

DECISION MEMO

Hells Hollow Prescribed Burn Project

USDA Forest Service
Logan Ranger District, Wasatch-Cache National Forest
Cache County, Utah

Background and History

Aspen dominance is decreasing in forested communities throughout much of the Intermountain West, including the forests on the Wasatch-Cache National Forest in northern Utah. In 1998, an assessment of vegetation conditions on the forests in northern Utah was conducted by the Forest Service. The results of this assessment are published in a report entitled “Sub-regional Assessment of Properly Functioning Conditions for Areas Encompassing the National Forests of Northern Utah” (USDA Forest Service, 1998). The report discusses historic reference conditions for vegetation types in northern Utah and compares these to existing conditions. A summary of the assessment indicates several areas where plant communities have substantially changed from what they were historically, and are therefore considered to be “not properly functioning”. Most notably of these types are seral aspen communities (those communities dependent on periodic stand-replacing disturbance such as fire). According to *Forest Resources of the Wasatch-Cache* (O’Brian and Pope, 1997) the current level of aspen on the forest is approximately 34% of what it would have been historically under natural fire regimes.

Historically, fire was the most common disturbance responsible for maintaining the patterns and structural diversity of aspen communities across the landscape. Extensive, stand-replacing fires at higher elevations and patchy, low-intensity fires at lower elevations regenerated aspen and kept conifers from encroaching upon and replacing aspen stands. However, until recently, the benefits of fire were not clearly understood and most fires were rapidly suppressed. Fire has been largely excluded from these ecosystems over the past 100 years due to strict fire control policies and effective suppression techniques.

As a result, aspen dominated landscapes throughout the west are at risk to loss since the primary method for reproduction is suckering from the clonal root system. Aspen do not reproduce readily from seed. Disturbance or death of overstory trees generally initiates suckering from the clonal root system. If periodic disturbance (such as fire) is excluded from the system over a period of time, the clones may be encroached upon or replaced by conifers (in more moist sites) or sagebrush (in drier sites) and the clones often will not return through normal seeding processes (Bartos and Campbell, 1998).

This project proposes to reintroduce fire into these ecosystems through prescribed burning. Monitoring of past prescribed burn projects on the Wasatch-Cache National Forest, including Red Banks (1997), Rock Creek (1999), and Boulder Mountain (1999 and 2003), indicates the use of prescribed fire has successfully stimulated aspen regeneration (monitoring data is available on the Logan and Ogden Ranger Districts). Support for the use of prescribed fire in stimulating aspen regeneration can be found in *Aspen: Ecology and Management in the Western United States* (USDA Forest Service, GTR RM-199, 1985).

Sagebrush communities in the analysis area are predominantly in a late seral condition and are lacking in diversity of grass and forb species. Without a frequent fire disturbance (historic fire frequencies were about every 20 years) these communities have developed into dense, decadent sagebrush stands with little age class or species diversity. Treatment by prescribed fire can rejuvenate decadent sagebrush communities and enhance diversity.

Analysis Area

The Hells Hollow analysis area is southeast of Logan, Utah, and lies generally west of the Kearn Pond road, north of the Elk Valley Guard Station, east of Borden Reservoir, and south of the Dugway Spring road (see the Hells Hollow Burn

Project Map, Appendix A). The analysis area is about 11,350 acres and includes approximately 6,000 acres within proposed burn units. The scoping letter mailed in April 2005 stated that about 4,000 acres would be treated. As a point of correction, the proposed treatment area includes approximately 6,000 acres within six proposed burn units (shown in Table 1 and on the map in Appendix A). However, even within the burn units, not all acres would be burned completely. The objective is to have a mosaic of fire across the landscape. Further explanation of the objectives is given below.

The Hells Hollow analysis area is within the Cache-Box Elder Management Area (MA) as described in the Wasatch-Cache Revised Forest Plan (pages 4-128 to 4-139). For a summary of the Cache-Box Elder MA, see Appendix B.

Affected Environment

Vegetation - The Hell’s Hollow analysis area contains a mosaic of vegetation types including aspen, aspen-conifer, sagebrush, and conifer communities. The predominant type is aspen (50% of the analysis area) and its condition is primarily older, persistent stands with sparse regeneration. Some of the moister slopes of aspen are succeeding to conifer, primarily sub-alpine fir (15% of the area). However, a lack of moisture in the analysis area precludes this from being a dominant type.

Sagebrush comprises about 25% of the analysis area. The majority of sagebrush stands are dense and old, with little grass or forb component. Small patches of lodgepole pine and/or Douglas-fir are scattered in the northern portion and account for about 10% of the analysis area. The following table shows the acres of each vegetation type in the analysis area, within and outside of the proposed burn units.

Table 1. Vegetation Type Acres

Veg Type	Analysis Area Acres	Burn Unit 1A	Burn Unit 1B	Burn Unit 1C	Burn Unit 1D	Burn Unit 2A	Burn Unit 2B	Outside burn units
Aspen-Conifer	322	135	23	17	0	19	53	76
Aspen	5272	568	300	56	95	1559	1102	1592
Conifer-Aspen	661	178	0	0	0	14	79	390
Mixed Conifer	518	87	38	0	0	0	7	387
Douglas-fir	261	0	0	0	0	13	66	182
Lodgepole Pine	514	0	0	0	0	0	0	514
Sagebrush	3739	1200	57	57	160	216	29	2020
Tall Shrub	63	0	0	0	0	29	0	34
Total	11351	2167	418	130	255	1850	1336	5196

Data collected in the proposed burn units between May and July 2005 indicate an average of 171 mature trees per acre, primarily aspen, with an average tree height of 40 feet. Regeneration varies from stand to stand, with a low of 0 seedlings/sprouts per acre to a high of 762 (mostly sub-alpine fir). This preponderance of sub-alpine fir seedlings indicates conifer encroachment into those particular aspen stands. The forested vegetation overall can be classed into four broad groupings, which would also serve as the basis for the treatment recommendations (as described under management and mitigation, below). The broad groupings are: mature and/or decadent aspen with regeneration, mature aspen without regeneration, aspen conifer mix, and lodgepole pine/ mixed conifer with no aspen component.

A primary disturbance agent currently working change in the mature aspen is the marsonina leaf blight, a recurrent defoliator which has caused considerable overstory mortality in some of the mature aspen stands. These stands have regenerated themselves and are sufficiently stocked to develop into future mature stands.

Another contributor to change in the aspen is succession to conifer cover, primarily sub-alpine fir. These areas have considerable conifer regeneration beneath the aspen canopy. This type is found along the moister north facing slopes and higher elevations and is dominated by the aspen/sub-alpine fir/tall forb community type.

