identifying and Prioritizing Communities at Risk. June 2003.

National Fire Plan, A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy. August 2001. http://www.fireplan.gov/reports/7-19-en.pdf

NFPA 1144: Standard for Protection of Life and Property from Wildfire. 2002 Edition. http://www.nfpa.org/catalog/home/OnlineAccess/1144/1144.asp

Ohlson, Peter and Richard Schellhass. Historical and current stand structure in Douglas-fir and ponderosa pine forests; Report to the Okanogan and Wenatchee National Forests - June 24, 2002. Okanogan and Wenatchee National Forests; USFS. June 2002.

Oregon Senate Bill 360. "Forestland Urban Interface Protection Act of 1997." Sponsored by Committee on Agriculture and Natural Resources.
Oregon Statewide Land Use Planning Goal 7: Areas Subject to Natural Hazards, http://www.lcd.state.or.us/goalpdfs/goal07.pdf

Program for Watershed and Community Health. University of Oregon. A Framework for Community Fire Plans. http://www.co.josephine.or.us/wildfire/index.htm

Rawitzer, J. California Community Fire Plan Workgroup; Community Fire Plan Template Outline. Monterey, CA Fire Safe Council. June 2003.

Rougue River Regional Wildfire Hazard Mitigation/Response Plan, Rogue Valley Council of Governments. http://www.rvcog.org September 2002

Rural Technology Initiative. "Investments in Fuel Removals to Avoid Forest Fires Result in Substantial Benefits." http://www.ruraltech.org/pubs/fact_sheets/fs028/index.asp. May 2004.

Schellhass, Richard et al. Report to the Colville National Forest on the Results of the Quartzite Planning Area Fire History Research. PNW Research Station, Wenatchee Forestry Sciences Lab, USFS. September 2000.

Shosone County Wildland Urban Interface Fire Mitigation Plan, Northwest Management, Inc.October 2002.

US Fish and Wildlife Service. "Fuels and Fire Effects Monitoring Guide." http://fire.fws.gov/ifcc/monitor/RefGuide/default.htm

USDA Forest Service. "Management Topic 29: Monitoring and Evaluation." http://www.fs.fed.us/eco/monitorm.htm

USFS. Quartzite Watershed Scale Ecosystem Analysis. 2002.

Utah Community Fire Planning for the Wildland Urban Interface, Utah Division of Forestry, Fire and State Lands. 2001.
http://www.nr.utah.gov/SLF/fmcommunityfirepln.htm

Trinity County Fire Safe Council. Trinity County Fire Management Plan. February 2003.
http://users.snowcrest.net/tcrcd/