

Environmental Assessment

Nordic Valley Fuels Project

Ogden Ranger District
Uinta-Wasatch-Cache National Forest
Weber County, Utah

7/15/08

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SUMMARY:

The Ogden Ranger District, Uinta-Wasatch-Cache National Forest, proposes to construct a fuelbreak in the Nordic Valley area of the Ogden Valley, Weber County. (T.6N, R.1E, Sec 5, NE ¼, SLM) The fuelbreak will be about 0.5 miles long, with an affected area of about 50 acres. This fuelbreak will eventually tie into a similar fuelbreak on private lands at either end. The entire fuelbreak project was identified by the Nordic Valley/Wolf Mountain/Moose Mountain Community Fire Council as part of their community wildfire protection plan. The fuelbreak is needed because of the proximity of these communities to dense oak and maplebrush vegetation on National Forest lands, and the hazard to homes and residents from wildfire. There have been numerous examples of fast-moving wildfires in oakbrush vegetation on the Wasatch Front in recent years, so there is a need to break up the continuity of fuels around these communities, in order to reduce the potential for fire to spread from the National Forest lands to the homes.

The proposed action is creation of a linear fuel modification zone within about 50 acres. Woody vegetation less than 12" diameter (dbh = diameter at breast height) would be cleared in an 8-15' swath; farther out (up to 20 feet from the edge of the cleared area) the vegetation would be thinned to produce a shaded fuelbreak, and concentrations of dead wood within the entire 50-acre area would be treated. In addition to the proposed action, the Forest Service also evaluated the no action alternative in which current management would continue. Under the no action alternative, no fuel modification would occur.

Based on the effects of the alternatives, the responsible official will decide whether to create the fuelbreak, and if so:

- Where it will be located;
- How many acres will be treated, and by what method;
- When the treatment should take place;
- What mitigation measures are necessary; and
- What types of monitoring should occur.

CHAPTER 1 - INTRODUCTION

Background

The communities of Nordic Valley, Wolf Mountain, and Moose Mountain worked with Kelly Allen of the State of Utah, Division of Forestry, Fire, and State Lands to develop a Community Wildfire Protection Plan For the Wildland – Urban Interface (April 2007). Radford Hills is an adjacent community that also expressed interest in this plan. Colt Mortenson, formerly North Zone Fire Management Officer for the Wasatch-Cache National Forest was involved in this planning. The plan identified establishment of a firebreak about 4.5 miles long across both private and National Forest lands as a primary need. A preliminary map was developed as part of that planning process, and identified about 0.34 mile of that firebreak on National Forest lands. Steven's Act funding has been secured to assist with construction of the firebreak on private lands. The Ogden Ranger District is proposing construction of the National Forest portion of this firebreak.

This environmental assessment (EA) and decision will analyze effects only on the National Forest portion of the fuelbreak, since the private land fuelbreak is not under National Forest jurisdiction. The Forest Service has prepared this EA in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations, including the Healthy Forest Restoration Act (2003). This EA discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and no action alternative.

This EA analyzes the effects of a fuelbreak construction within about 50 acres of oak, maple, and Douglas-fir vegetation on the Ogden Ranger District, in Weber County, in the upper Ogden Valley above Nordic Valley, in T.6N, R.1E, Section 5, NE ¼, SLM. Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Ogden Ranger District Office in Ogden, Utah.

The communities of Nordic Valley, Moose Mountain, and Radford Hills sit within a dense and continuous stand of oakbrush which has not burned for many years. Recent fires in oakbrush elsewhere on the Wasatch Front illustrate the great threat to residents, firefighters, and homes when a wildfire occurs. The prevailing wind patterns (from the west and southwest) in this area indicate a high potential for wildfire to spread from National Forest into Nordic Valley houses.

Oak and maplebrush vegetation is generally considered in Fire Regime II or III, meaning that fires are usually stand-replacing to mixed (stand-replacing and surface) and with a frequent to moderately long fire return interval. (Corbin et al. 2007) Oakbrush fires are often fast-moving, and wind and slope driven. (Bradley et al. 1992, p 45) On the Wasatch Front, oakbrush vegetation is generally dominated by old, dense vegetation with a fair amount of dead wood, contributing to an increased fire hazard. That is true of the Nordic Valley area as well, since no fires have occurred in the area in recent years.

A Fire Regime Condition Class (FRCC) analysis was completed in April 2008, and determined that the Forest Service portion of the subwatershed containing this project is moderately departed from reference conditions (FRCC 2), with a 40% departure rate. This departure is primarily due to alterations in the current fire frequency and severity in the oakbrush and Douglas-fir vegetation types. The proposed project would not affect the fire frequency, but would slightly reduce the departure in expected fire severity, and also create a small amount of early seral oak vegetation, which is currently under-represented in the subwatershed. Thus, this project would slightly reduce the departure from reference conditions within the project area, but the subwatershed would still be in FRCC 2. (Corbin 2008)

Purpose and Need for Action

The communities of Nordic Valley, Radford Hills, Moose Mountain, and Wolf Mountain are adjacent to the Forest boundary, and sit within a dense and continuous stand of oakbrush (Gambel oak, *Quercus gambelii*, and bigtooth maple, *Acer grandidentatum*). Several wildfires in oakbrush vegetation on the Wasatch Front in recent years have threatened homes and endangered residents and firefighters. The oakbrush adjacent to these communities has not burned for many years; we have no records of fires there in our fire history. Therefore, the vegetation is relatively old and decadent, and extremely dense. The Spillway wildfire (October 1996), about two miles to the south of the project area, burned 662 acres and threatened the one house in the vicinity before it was controlled; a summertime fire is likely to be even more intense and fast-moving, indicating the potential threat. The prevailing wind pattern in the area is of winds from the west and southwest. This would increase the potential for fire to spread from the National Forest into Nordic Valley.

