

# **Accelerated Watershed Vegetation Restoration Plan**

## **A 10- Year Strategy for the White River National Forest**

**March, 2004**

### **Introduction**

This document describes a 10-year strategy for accelerated watershed and vegetation restoration on the WRNF. The strategy identifies the guiding principles and key elements the WRNF will use to develop vegetation management projects to reduce the potential for large undesirable wildland fires by treating forest land and shrubland vegetation while deriving other resource benefits.

The White River National Forest (WRNF) encompasses 2.3 million acres between the Continental Divide on the east and the Grand Mesa on the west. The Forest is renowned for its outstanding recreation opportunities making it the most visited forest in the entire national forest system. Our watersheds provide public water supplies for local communities as well as 75% of the water supply for Colorado Springs and 25% of the water supply for Denver. The Forest provides winter and summer range for the largest elk herd in North America and provides habitat for a wide range of other species. Ecosystem diversity across the forest ranges from Upper Sonoran High Desert vegetation (pinyon, juniper, shrublands) beginning at 5,700 feet of elevation through Alpine Tundra (grasses and forbs) at over 14,000 feet.

The WRNF is similar to many forests across the west in that our Wildland Urban Interface (WUI) is expanding, and is expected to continue to expand at an accelerated rate. Although the majority of the growth is in lower elevation shrublands, the number of homes adjacent to timbered and wilderness areas is increasing as well. WUI acres are defined as those areas extending a 1.5 mile radius out from the communities at risk listed in the Federal Register.

The Forest crosswalked the current forest vegetation GIS layer into the 5 fire regimes defined by Laverty et. al. in the 2000 Cohesive Strategy (see Table 1). Within Fire Regime I, Ponderosa Pine occupies only about 300 acres. The Douglas-fir is primarily found on steep canyon walls with little opportunity for treatment. Within Fire Regime II, our sagebrush component is limited (about 43,000 acres) with most of the vegetation consisting of grass/forb communities at higher elevations. Fire regime III – mixed severity fires occurring every 35 to 100 years, best describes the existing condition and observed fire behavior and fire effects in the majority of the shrublands in the WUI.

Within Fire Regime IV, the pinyon-juniper community, approximately 15,000 acres, occurs at the lower elevations with mixed conifer, and aspen is distributed throughout the Forest. Fire Regime V, stand replacement fires occurring with a frequency of 200 years or greater, best depicts the lodgepole pine and spruce/fir forest found in the higher elevations.

Table 1 (from Oct 13, 2000 Cohesive Strategy & WRNF Forest Plan)

<b>Fire Regime</b>	<b>Fire Frequency</b>	<b>Fire Severity</b>	<b>WRNF vegetation</b>	<b>%</b>
I	0-35 years	Low	Ponderosa, dry site Douglas-fir	3
II	0-35 years	Stand replacement	Sagebrush, grass	22
III	35-100 years	Mixed	Gamble oak, mixed shrub	8
IV	35-100+ years or longer	Stand replacement	Aspen, Pinyon-Juniper, low elevation mixed conifer	19
V	> 200 years	Stand replacement	Spruce-fir, lodgepole, alpine krummholz	48

The fire return intervals characterized by these vegetation types indicate that our vegetation is almost entirely within the historic range of variability and therefore in Condition Class 1 (See Table 2).

Table 2 (from Oct 13, 2000 Cohesive Strategy)

<b>Condition Class</b>	<b>Description</b>
1	Fire Regimes are within an historical range and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.
2	Fire regimes have been moderately altered from their historic range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.
3	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.

Fire regimes with the WRNF are within the historical range and the risk of losing key ecosystem components is low, although disjunct cutthroat trout populations are susceptible to local extirpation. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.

However, some of the shrublands that have not been disturbed for more than 50 years and aspen and conifer stands that have heavy accumulations of dead and down fuels would incur fire behavior and fire effects more consistent with the Condition Class 2 definition.

It is also important to note that while our mesic coniferous forest is in Condition Class 1, this does not necessarily relate to a low risk of wildfire. The build-up of hazardous fuels, particularly from insect infestations, can increase the threat of wildland fire to nearby communities. Although these areas are within the historic range of variability, other social factors may create the need for management activities to reduce the chance of wildfire.

