Heritage Resources Protection Plan for the Pahvant Interagency Fuels Reduction Project

Prepared by the Bureau of Land Management
for the
Fillmore Field Office
and the
Fishlake National Forest

by
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Abstract

The Fillmore Ranger District of the Fishlake National Forest Service (FS), and the Fillmore Field Office of the Bureau of Land Management (BLM) have developed the Pahvant Interagency Fuels Reduction Project. Seven treatment units (Figure 2) have been identified on FS (7270 acres) and/or BLM (7059 acres) managed land along the western slope of the Pahvant Range between Scipio, Utah and Meadow, Utah. By reducing the hazardous fuels within these treatment units, the number and severity of wildfires in the area will be substantially reduced.

Through the compilation of previous archaeological work conducted within and in the vicinity of the Pahvant Interagency Fuels Reduction Project, sites types and locations have been identified. This information has been used to establish sample survey plots in order to most effectively identify areas where fire sensitive sites are located and areas with an expected higher site density. General recommendations have been established to reduce the impacts to cultural resources that are expected to be located within the project area. These include fuel reduction on or around the sites, hand lines or black lines to protect sites from fire and have identified the need to consider indirect impacts before they occur.

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I. Introduction

Fire is a natural phenomenon as well as a cultural phenomenon. Hundreds of thousands of years ago, early humans discovered methods to control and manipulate fire. Thus, fire was transformed into a tool. It was and continues to be used for practical purposes like warmth, light, and changing the molecular structure of matter to alter its function (firing clay to make pottery, heat treating lithic material to change it's color and workability and cooking food to change the taste).

Throughout most of earth's existence, fire has moved freely over the land. Ecosystems depend on rejuvenation from the effects of fire. Soils are replenished, dead vegetation is removed, and room is created so new, healthy vegetation can grow. It has taken humans over 70 years to recognize the benefits of fire on the environment.

During the 1930's, fire suppression methods were developed which gave humans the ability to extinguish large wildfires. Prior to the 1930's, large wildfires burned thousands of acres and were harbored only by the environment. Since fire was a frequent occurrence, the wildfires of the past were most often of low intensity, similar to the prescribed burns of today. Cultural resources deposited before 1930 have certainly been exposed to the effects of fire, probably numerous times. Artifact and feature types that could be destroyed by low intensity fires would have been affected a long time ago.

The intensity and severity of today's wildfires are a result of decades of successful fire suppression actions. High intensity wildland fires create vast areas of blackened, barren, ash covered landscapes. These areas must be seeded in order for vegetation to grow before the wind blows or water washes away the topsoil. Even the most durable cultural resources cannot withstand the heat of a wildfire. Stone artifacts break, glass melts, and pottery becomes fragile and discolored once temperatures exceed 500 degrees Celsius. High intensity fires can well exceed this temperature. In fact 400 degrees Celsius is the low end of the high intensity fire temperature range. In addition to impacts caused by wildfires to archaeological resources, suppression activities frequently damage and sometimes completely destroy entire sites.

Low intensity prescribed fire has been shown to actually benefit the cultural resources of an area. Sites, as well as buffer zones, that are left untreated will continue to accumulate hazardous fuels. Any wildfire through the area would burn at a low intensity through the previously treated areas, while burning at a high intensity through those areas left untreated. Untreated areas could suffer severe damage from high temperatures. By decreasing the fuel load within and around heritage resources, a fire would burn at a lower intensity and would not impact the resource.

II. Pahvant Interagency Fuels Reduction Project Description

The Pahvant Front Range (Figure 1) has experienced numerous, large wildfires over the last ten years; averaging 31 lightening caused fires per year. The small communities in this area have dealt with secondary effects of these wildfires (flooding). In an effort to