There is a need to break up the continuity of the fuels around these two communities, in order to reduce the potential for fire to spread from the National Forest lands into these communities. The goal of the project is to produce a fuel break to reduce fire spread between the National Forest and these communities.

Proposed Action

The action proposed by the Forest Service to meet the purpose and need is creation of a fuelbreak roughly between Pole Canyon and Coal Hollow above Nordic Valley, within an approximately 50-acre area, and will include the following:

- Outside of the riparian habitat conservation area (RHCA), clear a linear swath by cutting (with chainsaws or hand tools) woody vegetation smaller than 12" dbh down to nearly ground level. This fuelbreak will be about 8 – 15' wide, depending on the topography and fuels (wider on steeper slopes and within oak/maple stands). The fuelbreak length is approximately 0.5 miles.
- Beyond the cleared swath, a shaded fuelbreak zone will be created by removing all dead wood and much of the smaller woody vegetation, but leaving the largest stems and trees. This zone will be up to about 20 feet from the edge of the more intensive clearing. The total treated width of the fuelbreak zone may be up to 50 feet wide.

- Beyond the cleared swath and shaded fuelbreak treatment area but within the 50-acre project area, dead wood (downed and standing) concentrations will be treated.
- The RHCA is defined as 100 feet on either side of the high water mark of Pole Canyon. Given the relatively low flammability and sensitive management required in an RHCA, treatment within the RHCA is limited to cleaning up smaller dead wood, limbing conifers, and very limited thinning of live stems. Coarse woody debris (greater than 12” diameter) will be left.
- Within the entire unit, mature conifers will have lower limbs removed, to about 6 feet in height.
- Woody cleared material will be either piled and burned, or dragged to a chipper and chipped.
- The fuelbreak will also require maintenance, as the oak/maple brush is expected to quickly resprout. Maintenance activities (such as hand-cutting the sprouts) will occur on an approximately 5 year interval.
- Any noxious weeds released from the fuelbreak clearing will be monitored and treated (as per the Wasatch-Cache Noxious Weed Treatment EIS 2006).

This fuelbreak may facilitate prescribed burning above the project area at a future date. However, the analysis and decision for the prescribed burn is not included in this planning effort, and the construction of the fuelbreak does not automatically assume that prescribed burning will occur. Neither action is dependent upon the other for its justification.

Forest Service Guidance

Some pertinent guidance for management of the project area is described below, but more complete direction can be found in the Wasatch-Cache National Forest Revised Forest Plan (USDA Forest Service 2003), which can be found at:

http://www.fs.fed.us/r4/wcnf/projects/feis/revised_forest_plan.pdf

Page numbers refer to the Forest Plan.

Desired Future Conditions (p 4-142):

Fuel loads, especially in oakbrush, across the urban interface in Box Elder, Weber, and Davis Counties will be reduced and broken up to protect life and property. Access will be provided for fire protection. A fuel control program will be in place between Ogden Valley and the National Forest.

Forest Goals and Subgoals (4-21):

Fuels are managed to reduce risk of property damage and uncharacteristic fires.

- Reduce hazardous fuels (prescribed fire, silvicultural and mechanical treatments) with emphasis on interface communities (wildland/urban) and increase proactive participation of communities at risk.

Management Prescription (4-69 & 4-70):

Watershed Emphasis (3.1W consists of uplands identified as important watersheds): Timber harvest, road construction and new recreation facility development are not allowed. Vegetation/fuel treatment, prescribed fire, and

wildland fire use are allowed for the purposes of maintaining, improving or restoring watersheds to desired conditions, and to protect property in the wildland urban interface. Livestock grazing is allowed on open allotments to meet site-specific defined desired conditions. New trail construction is allowed with consideration of existing road/trail densities.

Applicable Forest-wide Standards and Guidelines (4-36 to 4-56):

- (S2) Apply runoff controls during project implementation to prevent pollutants including fuels, sediment, and oils from reaching surface water and ground water.
- (S6) Within legal authorities, ensure that new proposed management activities in watershed containing 303d listed water bodies improve or maintain overall progress toward beneficial use attainment for pollutants which led to listing; and do not allow additions of pollutants in quantities that result in unacceptable adverse effects.
- (S7) Allow management activities to result in no less than 85% of potential ground cover for each vegetation cover type.
- (G2) Projects in watersheds with 303(d) listed waterbodies should be supported by scale and level of analysis sufficient to permit an understanding of the implications of the project within the larger watershed context.
- (G4) At the end of an activity, allow no more than 15% of an activity area (defined in Glossary) to have detrimental soil displacement, puddling, compaction and/or to be severely burned.
- (G5) Do not allow activities that could result in water yield increases that would degrade water quality and impact beneficial uses.
- (G9) Avoid soil disturbing activities (those that remove surface organic matter exposing mineral soil) on steep, erosive, and unstable slopes, and in riparian, wetlands, floodplains, wet meadows, and alpine areas.
- (G11) Use Best Management Practices and Soil and Water Conservation Practices during project level assessment and implementation to ensure maintenance of soil productivity, minimization of sediment discharge into streams, lakes and wetlands to protect designated beneficial uses.
- (G14) Manage vegetation for properly functioning condition at the landscape scale. Desired structure and pattern for cover types of the Wasatch-Cache National Forest are as follows except in the Wildland Urban Interface, where vegetation structure and pattern should be managed to reduce threat of severe fire to property and human safety. [See Forest Plan for Table G14, not included here.]
- (G35) The full range of fuels reduction methods is authorized consistent with management direction for the specific area.
- (S20) When constructing or maintaining roads, trails and facilities, use Best Management Practices to minimize sediment discharge into streams, lakes, and wetlands.
- (G44) When constructing and reconstructing roads, trails, and facilities minimize potential effects on habitat of plant species at risk and key big game winter and spring ranges.