Historically, fires on the WRNF average 1,000 acres per year. In recent years that number has increased, the 2003 season documented a 20% increase in the number of fires reported on the Forest. Recent large fires within the WUI, Coal Seam, Spring Creek, and Panorama, have raised community awareness and the desire to work together with the common goal of reducing wildfire risk.

Recent environmental factors are also increasing the risk of large wildfires. Drought, windthrow, and beetle infestations have resulted in increased tree mortality and associated increases in fuel loading, particularly in lodgepole pine and Engelman spruce.

Drought has been and may continue to be a major factor promoting large fire growth and erratic fire behavior. The energy release component, a method commonly used for tracking drought in fire management circles, has been well above average in the last two years. In 2002 the Coal Seam and Spring Creek fires burned over 25,000 acres impacting residences, public water supplies, transportation corridors, tourism, and the local economy.

The Forest historically experienced large scale insect episodes. Windthrow events have recently created favorable conditions for increased spruce beetle infestations resulting in increasing accumulations of dead and down woody debris. Fuel loadings as high as 70 to 100 tons per acre from similar outbreaks in the late 1940's have been reported on the White River Plateau. Mountain Pine Beetle populations are increasing dramatically in the Forest's extensive lodgepole pine that is highly susceptible to beetle epidemics. Consequently, fires ignited in these areas tend to exhibit more extreme fire behavior and are harder to contain and control. Over half of our lodgepole pine stands were established between 1870 and 1900, leading to a more homogeneous age class than would normally be expected to occur.

Our 10-Year Strategy is tiered to the following documents:

- ?? 2000 Cohesive Strategy
- ?? 2002 White River Forest Plan and EIS
- ?? 2003 R2 National Fire Plan Strategy – Key Points 3,4,5
- ?? 2003 White River Fire Management Plan

## **The 10-Year Strategy**

### **Vision**

The WRNF vision is to promote healthy resilient ecosystems while protecting natural and developed resource investments by reducing the potential for large wildfires in sensitive areas - especially in the Wildland Urban Interface (WUI).

Treatments in both the WUI and non-WUI will be focused in the shrubland communities due to the characteristic short fire return interval, and in lodgepole pine due to the predominantly even-aged stands created by the large fires in the late 1800's.

### **Guiding Principles**

#### **A. Set Priorities**

Vegetation treatments to reduce hazardous fuels and promote resilient ecosystems will be prioritized with the following criteria:

- 1) WUI landscapes.

The I-70 corridor, the Roaring Fork Valley and Summit County have the greatest amount of development within the WUI. Prioritization of individual WUI projects will be determined through a combination of FS community assessments, i.e. Crystal River, community fire plans, i.e. Eagle and Pitkin Counties and Glenwood Springs Fire District, local knowledge and partnerships, or other collaborative opportunities. Treatments include the thinning of timber stands (sub-merchantable and merchantable) and reducing the densities of shrubland vegetation to reduced fire risk.

- 2) Beetle infestations in the lodgepole pine and spruce/fir ecosystems.

Salvage and sanitation treatments, thinning to reduce stand densities of susceptible stands, and creating a mosaic of age-class diversity are potential treatments intended to keep insect infestations at endemic levels. There is a potential to improve Canada lynx habitat within lodgepole pine stands that currently do not meet habitat requirements as well as to reduce fire risk within the WUI.

### 3) Watersheds

Wildland fire use is planned within the non-WUI with the intent of reducing the risk of undesirable stand-replacing wildfires causing significant impacts to water quality, fisheries, and other resources.

### 4) Partnerships

The forest has cultivated a wide range of partnerships interested in vegetation treatments. Current and potential partnerships include: CSFS, CDOW, BLM, Town of Vail, Summit/Eagle/Pitkin counties, Rifle RFD, Rocky Mountain Elk Foundation, Foundation for North American Wild Sheep, Mule Deer Foundation, National Wild Turkey Federation, and the Northwest Colorado Council of Governments.

### 5) Integrated Resource Benefits

The forest will continue to implement a mix of WUI and non-WUI vegetation treatments to take advantage of opportunities to reduce hazardous fuels while providing benefits to other resources. Examples include improving wildlife and Threatened and Endangered species habitat, removing hazard trees in areas of high recreation use, and big game winter range and other wildlife habitat primarily by the enhancement of age-class diversity.

### 6) Cost Effectiveness and Desired Outcomes

This criteria addresses the likelihood of success in achieving the desired outcome in relation to the investment needed. Cost-share agreements, treatments across administrative boundaries, timeliness and duration of project benefits are all key considerations in project selection. There are limited opportunities, primarily in the Vail Valley, to use stewardship authorities to use the value of forest products to offset vegetation treatment costs.