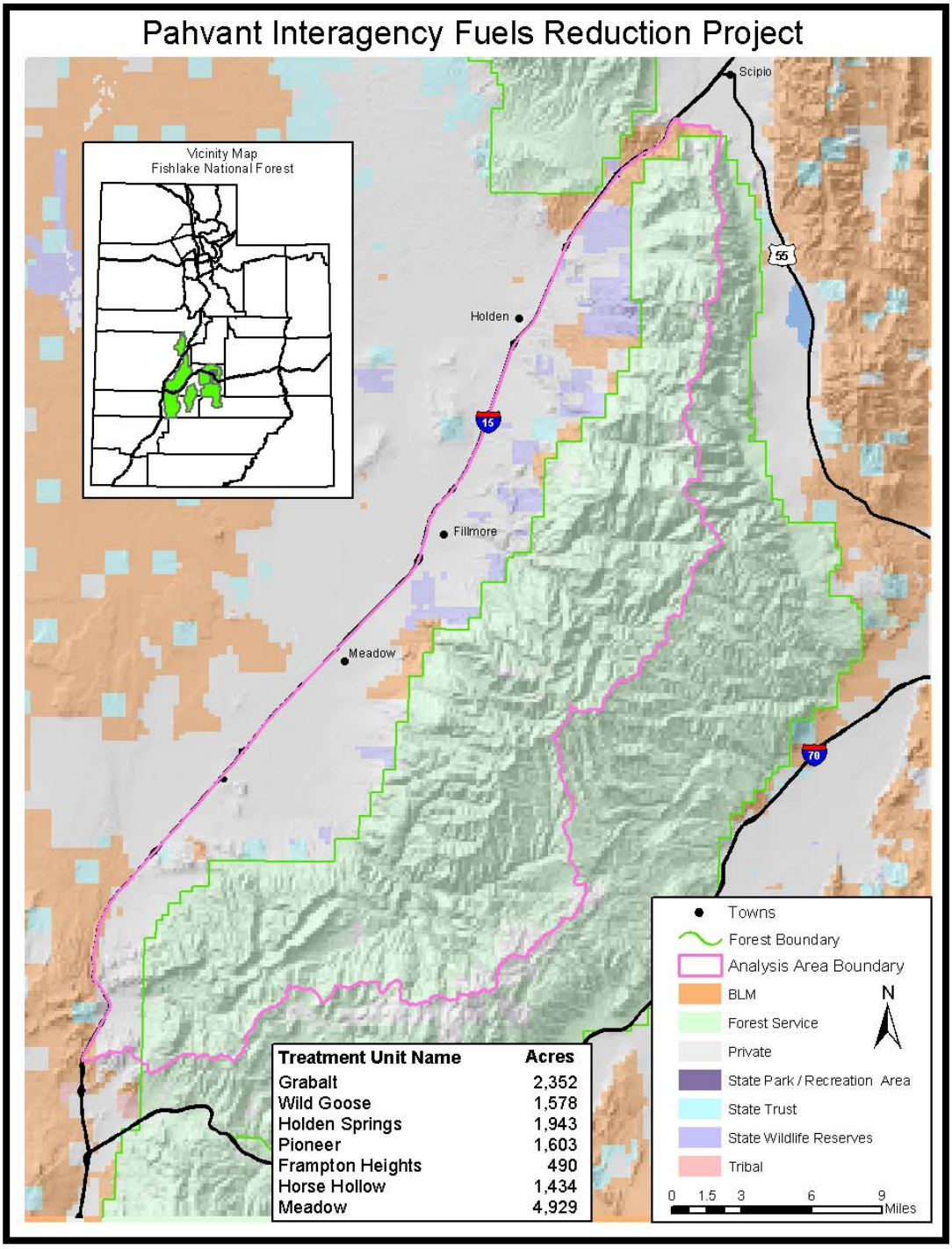

Figure 1 Map showing the Pahvant Interagency Fuels Reduction Project Area.

reduce the severity of wildfires along the Pahvant Range near the Wildland/Urban Interface communities of Scipio, Holden, Fillmore, and Meadow, several areas exist with extremely heavy fuel loads. These areas have an existing fuel height of more than 8 feet and a fuel loading of over 15 tons per acre. The occurrence of a wildfire, within or near these areas would pose a serious threat to nearby communities and ranches.

The Fillmore Ranger District of the Fishlake National Forest Service (FS), and the Fillmore Field Office of the Bureau of Land Management (BLM) have developed the Pahvant Interagency Fuels Reduction Project. Seven treatment units (Figure 2) have been identified on FS (7270 acres) and/or BLM (7059 acres) managed land along the western slope of the Pahvant Range between Scipio, Utah and Meadow, Utah. By reducing the hazardous fuels within these treatment units, the number and severity of wildfires in the area will be substantially reduced.

The proposed project will reduce hazardous fuels within the treatment units by hand thinning juniper trees on BLM land. A management ignited burn will occur on both BLM and FS lands to remove hazardous fuels without complete destruction of vegetation. Ignition will occur during the spring and fall when conditions are favorable to produce a mosaic burn. Treatment of the entire 14,329 acres will be spread over a five-year period. Hand lines may be needed to prevent fire from escaping the units, or to protect irreplaceable resources within the units. The burned areas will be aerial seeded to reduce invasion by noxious weeds.

III. Project Location

The project consists of seven treatment units within the Pahvant Range. All treatment units are located east of the I-15 corridor between Scipio and Meadow.
Grabalt is located within Scipio Pass and includes portions of sections 30 and 31, T 18 S, R 2 W; sections 36, 25, 26, 35, and 34 in T18 S, R 3 W; and sections1, 2 and 3 in T 19 S, R 3 W.
Wildgoose is located in portions of sections 22, 23, 24, 25, 26, and 27, T 19 S, R 3 W.
Holden Springs is located in sections 6, 7, 8, 9, 10, 17 and 18, T 20 S, R 3 W; and section 12, T 20 S, R 4 W.
Pioneer is located in portions of sections 31 and 32, T 20 S, R 3 W; and sections 4, 5, and 6, T 21 S R 3 W.
Frampton Heights is located in sections 1, and 12, T 21 S, R 4 W.
Horse Hollow is located in sections 35 and 36, T 21 S, R 4 W; sections 1, 2, and 12, T 22 S, R 4 W and a small portion of section 36, T 22 S, R 3 W.
Meadow is located in sections 7, 8, 18, 19, 20, 29, 30, 31 and 32, T 22 S, R 41/2 W; and sections 13, 24, 25 and 26, T 22 S, R 5 W.