- (G59) Manage Forest landscapes according to Landscape Character Themes, and Scenic Integrity Objectives as mapped. (See Chapter 4, A.7.Scenery Management [in Forest Plan] for definitions).
- (G60) Resource management activities should not be permitted to reduce Scenic Integrity below Objectives stated for Management Prescription Categories.
- (S32) Review undertakings that may affect cultural resources to identify potential impacts. Compliance with Sections 106 and 110 of the National Historic Preservation Act shall be completed before the responsible agency official signs the project decision document.
- (G88) Design any mitigation measures necessary to resolve adverse effects to sites in such a way that they provide the maximum public benefit that the sites (or the information derived from them) can offer.

Forest Plan Consistency

The proposed action is entirely consistent with the Forest Plan.

Decision Framework

The Ogden District Ranger is the official responsible for making this decision. The decision to be made is whether to apply the proposed fuel treatments in the Radford Hills/Nordic Valley area, and if so:

- Where it will be located;
- How many acres will be treated, and by what method;
- When the treatment should take place;
- What mitigation measures are necessary; and
- What types of monitoring should occur.

Public Involvement

An important aspect of the environmental analysis process is the participation of the public and other agencies in identifying issues and concerns regarding the potential impacts of a proposal. The issues and concerns are then considered in developing alternative ways of meeting the proposal's purpose and need.

In March 2008, a scoping document describing the preliminary proposal and soliciting comments was sent to a number of individuals, organizations, and agencies on the District's mailing list, including adjacent property owners. The preliminary proposal was for a combination non-motorized trail and fuelbreak. Five responses were received from this scoping. In addition, the development of the Community Wildfire Protection Plan involved extensive community and interagency (particularly Utah Division of Forestry, Fire and State Lands; and Weber County Fire District) participation.

In response to an adjacent landowner's concerns, the location of the fuelbreak within the 50-acre project area was shifted so that the eastern endpoint lies in a more suitable location for the continuation of the fuelbreak across the private land. Several public and internal individuals had concerns with the trail aspect of the proposal, particularly the creation of a non-system trail and potential increase of illegal vehicle use. As a result, the

proposed action was modified to eliminate trail construction, and focus only on the fuelbreak. Other design features, such as barriers to discourage illegal vehicle use and trail realignment for a less steep grade, were also incorporated as a result of scoping. The fuelbreak realignment between scoping and the current proposed action changed the length from 0.34 miles to about 0.5 miles.

Issues

The Forest Service separated the issues into two groups: significant and non-significant. Significant issues provide a framework for the effects analysis and mitigation needed for the project. Non-significant issues were identified as those outside the scope of the proposed action, already decided by law, regulation, Forest Plan, or other higher level decision, or irrelevant to the decision to be made.

The Forest Service identified the following potentially significant issues during scoping:

1. Effects of vegetation/fuels treatment on plant and animal species of concern.
2. Effects of vegetation/fuels treatment on heritage resources.
3. Authorization of long-term, programmatic maintenance.
4. Effects of vegetation/fuels treatment on soil and water resources, particularly any effect on Pineview Reservoir (a listed 303(d) water body).

Several potential issues relating to the trail construction portion of the scoped action have been resolved by modifying the proposed action to include fuelbreak but not trail construction, and by moving the proposed fuelbreak's alignment. These include:

- Creation of a trail outside of recreation system trails, and public access (right of ways and parking issues) across private lands to access this trail.
- Potential for illegal ATV use of the created fuelbreak trail.
- Potential for additional human-caused fire starts from increased use as a result of the trail.
- Creation of an unnecessarily steep trail.
- Location of the end points of the fuelbreak trail to best join the private land fuelbreak (yet to be created).

The following issues were determined to be non-significant and will not be addressed in detail in this analysis.

- Effects of the project on scenery/visual management.
- Effect of the project on Nordic Mountain Water Company facilities.

CHAPTER 2 - ALTERNATIVES

This chapter describes and compares the alternatives considered for the Nordic Valley Fuelbreak.

Since this project is very limited in area, scope, and purpose, only the proposed action and no action alternative are studied in detail. Specific impacts and conditions for each alternative are described in Chapter 3, Affected Environment and Environmental Consequences. Management requirements and monitoring included in each alternative are indicated below.

Alternatives Considered and Eliminated from Detailed Analysis

The proposed action presented in the March 20, 2008 scoping letter included construction of a non-motorized trail in conjunction with the fuelbreak, to provide multiple uses. As a result of scoping and interdisciplinary analysis, the trail construction aspect of the fuelbreak has been eliminated from consideration, for the following reasons:

- Concerns about increased illegal vehicle use.
- Lack of public rights-of-way across private parcels on either end of the National Forest fuelbreak.
- Concerns with creation of a non-system trail that does not provide a clear benefit within the entire trail system context.
- Concerns with construction of a trail on a steep slope within the Pole Canyon riparian area.