## **B. Collaboration**

We will continue to work closely with external partners in the prioritization, integration and implementation of projects, as identified above. The Forest is working with the Colorado State Forest Service (CSFS) to identify potential “Good Neighbor Agreement” projects that cross land ownership boundaries. The Wyden Amendment authority will be used when appropriate, enabling us to achieve benefits to National Forest System lands through investments on adjacent private lands.

## **C. Accountability**

Accountability will be measured in terms of achieving the desired outcomes in a timely and cost-effective manner as previously mentioned. Costs and acres treated (WUI and non-WUI) will be tracked within the NFPORS database. The effectiveness of treatments

will be monitored and evaluated within an adaptive management framework. We will utilize the planning tools created in the Healthy Forests Initiative and the Healthy Forest Restoration Act where appropriate.

#### **D. Safety**

Safety is our primary concern for employees, communities, and the general public. Project implementation will be conducted under approved plans and will include community involvement, news releases and project area signs to ensure effective communication and public safety.

### **The 5 Year Implementation Plan**

The Guiding Principles of the 10-Year Strategy are used to guide the development of the 5-Year Plan. All projects must be consistent with the goals, objectives, standards and guidelines of the White River Forest Plan.

Vegetative treatments for fiscal years 2004 – 2006 are attached to the strategy. These treatments total 7,000 acres of outputs on an annual basis as per the direction from the Regional Office. Efforts are underway to identify and prioritize projects for fiscal years 2007 and 2008. Projects formerly identified for implementation during these two years have been moved forward to address the increased level of program outputs assigned by the Regional Office.

Projects will include monitoring plans to evaluate effectiveness of vegetation treatments, so that we can adapt practices to best achieve the desired outcomes. Post-treatment actions will also be included in projects for the control of noxious weeds, erosion control, or other necessary follow-up actions.

### **Treatment Criteria**

In the attached tables, each proposed project is associated with one or more criteria identified on pages 4 and 5 of the forest strategy. One additional criteria has been added below (#7 – Defensible Space) to represent treatments immediately adjacent to improvements located in the wildland urban interface. Vegetative Condition Class is not included since all of our vegetation is considered to be within Condition Class I.

1. WUI Landscapes
2. Beetle Infestations in lodgepole pine and spruce/fire ecosystems
3. Watersheds
4. Partnerships
5. Integrated Resource Benefits
6. Cost Effectiveness and Desired Outcomes
7. Defensible Space

<b>FY</b>	<b>Project Name</b>	<b>Benefits</b>	<b>WUI Acres</b>	<b>NON-WUI Acres</b>	<b>Partners</b>	<b>Criteria</b>	<b>District</b>
04	Roaring Fork	A	1,000		CSFS,CODOW,BLM	1,4,6	Sopris
04	Nast Colony	A	84			1,7	Sopris
04	Cache Creek	A,B	800			1,5,6	Rifle
04	Snell Rock	A,B		1,517		5,6	Blanco
04	North Elk Cr	A,B		1,182		5,6	Blanco
04	Coulter Ldg	A	10			7	Rifle
04	Aldrich Lks	A,B		600		5,6	Blanco
04	10 <sup>th</sup> Mt Huts	A	31		10 <sup>th</sup> Mtn Huts	7	Aspen
04	Meadow CG	A,C	11			7	Rifle
04	Booth Cr1&2	A,B	272		Town of Vail	1,4,5	HX
04	Booth Cr 6	A,B	48		Town of Vail	1,4,5	HX
04	Derby Mesa	A,B,D	525			1,5	Eagle
04	Summit CO	A	80		Summit County	1,7	Dillon
04	Old Man	A,B		756	BLM	5,6	Eagle
04	Fulford	A	31			1,7	Eagle
04	WR Resort	A	15			7	Eagle
04	Vail Valley	A	38		Eagle County, Vail	1,2,4,7	HX
<b>04</b>	<b>Total</b>		<b>2,945</b>	<b>4,055</b>			
05	Roaring Fork	A	500		CSFS,CODOW,BLM	1,4,6	Sopris
05	Summer H	A	25			7	Blanco
05	Burn Block	A,B		2,500		5,6	Rifle
05	7 Lakes Ldg	A	20			7	Blanco
05	Admin Sites	A	20			7	Aspen
05	Swiss Vill	A	18			1,7	Sopris
05	Conundrum	A	11		Pitkin County	7	Aspen
05	Crystal R	A	100			1,7	Sopris
05	Allen Creek	A		100		3,5	Blanco
05	Sunnyside	A,E	500			1,5	Eagle
05	Derby Mesa	A,B	172			1,5	Eagle
05	Sheephorn	A,B		500		5,6	HX
05	North Derby	A,B	300			1,5	Eagle
05	Vail Valley	A,F	791			1,2	HX
05	Burn Block	A,B		1,443		5,6	Eagle
<b>05</b>	<b>Total</b>		<b>2,457</b>	<b>4,543</b>			
06	Crystal River	A	400			1	Sopris
06	Burn Block	A,B		1,000		5,6	Blanco
06	W Mamm Cr	A	20		Rifle Fire Dist	1,4	Rifle
06	BNC Road	A,D		30		5	Blanco
06	Burn Block	A,B		750		5,6	Rifle
06	Castle Cr	A	20		Pitkin County	1,4,7	Aspen
06	Oak Mdws	A	40		BLM	1,4,7	Sopris
06	Burn Block	A,B		1,557		5,6	Eagle
06	Vail Valley	A	1,500			1,2	HX
06	Edwards/Wol	A	1,400		BLM	1,4	Eagle
06	Lower Blue	A	166		Summit County	1,7	Dillon
06	Booth Cr	A,B	117		Town of Vail	1,4,5	HX
<b>06</b>	<b>Total</b>		<b>3,663</b>	<b>3,337</b>			