Within the northern portion of the analysis area (and in the northern most burn units) are stands of lodgepole pine, Douglas-fir, and mixed conifer that have no remnant aspen component. These stands would likely not regenerate to aspen and would not be targeted for prescribed fire. For more information, see the Vegetation and Silviculture Specialist Report in the project record.

Fuels – Data collected between May and July 2005 also provided estimates of fuel loading in the burn units (tons of down woody material per acre). This information is collected by size class of the material on the ground relative to the time it would take to burn it. Fire in light fuel loads will burn through relatively quickly. Fires burning in heavy fuel loads (with a lot of 100-hr and 1000-hr fuels) tend to burn longer and very hot. Fuel loadings for 1-hr fuels averaged .6 tons per acre in the burn units and fuel loadings for heavy fuels (1000-hr) averaged 16 tons per acre. Heavy fuels were generally found in the Douglas fir and sub-alpine fir stands. These stands will not be targeted for prescribed fire, partly because of the heavy fuels loadings. For more information, see the Fuels Report.

Fire Ecology - A Fire Regime Condition Class (FRCC) assessment was completed by the interdisciplinary team on June 27, 2005. The FRCC assessment compares estimations for current fire frequency, fire severity, and vegetation-fuels classes (seral stage and canopy cover) with national default reference conditions for each vegetation type. The assessment for the Hells Hollow landscape resulted in a rating of 3 which indicates that fire regimes have been substantially altered (lengthened) from natural fire regimes for this landscape. The rating is evidenced by the lack of early and mid-seral vegetation components for all vegetation types within the analysis area. For more information, see the Fire Ecology Report.

Rare Plants/ Noxious Weeds - There are no known federally listed or Forest Service sensitive plant locations within or near the Hells Hollow analysis area. Limited potential habitat exists for Logan buckwheat, Maguires draba, and the Brownie ladyslipper. Surveys of potential habitat found it marginal for all three species. For more information, see the Botany Report.

Known infestations of weeds occurring in or adjacent to the analysis area are displayed in Table 2.

Table 2. Known Weed Infestations

Scientific Name	Common Name	Gross Acres	Infested Acres
<i>Centaurea maculosa</i>	Spotted Knapweed	0.200	0.016
<i>Isatis tinctora</i>	Dyers Woad	0.600	0.062
<i>Cirsium arvense</i>	Canada Thistle	1.900	0.024
<i>Carduus nutans</i>	Musk Thistle	1.199	0.161
<i>Hyoscyamus niger</i>	Black Henbane	1.099	0.026
<i>Cynoglossum officinale</i>	Houndstongue	2.700	0.042
Total		7.698	0.331

The prescribed burn project has the potential to increase weed infestations by creating favorable habitat. See Mitigation, below, for measures included in the decision to prevent or minimize the potential spread of weeds.

Range – The analysis area falls within or is adjacent to two cattle allotments (North Rich and Saddle Creek) and two sheep allotments (Elk Valley and Ephraim’s Grave). See Table 3. Range improvements such as boundary fences, troughs, and ponds as well as livestock management have the potential to be impacted by prescribed burns. Mitigation measures listed below address these concerns and minimize interruptions to livestock management and effects on range improvements. For more information, see the Range Report.

Soil - Soil type distribution and properties within the proposed burn units are described in the Soil Specialist Report available in the project file. Soil type components of each burn unit and fire responsive site properties such as soil depth, thickness of surface organic horizons, inherent soil erodibility of a bare soil surface, and slope gradient are presented.

Areas of concern were determined based upon consideration of soil properties such as depth over bedrock and duff/litter thickness, and fuel loading properties for 100 and 1000 hour fuels.

Severe soil burning is a detrimental disturbance that can result in a loss of long term soil productivity. Forest plan guideline G4 limits detrimental soil disturbance effects, as a result of management actions, to no more than 15% of an individual activity area. For the purpose of this analysis, each burn unit is considered an individual activity area. Severe soil burning is primarily a function of how long (duration) soils are subjected to burn temperatures in excess of 250 degrees C (magnitude). Site factors that control the magnitude and duration are primarily the quantity of 100 and 1000 hr fuels (fuel loading), the depth of duff and litter, and the moisture contents of the fuels. In sufficient depths, duff and litter, if moist, can provide an insulating effect on the transmission of high burn temperatures to the soil. If dry, the duff and litter would act as more fuel and result in even longer duration of high burn temperatures. Also, large diameter fuels (100 and 1000 hr fuel types) take comparatively longer to dry to the point where severe soil burning could occur, allowing for “cool burn” conditions to exist during most years from snowmelt to the end of June.

This analysis assumes that fuel loadings of 100 and 1000 hr fuels in excess of 10 tons/acre are sufficient to cause severe soil burning, if more than 50% of either fuel type is consumed. This analysis also assumes that duff plus litter thickness in excess of 5 inches will provide sufficient insulating protection to the soil to mitigate the high burn temperatures that would result from more than 50% consumption of the heavy fuels.

Table 3 displays areas with heavy fuels loadings in the various burn units and the associated duff and litter thickness, as determined from filed surveys conducted between May and July 2005. These areas are depicted on maps in the project file. Portions of burn units 1A, 1B, 1C, and 1D all contain heavy fuel loadings in combination with thin duff and litter layers. These plots seem to correspond where sub-alpine fir and Douglas fir are concentrated in the units.

Table 3. Fuel Loading Concerns by Burn Unit

Unit	Plot	100 hr	1000hr	Duff	Litter	Soil Concern
1A	1	4.7	14.5	8	3.2	none
1A	3	10.3	4	80?		cool burn
1A	5	11	4	1.9	1.9	cool burn
1A	7	3.2	4.3	3.3	2.2	none
1B	3	10.3	4	0.6	0.4	cool burn
1B	4	4.7	12.3	2	2.5	none
1C	1	6.4	10.8	1.2	0.2	cool burn
1D	1	3	9.5	1	0.1	cool burn

Burn prescriptions for these areas should be designed so that no more than 50% of either the 100 hour or 1000 hour fuels are consumed. The design should have an overall objective of producing a “cool burn” for these areas, and could include features such as timing (ignition only during the time period when the heavy fuels are relatively wet), ignition schemes or patterns that result in lower fire line intensities in these areas, or pre-ignition treatments that either reduce the density or concentration of the heavy fuels.

Monitoring – Areas of concern identified in this analysis should be subject to post burn monitoring of the occurrence of severe soil burning. The objective of the monitoring is to determine the effectiveness of allowing up to 50% consumption of 100 and 1000 hr fuels in preventing the occurrence of severe soil burning. If post fire monitoring determines that Forest Plan guideline G4 has been exceeded in an activity area (burn unit), and the fuel consumption was 50% or less, then adjustments should be made downward to the allowable consumption value for future prescribed burns in similar fuel and vegetation types. For more information, see the Soil Specialist report.