Alternative 1, No Action

Under the No Action alternative, current management would continue in the project area. Under this alternative, there would be no fuels treatment, and environmental consequences of the existing conditions would continue.

Alternative 2, Proposed Action

Alternative 2 is the proposed action, creation of the fuelbreak as described in Chapter 1. Figure 1 shows the general location of the project area in the Ogden Valley. Figure 2 shows the specific location of the proposed fuelbreak and affected area.

Figure 1 – General Area

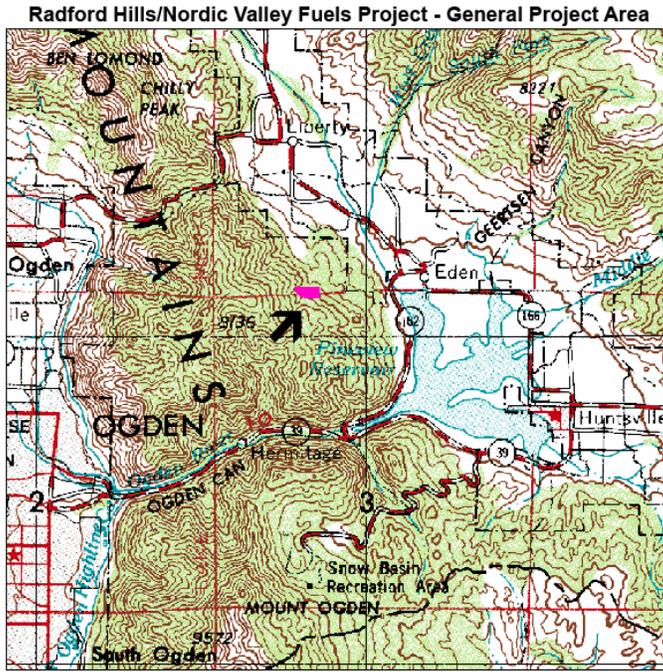
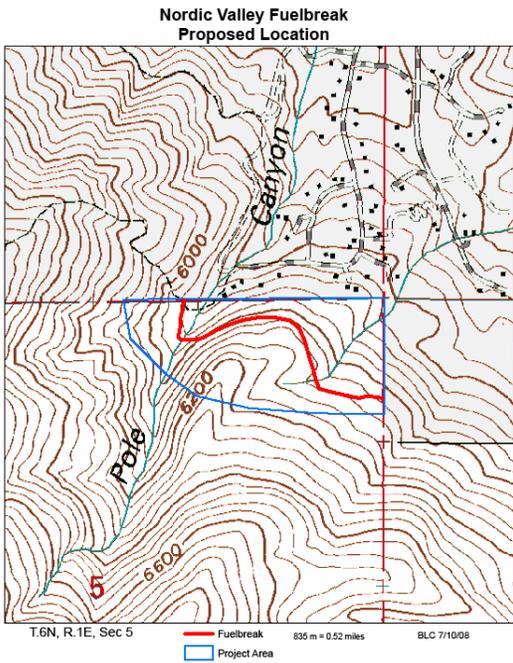


Figure 2 - Project Area



Mitigation Measures/ Project Design Elements

The following measures apply to Alternative 2, and are included in the analysis for environmental effects for this project.

1. Monitor and treat noxious weeds yearly for at least three years following project implementation, particularly in burn pile areas after burning.
2. Follow the guidance in the Wasatch-Cache Noxious Weed EIS for any noxious weed treatment.
3. Wood chips created from this project will be piled near the road and made available for public use (such as for landscaping). Any chip piles remaining after a reasonable time for public availability will be spread back within the unit or hauled off site.
4. Burn slash piles only when weather conditions are suitable to prevent escape and when proper smoke clearance is favorable.
5. Rock or other barriers will be placed at suitable fuelbreak access points to prevent OHV/vehicle access.
6. The landscape architect will work with the implementation crew(s) on the final feathering of the edges of the treatment area to minimize visual impacts.
7. The RHCA is defined as 100 feet on either side of the high water mark of Pole Canyon. Given the relatively low flammability and sensitive management required in an RHCA, treatment within the RHCA is limited to cleaning up smaller dead wood, limbing conifers, and very limited thinning of live stems. Coarse woody debris (greater than 12” diameter) will be left.
8. Throughout the project area, any snags with existing cavities will be retained.

Comparison of Alternatives

This section summarizes the outputs between the alternatives. Alternative 1 is no action; Alternative 2 is the proposed action.

Treatment	Alternative 1	Alternative 2
Fuel Modification	None	50 acres
Fuelbreak Construction	None	About 0.5 miles

CHAPTER 3 – EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social, and economic environments of the project area and the potential direct and indirect impacts to those resources that could occur due to implementation of the alternatives. Direct effects are defined as those impacts that occur at the same time and place as the proposed action; indirect effects are those impacts that occur later in time, or at another location, than the action itself. In addition, this section described the cumulative effects or the incremental impact of past, present, and reasonably foreseeable future actions for the project area. This section also presents the scientific basis for comparison of the alternatives.

List of Past, Present, and Reasonably Foreseeable Future Activities

These activities near the project area have been considered in the cumulative effects analyses for this project, as appropriate to each resource. We have no records of specific activities within the 50-acre project area.