#### Benefits Key:

- A - fuels reduction
- B - wildlife habitat enhancement
- C – recreation hazard reduction
- D – timber products
- E – range improvement
- F – forest health (insects)

### **Wildland Fire Use**

Wildland fire use (WFU) plans have been completed for the Flat Tops (1995) and Eagles Nest (2001) Wilderness Areas and surrounding non-wilderness lands. A wildland fire use plan for a portion of the Blanco Ranger District identified as the North Blanco WFU area will be completed in 2003.

Multi-disciplinary analysis and public outreach efforts for the Hunter Fryingpan, Collegiate Peaks, Maroon Bells and Raggeds Wilderness areas will be initiated in 2004 with program implementation planned for 2005.

### **Our Challenges**

- ?? Land Allocations – 76% of the Forest land base presents challenges for use of mechanical treatments. Fuels treatments in the vast majority of the forest are therefore limited to prescribed fire, wildland fire use, and labor intensive treatments such as hand cutting and piling.
- ?? Air Quality – We have confined airsheds due to steep narrow valleys that limit smoke dispersion. Therefore, more expensive mechanical treatments will be preferred for the majority of our WUI projects.
- ?? Product Markets – We have limited markets for our low value products. For commercially viable biomass conversion, a stable supply of products are required to encourage industrial investment.
- ?? Invasive Species – Fires and ground-disturbing activities can lead to the invasion or expansion of noxious weeds into treatment areas. Follow-up treatments must be included in all projects.
- ?? Employee Retention and Recruitment – The cost of living is very high and affordable housing is limited in many of the ranger districts. The forest has experienced a 50% turnover in the last four years.
- ?? Workforce – The success of our prescribed fire program depends on use of our fire suppression organization for implementation and mop-up, limiting our ability to make the most of short burning windows. We will need to maximize

opportunities for sharing resources across agencies or local governments, opportunities for contracting, or sharing resources on a Regional basis.

- ?? The IDIQ Unit costs for contracted treatments are much higher than RO is projecting. We expect annual accomplishments to fall short of RO expectations until this discrepancy is resolved.
- ?? Limited Burn Windows – The weather related prescription parameters required for successful achievement of resource objectives and air quality constraints are typically limited to two or three weeks each spring.
- ?? Recent research and literature reviews are challenging fire return interval assumptions in the pinyon/juniper and sagebrush vegetation types. Maintenance and/or initial treatments in some areas may actually increase fire frequency beyond the historical range of variability, especially in areas of cheat grass or similar invasive species that cure out early and raise fire risk.
- ?? The best chance of success in achieving desired outcomes requires breaking down barriers in administrative boundaries and maximizing collaborative efforts with communities and other publics to jointly identify objectives and leverage resources and funds to achieve them.