Water Resources – The analysis area is located in the Saddle Creek drainage in the headwaters of the Blacksmith Fork. Most of the analysis area is dry upland with only a few springs present. Table 4 displays the water features associated

with the proposed burn units. It also displays the Forest Plan Management Prescription Category (MPC) for each burn unit, and the cattle/sheep allotments and range improvements found in the analysis 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. Most of the streams in the burn units have no floodplains or very small areas adjacent to the stream where sediment may become deposited during high flows. This is because the stream gradients of most of these ephemeral streams are moderate to steep and the stream channel is moderate to highly-confined so that there is not much area for the streams to flow outside of their banks. Water originating in the Blacksmith Fork drainage is used for municipal purposes by Hyrum City which takes the water from springs located near the Blacksmith Fork River about 15 miles below the burn units.

Table 4. Hells Hollow Prescribed Burn Units

Burn Unit #	Acres	MPC	Allotment Name (sheep or cattle)	# Springs	# Ponds	Range improvements	Ephemeral Streams (miles)
1A	2167	3.2D	North Rich and Saddle Creek (cattle)	4	1	1 trough; range fence; riparian fence	3.8
1B	418	3.2U	North Rich (cattle)	0	0	0	1.0
1C	130	3.2U	North Rich (cattle)	0	1	range fence	0
1D	255	3.2U	Elk Valley (sheep)	1	0	range fence	0
2A	1850	3.2U	Elk Valley (sheep)	1	1	range fence	4.7
2B	1336	3.2U	North Rich (cattle)	2	0	range fence; riparian fence; troughs	3.8

A key assumption for this analysis is that Riparian Habitat Conservation Areas (RHCAs) are designated along perennial streams and springs as needed within the analysis area (these are identified in Mitigation #36). The RHCAs are an area that will not be actively ignited, providing a buffer zone that can trap sediment that may move during project implementation and keep sediment from entering streams and springs. It is assumed the fences along Saddle Creek and Hells Hollow will be protected from fire and will continue to function as a riparian enclosure.

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. In the most recent assessment of water quality, the State of Utah has determined that the waters within these watersheds that drain the Blacksmith Fork fully support its beneficial uses. For more information, see the Water Resources Technical Report.

Aquatics - Bonneville cutthroat trout (BCT) are not currently found in any of the proposed burn units. They were, however, found in Saddle Creek within the Hells Hollow riparian enclosure prior to 2004, and are currently found in lower Saddle Creek and could potentially move back into the analysis area during high flows. Boreal toads are found in three locations just outside the proposed burn units. In addition, boreal toads are found in Bear Wallow which makes up the northern boundary for units 1B and 2B.

The northern unnamed tributary in Unit 1A has had recent beaver activity. The beaver dams still hold water for most of the year. Aspen on the north facing slope are just starting to regenerate. Prescribed fire in these areas should be avoided to facilitate the success of this aspen regeneration.

Riparian Habitat Conservation Areas (RHCAs) will be designated along Saddle Creek, Bear Wallow, Mill Hollow and around springs and ponds within and immediately adjacent to the burn units. Locations of the RHCAs are available on maps in the project file. Designation of the RHCAs (see Mitigation, below) will protect the riparian enclosure fence in

Saddle Creek and Hells Hollow aquatic resources. This will also meet the intent of Management Prescription 3.1a and associated standards and guidelines (see Appendix C). For more information, see the Aquatics Technical Report.

Recreation - The burn units are all located in the south central portion of the Logan Ranger District. The Recreation Opportunity Spectrum (ROS) designations for the analysis area are in two classes, Semi-Primitive Motorized (SPM) and Roded Natural. Settings for both classes call for naturally appearing landscapes with minimum improvements. Vegetation treatments are allowed, but should be widely dispersed to mimic natural patterns and improve forest health.

There are approximately 14 inventoried campsites within the burn units associated with the SPM setting and around 14 additional campsites within the analysis area.

Due to efficiency of access and for fire management purposes many of the burn unit boundaries are along roads and trails. In the northwest burn unit (2B) the Elk Valley ATV (033) trail defines the southern and western part of the perimeter with the northern perimeter defined by topographic features of the unit. The Mill Hollow Road (248) is contained within the northeast section of the burn unit. There are no inventoried campsites in this unit. The southwest burn unit (2A) is bounded on the north by the Side Hill Spring Road (256) with the Elk Valley ATV trail forming the south and west boundary. Topographic features define the east boundary of this unit to protect the Elk Valley Guard Station situated approximately ¼ mile east of the burn unit boundary. There are four campsites along the Side Hill Springs road that may be impacted by the burn as well as the non-motorized Corral Hollow Trail, and an associated campsite within the unit.

The eastern burn unit (1A) is bounded on the west by the Hell's Hollow Road (105) and on the south and east by the Kearn Pond Road (181). The north boundary is by topographic feature. There are three campsites along the Kearn Pond Road. These are very popular during hunting season as they are located near a ridgeline. There are also two campsites along the Hell's Hollow Road that may be impacted. The 3 interior burn units (1B, 1C, 1D) share boundaries with the other units along the Hell's Hollow Road, the Elk Valley ATV Trail and the Mill Hollow Road. Unit 1B shares a campsite with unit 1A along the Hell's Hollow Road. Unit 1C has one site along the Mill Hollow Road. Unit 1D has one site along the Mill Hollow Road.

Measures are important to mitigate effects of the Hells Hollow prescribed fire to the quality of recreation visitor's experiences and recreation assets. While impacts due to the burn operations and resulting changes in vegetation are unavoidable, the resulting effects to the visitor may be satisfactorily mitigated (see Mitigation Measures, below). For more information, see the Recreation Technical Report.

Scenery – One of the basic assumptions related to fire and its effects on scenery is that fire is part of the landscape being viewed in a “natural appearing landscape”. Fire in the landscape, as viewed by the forest visitor, is most evident in the short-term, gradually diminishing over time until the effects are no longer apparent in that particular setting. Efforts to minimize the short-term effects on scenery can be lessened (see Mitigation, below). For more information, see the Scenery Technical Report.

Wildlife – Surveys and field reconnaissance in 2005 indicate that the majority of vegetation communities are approaching late successional stages due to a lack (or suppression of) natural disturbances such as fire, windthrow, insects, or disease. This translates into a loss of wildlife habitat for species that prefer earlier successional stages, and lower carrying capacities for numerous species. In addition, the potential for large, uncharacteristic wildfire or outbreaks of insects and disease increases because of increasing fuel loads and altered species composition created by years of fire suppression.

Game species that occur in the analysis area include mule deer, elk, and moose. The area provides summer range only for elk and deer. Moose habitat is provided in aspen stands and riparian areas. Moose numbers are managed at or near population management objectives. However, prescribed fire generally would have a positive effect on moose forage conditions.