Action	Description	Date
Housing Developments	Several private subdivisions in the vicinity, and additional subdivisions planned.	1980s to present and future
Roads	Numerous paved roads exist within the housing developments, and State Highway 162 runs along the edge of the reservoir below the project area.	1900s to present.
Ski Area	Nordic Valley/Wolf Mountain Ski Area development. Potential future expansion?	1930s to present and future
Trails	Skyline Trail above project area; Pineview Reservoir Trail below project. Some illegal/unclassified trails on private and National Forest in area.	1980s to present
Fuels Treatment	Clearing near Nordic Valley Roads	2000/2001
	Clearing near Pineview Summerhomes Roads	2004
Wildfire	Spillway Fire (near Pineview Reservoir Dam) – 662 acres	October 1996
Spring Development	Nordic Spring Special Use Permit directly west of the project area.	1970s to present

This area is not within a grazing allotment, nor has timber harvest occurred (within our records) in this area.

A. Vegetation and Fuels:

The analysis method is to described the desired and current conditions for vegetation and fuels in terms of structure, fuel loading, and the related expected fire behavior. The effects of the alternatives are discussed in terms of expected fire behavior. Determination of existing vegetation and fuels conditions are based on fuels monitoring plots established June 11, 2007 within the project area, and May 8 and 22, 2008 field visits.

Desired Conditions:

Desired conditions for vegetation and fuels would be oak and maplebrush vegetation structure that would produce relatively low intensity/severity fire behavior (compared to untreated areas). This desired structure would have minimal dead wood, and would have relatively open oak and maple stands (fewer large stems per area), and a high proportion of younger (more moisture and less flammable) vegetation. The desired conditions for conifers within the project area is to have crown base heights and ladder fuel structure adequate to prevent torching under most weather scenarios. The desired conditions are to maintain high ground cover of herbaceous, graminoid, or young woody native vegetation.

Desired conditions are for invasive weeds to be absent, or at least not significantly impacting or replacing native vegetation, and not creating undesirable fuel conditions.

Existing Conditions:

The existing condition of vegetation and fuels is of a relatively dense stand of Gambel oak and bigtooth maple, with pockets of Rocky Mountain Douglas-fir (*Pseudotsuga menziesii* var. *glauca*) on the slope east of Pole Canyon. Understory vegetation is also relatively dense. Three fuels/vegetation monitoring plots were established in the project area. Within those plots, tree¹ cover averaged 37%, shrub cover averaged 70%, forb cover averaged 43%, and graminoid cover averaged 11%. Dominant species (from trees to herbs) included Douglas-fir, Gambel oak, bigtooth maple, mallow-leaved ninebark (*Physocarpus malvaceus*), Saskatoon serviceberry (*Amelanchier alnifolia*), mountain snowberry (*Symphoricarpos oreophilus* var. *utahensis*), heartleaf arnica (*Arnica cordifolia*), Chile sweet-cicely (*Osmorhiza berteroi*), horsemint (*Agastache urticifolia* var. *urticifolia*), fleabane (*Erigeron* sp.), Oregon grape (*Mahonia repens*), and blue wildrye (*Elymus glaucus*).

Fuel loading within the plots was moderate. See Tables 1 and 2 for average fuel load values in different fuel classes.

Table 1 – Dead and Down Fuel Loading

Fuel Component	1-hr	10-hr	100-hr	1000-hr	duff	litter	Total Dead and Down
Fuel Loading (tons/acre)	0.27	4.9	8.2	4.4	5.6	6.5	29.9

Table 2 - Standing Fuel Loading (fuels less than six feet tall)

Fuel Component	Live shrub	Dead shrub	Live herbaceous	Dead herbaceous	Total Standing
Fuel Loading (tons/acre)	5.3	0.6	0.4	<0.1	6.3

The Forest Service portion of the subwatershed containing this project is in Fire Regime Condition Class (FRCC) 2, moderately departed from reference. (See Background, in the Introduction.)

Within the national forest portion of this subwatershed, we have few records of large fires. The Spillway Fire (662 acres in 1996) is adjacent to this subwatershed, but barely overlaps. The Powder Mountain Fire (2,958 acres in 1988) is mapped overlapping about 100 acres of mostly tall shrub vegetation within this subwatershed. Both fires were human-caused. Our fire history point layer also records four small fires between 1960 and 1992, from 0.1 – 1.0 acre in size. Two of these small fires were human-caused, and two were lightning-caused.

Under current vegetation and fuels conditions, the expected fire behavior under severe weather would be a relatively fast moving, intense crown fire within the oak and maple

¹ For this characterization, Gambel oak and bigtooth maple greater than six feet tall are considered trees, while those less than six feet tall are considered shrubs.

stand. Many of the Douglas-fir would likely torch. This expected fire behavior would be extremely dangerous for firefighters, homeowners, and recreationists in the fire's path, and make home and property loss highly likely.

No noxious weeds are recorded in the Forest's GIS records for the project area, and none were noted in the fuels/vegetation plot data. However, several species of weeds are recorded adjacent to Pineview Reservoir, within about two miles of the project area, so infestation seed sources are in the general vicinity.

No Threatened, endangered, or sensitive (TES) plant species are recorded from the project area, and none were seen during spring 2008 surveys. (See the project record for a list of vascular plants seen during project surveys.) The closest records are for *Penstemon platyphyllus*, a watch list species that grows in openings at relatively low elevation along the northern Wasatch Front. Dense oak and maple brush or Douglas-fir stands are not considered good potential habitat for any of the Forest's listed TES plant species, so the likelihood of special status plants being present is very low.

Environmental Effects

Alternative 1 – No Action

Under this alternative, vegetation and fuel conditions would continue to be relatively dense. The risk of dangerous firefighting situations and undesirably severe effects from wildfires (such as high burn severity on soils and exponential noxious weed growth from extensive post-wildfire bare ground) would continue. Cumulative effects from fuel buildup would continue.

Alternative 2 – Proposed Action

Direct effects on vegetation from this project would be the immediate creation of a somewhat more open oak and maple stand, with increased light to the understory. This is likely to increase growth of the understory (grasses and herbaceous plants), and increase young woody sprouts. (Simonin 2000). Indirect effects on vegetation would be the potential for any noxious weeds on site to increase as a result of the more open stand; however, this will be mitigated by planned weed treatments. No direct or indirect effects on TES plants are expected, since none are known or expected within the treatment area. If *Penstemon platyphyllus* did occur within the project area, the proposed treatment would likely improve habitat for it, since it prefers open areas (such as rock outcrops or talus slopes).

Direct effects on fuels from the proposed action would be a reduction in fuel loading, with a high reduction in dead fuels (standing and downed), and a moderate reduction in live fuels as a result of the thinning. There would also be a reduction in ladder fuels for the conifer trees. The indirect effect of this is that a future wildfire would have much reduced fire behavior, with expected shorter flame lengths, lower rate of spread, and lower intensity compared to untreated areas. As a result of this reduced fire behavior, it is more likely that firefighters can safely use the firebreak as an anchor point for backfires or to attempt to stop the wildfire's spread, and it is less likely that homes will be lost.

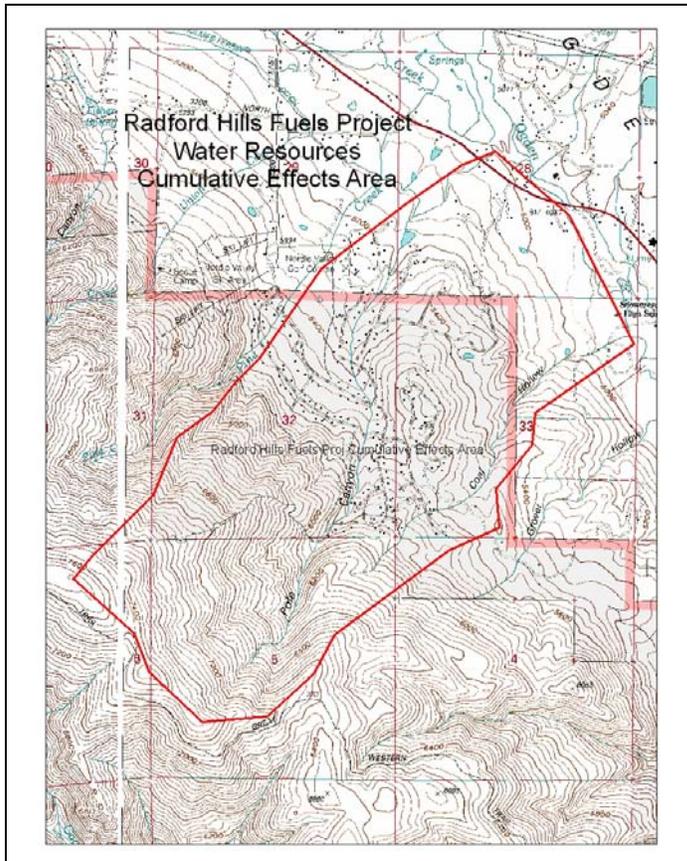
Effects on FRCC are likely to be small. The proposed project would not affect the fire frequency, but would slightly reduce the departure in expected fire severity, and also create a small amount of early seral oak vegetation, which is currently under-represented in the subwatershed. Thus, this project would slightly reduce the departure from reference conditions within the project area, but the subwatershed would still be in FRCC 2. (Corbin 2008)

Effects on vegetation and fuels from maintenance activities are similar to the effects described above, but to a lesser degree, since only new growth or newly dead wood will be treated. Given the small project area, and minimal additional disturbance from maintenance, effects from maintenance activities will be minor.

Cumulative effects on vegetation and fuels would be minimal, given the relatively small size of the project area and low impact to vegetation. Few past actions have occurred on the adjacent National Forest lands, with the most significant being the 1996 Spillway wildfire, which now consists of healthy, mid-seral oak/maple vegetation with moderately low fuel loading. Significant vegetation and fuels alteration has occurred on adjacent private lands, with the creation of several subdivisions and the ski area. The Radford/Nordic Fuels Project would contribute minimally to cumulative effects by reducing the density of the oak and maple stems, and reducing the fuel loading.

B. Soil and Water

Scope of the Analysis– For direct, indirect effects, the spatial (geographical) boundaries of the analysis are the treatment areas and timeframe is from the time of implementation to about two



years at which time ground cover would recover to effectively control sediment movement. For water resources cumulative effects, the spatial boundaries is the Pole Creek and Coal Creek drainages above Spring Creek and North Fork Ogden River, and the time frame will be two years for the same reasons as the direct and indirect effects.