No goshawk nests are known to occur within the project area. Two territories are north of the analysis area. Additional surveys will be conducted prior to implementation of the prescribed burns to confirm there are no nests within burn units. The goshawk is a WCNF Management Indicator Species (MIS).

The prescribed burn provides an opportunity to monitor the effects of an aspen stand as it succeeds through time following a prescribed burn. Monitoring for the snowshoe hare (MIS species) has occurred within burn unit 1D and has indicated low hare use. This will provide an opportunity to monitor the effects on hare use over time.

Beaver is another Forest MIS species and is found within the analysis area. Mitigation measures to protect Riparian Habitat Conservation Areas will provide protection for beavers. See Mitigation, below.

Numerous neotropical migratory birds occur within the analysis area. Surveys have indicated that three of these species occur and could be affected by prescribed fire (Brewer's sparrow, MacGillivray's warbler, and the broad-tailed hummingbird). Effects to these species are mitigated by timing the majority of burns in the fall (after August 30). This would minimize effects to these migratory bird species. (See Mitigation Measures below)

A Cooper's hawk nest occurs in burn unit 1A near Willow Spring. An area about 30 acres in size around the nest site will be protected from fire to maintain the nesting habitat and stand structure around the nest (see Mitigation). For more information, see the Wildlife Technical Report.

Goals and Objectives

The goal for this landscape is restoration and maintenance of age-class diversity among aspen-dominated stands and sagebrush and shrub-dominated communities. A second, closely related, goal is restoration and maintenance of young age classes of aspen and sagebrush communities for the benefit of wildlife species dependent on early successional stages. A third goal is decreased potential for high intensity wildfires with unwanted effects, specifically, injury to the aspen root system resulting in decreased regeneration potential for aspen. The Revised Forest Plan for the Wasatch-Cache (page 4-30) directs vegetation treatments (fire and/or harvest) will be used to improve the ratio of aspen to conifer in the mix of vegetation across the landscape. The Forest Plan also directs the treatment of mature sagebrush communities to increase grass and forb production and increase plant species and age class diversity among sagebrush communities.

Aspen forests and sagebrush communities provide many resource benefits including wildlife habitat, livestock forage, water retention, recreational opportunities, and scenic beauty. Aspen stands that regenerate following fire provide many benefits to wildlife. An analysis of habitat use showed burned stands to support distinct forest songbird communities that are not found in unburned or logged stands (Morissette, et al., 2002). Young aspen stands provide ideal summer forage for snowshoe hare (Wolff, 1980). Snowshoe hare are a major food source for a number of predators such as goshawk, marten, and Canada lynx.

Implementation of the Hells Hollow prescribed burn project will provide the disturbance necessary to regenerate aspen and improve conditions in sagebrush communities, under controlled conditions, thus better protecting existing range improvements, soil and water resources, and aspen clonal root systems.

Decision

I have decided to implement the Hells Hollow prescribed burn project in the units shown below and on the attached map. I have made this decision based on a thorough review of the interdisciplinary environmental analysis documented in the project record. The resource technical reports include a disclosure of the scientific analysis, consideration of research including responsible opposing views, and acknowledgement of unavailable and/or uncertain information.

Implementation of this project will provide a mosaic of regenerated aspen and sagebrush stands over approximately 6,000 acres through the use of prescribed fire. The prescribed burn units generally will be greater than 200-300 acres, to approximate historic patches. The prescribed burns will result in 60-80% mortality of individual mature aspen stems (to promote successful regeneration and increase stand heterogeneity) within the burn patches. The regeneration objective is approximately 1000 aspen suckers per acre, greater than 6 feet tall, within 5 to 6 years after the burns.

Prescribed fire will be the method of treatment for the identified units. There will be situations where some shrubs or small trees may be cut prior to the burn to achieve better ignition. This material will not be commercially removed from the area. Some vegetation may also be cut by hand or small machine (such as a small trail cat) and cleared to create a

line cleared of vegetation for a defensible boundary to the fire, where needed. In many cases, roads, trails, or natural openings are used for this purpose, where they are available.

As noted on page 4-60 of the Revised Forest Plan, prescribed fire refers to any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and site-specific NEPA analysis requirements must be met prior to ignition. Prescribed fire plans are documents prepared by qualified personnel, approved by the agency administrator, and include criteria for the conditions under which the fire will be conducted (a prescription). Prescribed fire activities include actually lighting a fire using a fire accelerant with ground or aviation equipment and personnel and may include the following: removal or piling of vegetation to secure perimeter lines, clearing areas for helicopter operations, clearing holding lines to bare mineral soil using hand tools, using fire resistant foam or water on holding lines, constructing temporary camps for base operations, using aviation resources for fire retardant or water drops to reduce high-intensity fire behavior, closing areas to livestock grazing before and after burning, and closing roads and areas to the public before and after burning.

Prescribed fire will only be used when pre-established conditions (e.g., temperature, moisture, wind) meet specifications in the approved burn plan. The Forest Service only uses fire under certain weather conditions, making the results more predictable. The Hells Hollow prescribed burns will be ignited from the ground (by hand) and/or from the air (using helicopters).

Forest Service fire resources likely used on this project include one or more helicopters, a 20-person fire crew, and 2 to 3 fire engines. If needed, 1 to 2 additional fire crews, an additional engine, and an additional helicopter will be located 3 to 4 hours away. Additional Forest Service personnel will be used for public information and patrol of road closures.

The attached map shows the prescribed burn units. The area within the outer boundary (analysis area) but outside the burn units will not be actively ignited. However, even under the best of conditions, there is some unpredictability associated with prescribed fire. If fire inadvertently spreads into this area (within the analysis area but outside the burn units) the fire would not be actively suppressed. Effects of inadvertent fire in this area have been considered in this analysis. Any fire that spreads beyond the outer boundary (analysis area) would be actively suppressed.

Monitoring and follow-up will be conducted to insure this decision is implemented consistent with goals and objectives in the Revised Forest Plan, as summarized in the Appendix.

Details of the Decision, Design Features, and Mitigation Measures

The Hells Hollow prescribed fire project is designed to reduce negative environmental effects associated with uncontrolled wildfire by allowing the burns to take place only under pre-approved conditions. Hence, the prescribed fires are designed to burn cooler, protecting the productivity of the soil. Areas that were inherently higher risk for adverse effects (such as steep slopes, shallow soils) were eliminated from further consideration. The burn unit boundaries and unit locations within the landscape were designed to minimize the risk of escaped fire.

In addition, the following measures, included as part of the decision, are intended to help achieve objectives and reduce environmental impacts from the prescribed burns.

Measures to achieve objectives and promote aspen regeneration

- 1) Treat 50 to 80 % of the aspen-conifer type within the burn units, with a goal of 60 to 80% mortality in the overstory in order to ensure top kill and future suckering from the roots.
- 2) Treat 30 to 70% of the aspen type without regeneration within the burn units, with a goal of 60 to 80% mortality in the overstory.
- 3) Where possible, avoid burning in the mature and/or decadent aspen stands with regeneration; the stand adjacent and west of Nebeker springs is an example of a stand not to treat. These are scattered throughout all units and do not need treatment.

- 4) Avoid burning in conifer stands without any aspen present. Since aspen will not regenerate in these situations, these are outside of the scope of the project. These are primarily at the northern edges of burn units 1A and 1B.
- 5) Prohibit livestock grazing in aspen treatment units until aspen sprouts have leaders reaching an average height of 5-6 feet (typically 2 to 3 years). The most critical time-period to avoid browsing on aspen leaders is during September to October. If needed, temporary fences will be installed until these conditions are achieved (Forest Plan Guideline 73). Keeping livestock out of the burn units will likely involve increased herding efforts, non-use of some pastures or units, trailing and bedding in new areas, and close monitoring of livestock use.
- 6) Avoid ignitions in areas where beaver activity has promoted aspen regeneration. In order to facilitate the success of this aspen regeneration, ignitions in these locations (identified on project maps) should be avoided.
- 7) The Forest Silviculturist and Fire Specialist will tour the area by helicopter to identify aspen stands that are to be avoided for ignition (as described above). The area around Nebeker Springs is one such area and will be used as an example of what to avoid in aerial ignitions.

Measures to protect soil quality

- 8) Burn prescriptions should be designed for portions of burn units 1A, 1B, 1C, and 1D (identified on maps in the project file) to allow no more than 50% of either the 100-hour or 1000-hour fuels to be consumed. These are areas with heavy fuel loads and thin duff and litter layers. The design should have an overall objective of producing a “cool burn” for these areas. Design features to achieve a cool burn include such things as timing (ignition when heavy fuels are relatively wet or humidity is relatively high), ignition schemes or patterns that result in lower fire line intensities in these areas, or pre-ignition treatments that either reduce the intensity or concentration of the heavy fuels.
- 9) Areas of concern identified in this analysis should be subject to post burn monitoring of the occurrence of severe soil burning. The objective of the monitoring is to determine the effectiveness of allowing up to 50% consumption of 100 and 1000 hr fuels in preventing the occurrence of severe soil burning. If post fire monitoring determines that Forest Plan guideline G4 has been exceeded in an activity area (burn unit), and the fuel consumption was 50% or less, then adjustments should be made downward to the allowable consumption value for future prescribed burns in similar fuel and vegetation types.

Mitigation measures for grazing management

- 10) **Unit 1A:** This unit is in the North Rich and Saddle Creek allotments. There is one boundary fence between the two allotments in sections 23, 25, and 26. The fence line is within the burn unit, not on the burn boundary. Efforts will be required to protect this fence line. The Hells Hollow riparian enclosure is in the NW ¼ of sec. 23. There is one trough site at Willow Spring. This unit can be burned with Unit 1D only. Any other units burned at the same time would have unacceptable impact on the allotment grazing management.
- 11) **Unit 1B:** This unit is in the North Rich cattle allotment and could be burned in conjunction with 1C, 1D and half of 2A. The Hells Hollow enclosure is located to the west across the road from this unit.
- 12) **Unit 1C:** This is in the North Rich cattle allotment. This unit could be burned with 1D and half of 2A. The south boundary of the burn unit is a boundary fence line.
- 13) **Unit 1D:** This unit is in the Elk Valley sheep allotment and has a boundary fence line on the north side. This unit could be burned with units 1A, 1B, 1C, or 2B.
- 14) **Unit 2A:** This unit should be split in half, approximately down the Corral Hollow drainage, because it is more than half of the Elk Valley sheep allotment. Burning the whole area at one time would make grazing management difficult on this allotment. Once the unit is split, either of the units could be burned with 1A, 1B, 1C, or 2B. There is a boundary fence behind Elk Valley guard station along the southwest boundary of the burn unit.

- 15) **Unit 2B:** This unit has a new set of troughs below the lower spring in Mill Hollow. These need to be protected during the burn treatment. The south and west boundaries of this burn unit follow the allotment boundary fence line which also needs to be protected. This unit could be burned with 1D or either half of 2A.

Measures to minimize the creation and/or use of unauthorized ATV trails

- 16) Any hand lines that are created as a fire break will be reclaimed (covered with vegetation and woody debris) to blend in with the surrounding areas, to prevent use as a new trail or pathway.
- 17) If the use of fire equipment creates visible evidence of travel ways off a system road, signs (and rock barriers, as needed) will be installed after the burns to minimize future unauthorized vehicular use.

Measures to minimize impacts on recreation use and opportunities

- 18) At least one month in advance of the prescribed burns, place temporary signs along the roads in the areas that are expected to be closed or impacted by the burns, announcing the event and suggesting that other areas be considered for hunting and camping.
- 19) Put an announcement in the newspaper at least one month ahead of opening day of the hunts. Encourage the newspaper to write an article suggesting hunters consider other areas in their hunt planning and explain how prescribed fire improves deer and elk habitat and may improve future hunts.
- 20) Provide a sufficient number of Forest Service employees to manage road closures, roadblocks, and patrols. Train the employees, develop flyers explaining the burns, and suggest other areas for recreation and hunting.
- 21) Coordinate with the Utah Department of Wildlife Resources to ensure hunters using the area are informed of the prescribed burns.
- 22) Avoid scheduling the prescribed burns on opening day(s) of any of the major hunts or during weekends or holidays (heaviest use periods).
- 23) Protect Concentrated Use Areas (defined as five or more camp fire rings in one area) from an intense fire that will remove all the large trees that provide shelter and shade.

Measures for public safety

- 24) Determine if a special closure order will be necessary to ensure public safety in the area during the burns; develop and use the order as needed.
- 25) Fell hazard trees after the prescribed burn if they threaten system trails, roads, campground, or inventoried dispersed campsites.
- 26) Protect trail and road signs from fire, especially signs used to block motorized traffic.
- 27) Protect road culverts and ensure their ability to function.

Measures to protect historic/interpretive sites

- 28) Protect cultural and interpretive values from adverse effects by protecting any known sites from severe burn conditions.

Measures to avoid noxious weeds

- 29) Avoid, where possible, prescribed fire within areas of known existing weed infestations (as mapped). Activity near existing infestations can increase the dispersal of weed seeds.

- 30) To reduce seed source, aggressively treat existing weed infestations prior to burning.
- 31) Take measures immediately following the prescribed burns to monitor and treat new noxious weed infestations within approximately 200 feet of roads.