Key Assumptions and Methodologies – A key assumption for the analysis is that Riparian Habitat Conservation Areas (RHCA) that are placed along intermittent and perennial streams, and ponds and lakes and reservoirs and wetlands provide a buffer zone that will trap sediment that may move during project implementation and keep sediment from entering streams and water features. Documents that support the

effectiveness of RHCAs include but are not limited to:

- Seyedbagheri (1996): Idaho Forestry best management practices: Compilation of research on their effectiveness. This publication cites a number of studies dealing with this BMP87—Rule 4.b.i. Design to leave areas of vegetation between roads and streams (first Alternative). Study results varied widely. Travel distances varied based on obstructions, slope, soil types, number of diversion structures, moisture accumulation and the number of cross drains. Travel distances ranged from no flows over 50 feet to no flows over 900 feet. The maximum travel distances were associated with drainage collection structures like culverts.
- US Environmental Protection Agency (2005): National management measures to control nonpoint sources pollution from forestry. Streamside management area widths vary based on slope of adjacent lands. Maximum recommended widths identified as 200 feet on lands with a greater than 46% slope. Lands with no slope identify a maximum width of 50 feet. Maine Forest Service as cited in the above lists a maximum width of 165 feet. On lands with no slope the width is identified as 15 feet.

The analysis method is to present the desired conditions for water resources; describe water resource features and conditions within the project area; present information on potential effects of the treatments; and then present recommended mitigation measures.

Existing Inventories, Monitoring, and Research Literature Review - Several sources of information are used to analyze the effects of the proposed project and alternatives. An interdisciplinary field trip was taken to the project area on May 22, 2008 to review conditions in the project area. Ground cover conditions, the site topography, vegetation types, water discharge was observed by Forest Soil Scientist during this field trip.

Existing Conditions

This section contains information on site specific existing resource conditions with enough detail to serve as the baseline for the effects disclosure.

Water Features and Conditions – One three- to six-foot wide perennial stream channel is located in Pole Canyon Creek on the west side of the project area and one two-foot wide ephemeral stream channel is located in Coal Canyon Creek on the east side of the project area. During the May 22, 2008 field trip, water was flowing only in Pole Canyon Creek and Coal Canyon Creek flowed earlier in the year but was dry at the time of the field trip. No other water features occur in the project area. Pole Canyon Creek is in a steep V-shaped canyon, has dense, vegetation in the riparian area and wetlands plants immediately next to the channel edge. No other wetlands occur in the project area.

Floodplains have been defined in various ways but for this analysis, these areas are defined as flat areas adjacent to streams that are composed of unconsolidated depositional material derived from sediments transported by the related stream, based on definitions contained in (Fairbridge 1968). No floodplains occur in the project area. This is because the channels are steep and no flat area occur on the side of the channels.

Within the cumulative effects area, below the project area Pole Canyon Creek flows through an area where homes have been built, crosses five roads and is diverted into an irrigation ditch about one-quarter of a mile above Spring Creek. Below the project area, Coal Canyon Creek flows across two dirt roads and then across a flat area before reaching the north Fork Ogden River.

Water Quality - The State of Utah has designated the streams draining the Bear River watersheds above the National Forest boundary as Antidegradation Segments. This indicates that the existing water quality is better than the established standards for the designated beneficial uses. Water quality is required by state regulation to be maintained at this level. The beneficial uses of streams within these watersheds, as designated by the Utah Department of Environmental Quality, Division of Water Quality, are:

- Class 1C – protected for drinking water
- Class 2B – protected for recreation
- Class 3A – protected for cold water species of game fish and other cold water aquatic species
- Class 4 – protected for agricultural uses.

The numeric water quality standards can be found in Section R317-2, Utah Administrative Code, *Standards of Quality of Waters of the State* (Utah, State of. 2006a). The did not have any segments that were listed as water quality impaired.

In the most recent assessment of water quality, the State of Utah has determined that the waters within the Ogden River Basin fully support their beneficial uses (Utah, State of. 2006b). The project is in the headwaters of the Ogden River Basin.

Environmental Effects

The approach to analysis is to 1) show the proximity of the treatment unit and trail to water features, and 2) discuss the effects focusing on the main issues described above.

Alternative 1, No Action – No damage to stream banks and no erosion is expected to occur that may move sediment into the stream because the project would not be implemented.

Alternative 2, Proposed Action –No erosion or sedimentation of streams is expected to occur from the non-trail work associated with the treatment of fuels. Since trail construction is no longer part of the proposed action, no direct or indirect adverse effects to water resources is expected from Alternative 2.

Cumulative Effects - Other activities that occur within the cumulative effects area are seven stream crossings by roads, residential development below the project area. Since no measurable erosion or sedimentation is expected from the proposed action cumulative effects are not expected.

C. Recreation, Scenery, and Roadless

The recreation analysis identifies the recreational opportunities and settings, infrastructure, and recreational activities for the project area. Key sources of information and data include documents from the recent Ogden Ranger District Travel Plan project, the Forest’s transportation management system database (INFRA), data layers from the WCNF geographic information system database, Google-Earth terrain mapping software, and the knowledge and experience of Ogden Ranger District personnel.

Desired Conditions

Recreation desired conditions are for providing suitable recreational opportunities, while providing maximum protection to high value watersheds.

Existing Conditions

The project area is within the Lewis Peak roadless area (1983 and 1999 inventories). According to the Wasatch-Cache Revised Forest Plan, it is within the semi-primitive non-motorized recreation opportunity class, which has a theme of predominately a natural evolving /natural appearing landscape character with minimal rustic improvements to protect resources.

No developed recreation sites are within the Nordic Valley Fuels project area, although the heavily used Pineview Reservoir Recreation Complex is nearby. The Skyline Trail (#6001), a popular mountain biking, motorcycle, hiking, and horseback riding route, is about 0.5 miles uphill (south) of the project area. The Pole Canyon Trail (#6344) begins near the northwest edge of this project area, and crosses private land for approximately ¼ mile before entering the National Forest, and eventually joining the Skyline Trail. A small amount of hunting or other dispersed recreation use may occur in the area.