Measures to protect scenic quality

- 32) Where possible, construct hand lines so they follow the natural contour of the land. Where needed, hand lines will be reclaimed (covered with vegetation and woody debris or seeded) to minimize visual impacts.

Measures to protect wildlife habitat and migratory birds

- 33) An area of about 30 acres around the Cooper’s hawk nest near Willow Spring will be protected from fire to maintain this nesting habitat and stand structure.
- 34) Avoid ignitions in areas where beavers are active; these areas generally coincide with designated RHCAs (riparian areas) and the protection afforded to the RHCA will provide protection for beavers and their habitats.
- 35) To minimize impact to nesting migratory birds, the majority of prescribed burns should take place either before nesting in the early spring (generally before April 15) or after nesting in the fall (generally after August).

Measures to protect water and aquatic resources

- 36) There is to be no dipping of water from Tin Cup Spring, Little Rock Spring, or Elk Wallow Spring for protection of boreal toads. These springs are located outside the burn units.
- 37) To protect water quality, fish species, amphibians, and aquatic macro-invertebrates, Riparian Habitat Conservation Areas (RHCAs) as described in the Revised Forest Plan (Glossary-19) are designated as described below. The RHCA is an area of no ground disturbance. Staging areas, camps, helispots, and other centers for prescribed fire activities must be located outside of the RHCA. Additionally, chemical retardant, foam, or other fire retardants must not be used in these areas. Fire ignitions should occur outside of the RHCA’s. Incidental backing of fire into an RCHA is acceptable because it would be an indirect and cooler burn. The RHCA protected area varies in width from 50 feet (for seasonally flowing and intermittent streams, and wetlands less than 1 acre) to 300 feet (for permanently flowing, non-fish-bearing streams and ponds, lakes, and reservoirs) to 600 feet (for fish-bearing streams). Specific RHCAs for the Hells Hollow prescribed burn are as follows:

Burn Unit	Mitigation
1A	RHCA (300’ buffer each side) is designated along Saddle Creek; RHCAs may be needed around springs and ponds (field visit by aquatic biologist will confirm, based on the final burn plan)
1B	RHCA (300’ buffer each side) is designated along Saddle Creek and Bear Wallow; RHCA (150 foot buffer each side) is designated along Mill Hollow
1C, 1D, 2A	RHCAs may be needed around ponds, springs (including Red Bank, Nebeker, and Sidehill), and along ephemeral streams and Corral Hollow (field visit by aquatic biologist will confirm, based on the final burn plan)
2B	RHCA (300’ buffer each side) is designated along Bear Wallow; RHCA (150 foot buffer each side) may be needed along Mill Hollow; RHCAs may be needed around springs (field visit by aquatic biologist will confirm, based on the final burn plan)

Reason for Categorically Excluding the Proposed Action

Based on public input, interdisciplinary team review, past experience, and consideration of the resource conditions listed below, I have determined the effects of implementing this action will be of limited context and intensity and will result in little or no environmental effect to either the physical or biological components of the environment. As such, this is a decision that has been categorically excluded from documentation in an Environmental Assessment or Environmental Impact Statement. The proposed action falls under Forest Service Handbook 1909.15 - Environmental Policy and Procedures Handbook, Chapter 30, Section 31.2 Category 6 – Timber stand and/or wildlife habitat improvement activities which do not include the use of herbicides or do not require more than one mile of low standard road construction. Examples include but are not limited to:

- d. Prescribed burning to reduce natural fuel build-up and to improve plant vigor.

The Hells Hollow prescribed fire project fits this category because: 1) it does not involve the use of herbicides; 2) no new roads will be constructed; and 3) the burns will reduce fuels and improve plant vigor.

As described in the mitigation section above, all practicable means to avoid or minimize environmental impacts have been incorporated into the decision. The categorical exclusion is appropriate in this situation because there are no extraordinary circumstances related to the proposed action. There were no significant effects identified for the resource conditions listed below.

a. Federally listed threatened and endangered species or designated critical habitat, or Forest Service sensitive species.

The project will have “no effect” on the identified threatened, endangered, proposed, and/or candidate species (Maguire’s primrose, Canada lynx, yellow-billed cuckoo, black-footed ferret, and bald eagle) or designated critical habitat. The finding for lynx is based on the determination the project will restore age-class diversity in vegetation and the treatments occur primarily in aspen which has lower snowshoe hare use than conifer. For the following Forest Service sensitive species (Logan buckwheat, Maguire’s draba, Brownie ladyslipper, Bonneville cutthroat trout, great gray owl, three-toed woodpecker, pygmy rabbit, boreal owl, northern goshawk, sage grouse, Columbia sharp-tailed grouse, peregrine falcon, and wolverine) a finding of “no impact” is given. A finding of “may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species” is given for the flammulated owl, spotted bat, and Townsend’s big-eared bat. The determinations are documented in the Biological Assessment/Biological Evaluation (BA/BE) for this project (available in the project file).

b. Flood plains, wetlands, or municipal watersheds. There will be no effect on flood plains, wetlands or municipal watersheds. Streams within the project area are steep and do not have a floodplain associated with them in the sense that a floodplain is a generally flat area located adjacent to the stream in which high water inundates the flat area. Most of the project area is dry upland and only a small amount of riparian area occurs, mainly around springs. These will be protected under Riparian Habitat Conservation Area designations. Most of the streams in the area are ephemeral and do not have floodplains or wetlands near them.

Post-fire monitoring of riparian areas that were burned either by prescribed fire treatment or wildfire (such as the Rock Creek prescribed fire in 1999 and in the East Fork Fire of 2002) shows that these areas have responded well following fire. Because of the moist conditions of riparian areas, the fire does not burn very hot and vegetation begins to grow back immediately after the burn. Since the project area would be treated during conditions that would result in low to moderate burn conditions, it is expected that if wetland areas and floodplains burn, they would do so under moist conditions and no adverse effects to soil and water would occur.

No adverse effects would occur to any municipal watersheds in the project area because the water sources for drinking water are located many miles outside of the analysis area and would not likely to be influenced by any surface runoff from the project.

c. Congressionally designated areas, such as wilderness, wilderness study areas, or National Recreation Areas. The Hells Hollow prescribed fire analysis area contains no Congressionally-designated areas.

d. Inventoried roadless areas. A portion of the Hells Hollow prescribed fire analysis area lies within the Elk Valley roadless area on the Logan Ranger District. However, no roads will be constructed and no timber will be harvested. The use of prescribed fire in this area will not adversely affect the character of the Elk Valley roadless area.

e. Research Natural Areas. The Hells Hollow prescribed fire analysis area contains no Research Natural Areas.

f. American Indian and Alaska Native religious or cultural sites. No such religious or cultural sites are affected.

g. Archaeological sites, or historic properties or areas. The Hells Hollow analysis area has been surveyed for cultural resources and six “eligible” and one “not eligible” sites were found. No historic properties will be affected because they are outside of impact zones and National Register characteristics will not be changed. The sites do not occur directly within aspen stands, but in meadows and around spring sites which will be protected under Riparian Habitat Conservation Areas. The USDA FS has made the determination (and the Utah SHPO has concurred) there will be no historic properties affected (concurrence letter is available in the project file).

Public Involvement

The Forest Service conducted the public scoping process by mailing a letter describing this project to 142 individuals, agencies, and organizations on July 13, 2005. Due to a District Court Decision in California on September 16, 2005, an opportunity for comment was provided and a legal notice was posted in the Logan Herald Journal on October 17, 2005. Three responses regarding this project were received. Documentation of public scoping is in the project file and available for review through the Logan Ranger District.

One party was concerned with the potential spread of noxious weeds, protection for migratory birds, MIS, TES species, and other species of concern.

Another respondent was concerned with effects on migratory birds, effects on aquatic species (including boreal toads), T,E,S, species, potential spread of noxious weeds, and monitoring for post-fire conditions.

A letter was received suggesting beavers be used to stimulate aspen regeneration. They also expressed concern that the prescribed fire project will impact livestock grazing management and that ample notice be given so they can plan ahead.

These issues are all discussed above and measures are included in project design/mitigation described above to minimize effects and protect valuable resources.

Findings Required by Other Laws

This decision is consistent with the Revised Wasatch-Cache National Forest Plan as required by the National Forest Management Act. The project was designed in conformance with Forest Plan standards and incorporates appropriate forestwide and management prescription guidelines. The project is consistent with the desired future conditions as described in the Revised Forest Plan.

Implementation Date

The prescribed burns described in this decision may be initiated beginning in 2007 or 2008, depending on weather parameters as required in the burn plan for this project. The timing and completion of burns is highly dependant on weather conditions, as well as coordinating sheep and cattle grazing management.

Administrative Review or Appeal Opportunities

This decision is subject to appeal pursuant to Forest Service regulations at 36 CFR 215. Appeals must meet the content requirements of 36 CFR 215.14. Appeals must be postmarked or received by the Appeal Deciding Officer within 45 days of the publication of this notice in the Logan Herald Journal. The Appeal Deciding Officer is Faye Krueger, the Forest Supervisor. Appeals must be sent to: Appeal Deciding Officer, Intermountain Region USFS, 324 25th Street, Ogden, Utah 84401; or by fax to 801-625-5277; or by email to: appeals-intermtn-regional-office@fs.fed.us. Emailed appeals must be submitted in rich text (rtf) or Word (doc) and must include the project name in the subject line. Appeals may also be hand delivered to the above address, during regular business hours of 8:00 a.m. to 4:30 p.m. Monday through Friday.

Contact Person (s)

For further information contact Rob Cruz at the Logan District Office, 1500 East Highway 89, Logan, UT 84321 or telephone (435) 755-3620.

/s/Robert A. Cruz

May 7, 2007

ROBERT A. CRUZ
District Ranger

Date

Appendix A
Hells Hollow Vicinity Map

Appendix B

Cache Box Elder Management Area A Summary of Desired Future Conditions (Revised Forest Plan, pages 4-128 to 4-139)

Watershed Desired Future Conditions:

Watersheds will be properly functioning with adequate ground cover to prevent soil erosion, and provide infiltration and moisture holding for storage and release of water to streams and aquifers. Stream flows will remain natural with the exception of the three Logan River dams and the municipal water withdrawals. Spring sources and associated wetlands will be protected from excessive use and will be restored to proper functioning. Riparian areas will be properly functioning with deep-rooted vegetation or armoring along banks to allow for sediment filtering and erosion prevention. Riparian areas will be protected from overuse and trampling from livestock grazing and recreation uses. Spring sources will be fenced and provide water for livestock.

Biodiversity/Viability Desired Future Conditions:

Vegetation and Disturbance Processes

Restoration and/or maintenance of a healthy and sustainable, broad scale, north-south wildlife corridor within this management area will be a priority in all management decisions. Vegetation will form a mosaic of habitat types, diverse in species composition and structure approximating historic patterns. Fire use will play a role in reducing fuels, and restoring and maintaining the dynamic of aspen and mountain brush regeneration, and the balance of age classes in these types. Vegetation treatments (including such things as fire use and timber harvest) will be used to improve the ratio of aspen to conifer in the mix of vegetation across the landscape. In the spruce-fir forest, along the eastern portion of the management area, selective timber harvest will be used to approximate small-scale historic disturbances common in this type, such as spruce beetle infestations and small fires. Spruce beetle activity will remain at endemic levels.

Wildlife Habitat

Restoration and maintenance of a healthy and sustainable, broad scale, north-south wildlife corridor within this management area will be a priority in all management decisions.

Terrestrial Wildlife Threatened, Endangered, and Sensitive Species Protection/Recovery

TES species and other species of concern are covered in Forest-wide DFC's. TES species with suitable habitat or present within the unit include bald eagle, Canada lynx, wolverine, Townsend's (western) big-eared bat, boreal owl, flammulated owl, northern goshawk, peregrine falcon, northern three-toed woodpecker, and Bonneville cutthroat trout. Management activities will conform to objectives, standards and guides as identified in Conservation Strategies, Agreements, and/or Guidelines for protection of TES species.

Fish Habitat

Aquatic habitats will be managed to maintain cool, clear water and well-vegetated stream banks for cover and bank stability.

Amphibians and Invertebrates Habitat

Marshy edges of ponds, lakes and springs will be protected to allow for the development of in-water and riparian vegetation.

Appendix C

Management Prescription Categories (MPC) Applicable In the Hells Hollow Prescribed Burn Project (Revised Forest Plan, pages 4-57 to 4-78)

Management Prescriptions are defined in the Revised Forest Plan as “management practices and intensity selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.” Management Prescription Categories provide a general sense of the management or treatment of the land intended to result in a particular condition being achieved or set of values being restored or maintained. Each Prescription includes a set of standards and guidelines showing activities that are not allowed, and parameters within which activities that are allowed should be conducted.

The following are management prescriptions found within the Hells Hollow Burn Analysis Area.

3.1 Aquatic Habitat (3.1A) /Watershed (3.1W) Emphasis: Emphasis is on maintaining or improving quality of watershed conditions and aquatic habitats. Watershed function and aquatic habitat values are recognized as important and may require restoration to reach desired conditions. Areas of municipal watershed and public drinking water sources will be managed to maintain or improve soil processes and watershed conditions. Where improvement is needed, it is achieved by implementing watershed improvement projects, and by applying soil and water conservation practices to land-disturbing activities.