Environmental Effects

The proposed fuelbreak will not affect the roadless character of the project area. Natural integrity and apparent naturalness will remain high. Because no developed recreation sites, roads, or trails are within the Nordic Valley Fuels project area, this project is not expected to have direct, indirect, or cumulative effects on recreation. Little or no effect on hunting or dispersed recreation use is expected. (The planned fuelbreak on private land may impact a portion of the Pole Canyon Trail; the private land fuelbreak is not part of this analysis.) Because the treated edges of the fuelbreak will be feathered (under the landscape architect's guidance) to reduce visual impacts, no noticeable effect on scenery is expected.

D. Wildlife

Wildlife surveys were conducted on May 15, 2008 by the district wildlife biologist, and a biological assessment and biological evaluation were completed by the wildlife biologist, fisheries biologist, and botanist; the BA/BE document is in the project record.

Desired Conditions

Desired conditions are to maintain high quality wildlife habitat and minimize impacts to species of interest.

Existing Conditions

The project primarily occurs within Gambel's oak and within small stands of conifers. It was determined that yellow-billed cuckoo, bald eagle, peregrine falcon, boreal owl, spotted bat, pygmy rabbit, greater sage grouse, sharp-tailed grouse, Colorado River cutthroat trout, Bonneville cutthroat trout, and Columbia spotted frog are not in the project area. It was determined that lynx, flammulated owl, and wolverine are not likely to occur in the project area. The project has potential habitat for northern goshawk, three-toed woodpecker, and Townsend's big eared bat.

Pole Canyon is an ephemeral stream and tributary to the North Fork Ogden River. While the upper North Fork Ogden River contains Bonneville cutthroat trout, the lower section is dewatered annually and is not capable of supporting fish.

Environmental Effects

Because the project is limited in size and duration, effects to wildlife would be minor. Effects to cavity nesters are minimized by retaining snags with existing cavities. The project is likely to occur in the late summer and fall, thus minimizing effects to nesting neotropical birds.

Surveys for goshawk were completed in the conifer habitat. No known nesting occurs within the vicinity, so no effects are expected. Effects on the three-toed woodpecker will be limited because the conifer habitat occurs within small patches, the project is limited in size and duration, and snags with existing cavities will be retained. The project may alter vegetation utilized by foraging bats, but since the project is limited in size, effects are minor.

Activities in the Pole Canyon area will not impact Bonneville cutthroat trout.

Because direct and indirect effects are so minor, cumulative effects are also determined to be minor.

E. Heritage Resources

Existing Conditions

Heritage surveys of the project area were completed on July 11, 2008. No heritage resources were located or are otherwise recorded from the project area. A report has been submitted to the State Historic Preservation Office.

Environmental Effects

No direct, indirect, or cumulative effects to heritage resources are expected from the proposed Nordic Valley Fuels project.

F. For All Resources: Irretrievable or Irreversible Commitment of Resources

No irretrievable or irreversible commitment of resources is expected from this project because no permanent land use change or removal of water or non-renewable material will occur. Definitions of these terms are listed below and are from FSH 1909.15, Zero Code, 05 Definitions

Irretrievable. A term that applies to the loss of production, harvest, or use of natural resources. For example, some or all of the timber production from an area is lost irretrievably while an area is serving as a winter sports site. The production lost is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume timber production.

Irreversible. A term that describes the loss of future options. Applies primarily to the effects of use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity that are renewable only over long periods of time.

Other requirements outside of NEPA - No other requirements are needed.

CHAPTER 4 – CONSULTATION, COORDINATION, COLLABORATION

The Forest Service consulted the following people and groups during development of this environmental assessment:

Interdisciplinary Team Members:

Beth Corbin – Fire Ecology/ IDT Leader
Rick Vallejos – Recreation
Charlie Condrat – Hydrology
Paul Flood – Soils
Mike Duncan – Botany
Tom Flanigan – Archaeology
Dave Hatch – Scenery
Steve Blatt – Wildlife Biology
Paul Chase – Aquatic Biology

Other Agencies:

Kelly Allen – WUI Coordinator/ Utah Fire, Forestry, and State Lands
Dave Vickers - Weber County Fire Warden/ Weber Fire District
State Historic Preservation Office

Other Groups:

Nordic Valley Community FireWise Plan Committee
Utah Environmental Congress
Sierra Club, Ogden Group

CHAPTER 5 – MONITORING PLAN

Monitoring planned for this project includes implementation monitoring and effectiveness monitoring.

Implementation monitoring includes recording when and how much implementation work (vegetation clearing and dead wood removal) occurs. This will be documented in a narrative form.

Effectiveness monitoring includes re-reading the fuels/vegetation plots, which measure cover by vegetation type, fuel loading, and the presence of weeds, and photographs. These plots will be read in year 1, 3, and 5 post-treatment. Additional weed monitoring will occur by walking through the area (particularly the cleared swath) and inventorying noxious weeds present. Noxious weed treatment will also occur.

Additional monitoring includes periodic (every 3-5 years) visual assessment to determine whether maintenance is needed, and implementation of that maintenance, as required. Periodic monitoring will also occur to assess that illegal motorized access is not occurring, and taking measures (such as fixing the barriers) to preclude such activity, if present.

CHAPTER 6 – LITERATURE CITED

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