3.1A consists of the stream and adjacent riparian areas (or 300 feet either side of the stream whichever is greater). Because of the large number of existing facilities (roads, developed recreation sites, trails), already located within areas mapped as 3.1A, and because of their relatively high value and small proportion of the landscape, development outside already developed areas within this prescription is to be avoided. Protect or restore proper hydrologic functioning.

(S3.1A-1) New recreation facility development is not allowed.

(S3.1A-2) Cutting fuelwood larger than 5 inches in diameter is not allowed.

(G3.1A-1) Timber harvest, vegetation/fuel treatments, prescribed fire, and wildland fire use are allowed only for the purposes of maintaining, improving or restoring riparian and aquatic habitat to desired conditions or to protect property in the wildland urban interface.

(G3.1A-2) Livestock grazing is allowed with the utilization standard for Riparian Class 1, and to meet site-specifically developed desired conditions.

(G3.1A-3) Road construction is not allowed except for road crossings.

(G3.1A-4) New trail construction is allowed if consistent with site-specifically defined riparian management objectives.

3.2 Terrestrial Habitats (3.2U Undeveloped/3.2D Developed) Emphasis: Manage upland habitats to provide for sustaining and/or recovering desired plant and animal species and/or communities. Maintain or restore lands to meet desired conditions of habitat for threatened, endangered, and sensitive species. Considerations for these areas include winter ranges and **corridors** for seasonal migrations as well as movement of genetic materials, individuals, and populations; vegetation composition, structure, and pattern needed for life cycle stages; needs for control or eradication of undesirable non-native species; and protection of special or unique habitats.

3.2D consists of those terrestrial habitat areas where development is allowed for the purpose of maintaining, improving, or restoring key habitat elements.

(G3.2D-1) Timber harvest, road construction, vegetation/fuel treatment, prescribed fire and wildland fire use are allowed for the purposes of maintaining, improving or restoring terrestrial habitat, for oil and gas exploration, for hazardous fuel reduction, and to protect property in the wildland urban interface.

(G3.2D-2) Grazing is allowed on open allotments to meet site-specifically defined desired conditions.

(G3.2D-3) New recreation development and new trail construction are allowed with consideration of existing road/trail densities and site-specifically defined terrestrial habitat desired conditions.

3.2U consists of those terrestrial habitat areas protected from development because of potential impacts to key habitat elements.

(S-3.2U) Timber harvest, road construction, and new recreation developments are not allowed.

(G3.2U-1) Vegetation/fuel treatment, prescribed fire and wildland fire use are allowed for the purposes of maintaining, improving or restoring terrestrial habitat, for hazardous fuel reduction, and to protect property in the wildland urban interface.

4.3 Emphasis on Backcountry Motorized Settings: These areas provide recreation opportunities in a more remote and isolated setting where visitors can obtain a higher degree of solitude and the environment is in a near-natural setting. Access to and within these areas is primarily through the use of motorized trails and roads. Sights of other visitors are low and sounds of other users are low to moderate. Visitors are largely managed off-site, with signs and regulations posted at area boundaries. Management of recreation impacts is of a semi-primitive nature with regulation of use a priority management tool over site modification. Visitor self-reliance is high. Management visibility is low with backcountry ranger patrols focusing on monitoring and maintaining natural conditions and processes.

(S4.3) New recreation development is not allowed.

(G4.3-1) Timber harvest, vegetation/fuels treatment, road construction, prescribed fire and wildland fire use are allowed to mimic historic conditions and to restore ecosystem functioning as compatible with the backcountry recreation opportunity and natural setting desired.

(G4.3-2) Grazing is allowed on open allotments to meet site-specifically defined desired conditions.

(G4.3-3) New trail construction is allowed.

Appendix D

Forest Plan Goals and Objectives Applicable to the Hells Hollow Prescribed Burn Project (Revised Forest Plan, pages 4-16 to 4-34)

Forestwide Goals

Forestwide Goal 1 – Air Resource

Ensure National Forest management activities result in meeting state and federal air quality standards, and comply with local, state and federal air quality regulations and requirements.

Forestwide Goal 2-Watershed Health

Maintain and/or restore overall watershed health (proper functioning of physical, biological and chemical conditions). Provide for long-term soil productivity. Watershed health should be addressed across administrative and political boundaries.

Forestwide Goal 3-Biodiversity & Viability

Provide for sustained diversity of species at the genetic, populations, community and ecosystem levels. Maintain communities within their historic range of variation that sustains habitats for viable populations of species, restores or maintains hydrologic functions, and reduces potential for uncharacteristic high-intensity wildfires, and insect epidemics.

To achieve sustainable ecosystems, meet properly functioning condition (PFC) criteria for all vegetation types that occur in the Wasatch-Cache National Forest. Focus on approximating natural disturbances and processes by restoring composition, age class diversity, patch sizes, and patterns for all vegetation types. Guideline G-11 contains the desired landscape scale structure and pattern for vegetation cover types.

Forestwide Goal 4-Fire and Fuels Management

Wildland fire use and prescribed fire provide for ecosystem maintenance and restoration consistent with land uses and historic fire regimes. Fire suppression provides for public and firefighter safety and protection of other federal, state and private property and natural resources. Fuels are managed to reduce risk of property damage and uncharacteristic fires.

Objectives for Vegetation Management

Developed in response to Goal 2-watershed health, Goal 3-biodiversity and viability, Subgoals 3d-fire-adapted ecosystems, and Goal 4-fire and fuels management.

Purpose: To achieve forest and rangeland vegetation composition, structure, and patterns in properly functioning condition (i.e. within their historic ranges of variation). To move toward a variety of vegetation types, age classes, and patch sizes covering the landscape and contributing to healthy watersheds, aquatic and terrestrial wildlife habitats, recreation environments, and production of commodities such as wood and forage.

Need: A forestwide assessment concluded that aspen communities as well as conifer, sagebrush and several other vegetation types are currently outside the historic range of variation. This appears to be primarily related to successful fire suppression in vegetation types that evolved with repeated fires. A few *examples* of ramifications of the current situation include: fuel build-ups that may result in larger and hotter fires than historic; undesirable changes in vegetation composition and patterns such as extreme loss of aspen with its highly productive and diverse understory that provides habitat elements for many wildlife and bird species as well as outstanding scenery.

Objectives to accomplish desired conditions:

- 3.b.** Stimulate aspen regeneration and reduce other encroaching woody species in aspen by treating (fire use and/or timber harvest) approximately 3,200 acres average annually for a 10-year total of 32,000 acres.
- 3.d.** Increase grass and forb production and plant species and age-class diversity in sagebrush by treating approximately 2,000 acres average annually for a 10-year total of 20,000 acres.