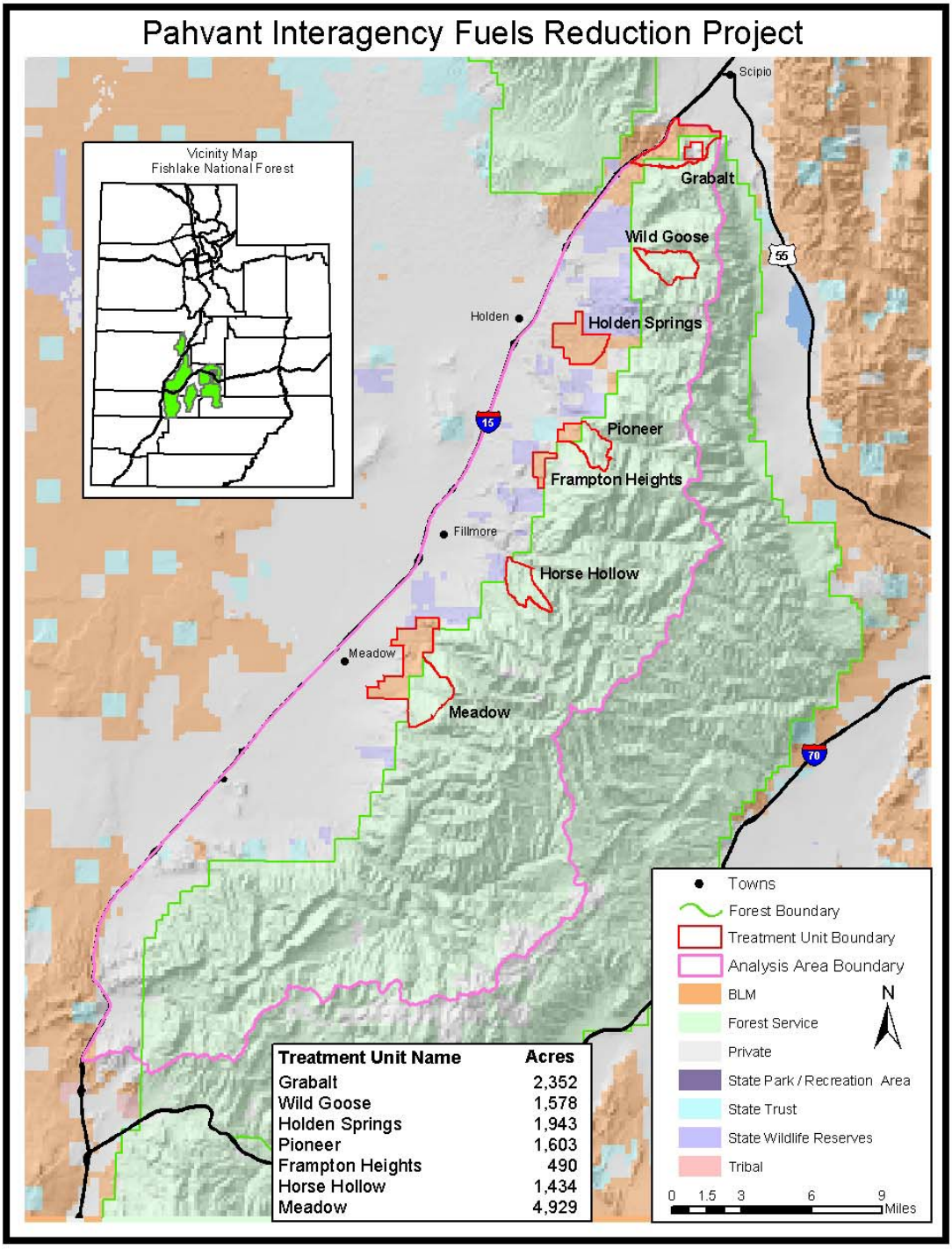

Figure 2 Map showing the Treatment Units within the Pahvant Interagency Fuels Reduction Project Area.

IV. Environment

The Pahvant Interagency Fuels Reduction Project Area is located on the western slopes of the Pahvant Range. It is bordered by Scipio Valley to the north, the Pahvant Valley to the west and the Canyon Mountains in the northwest. Topography ranges from low hills dominated by pinyon, juniper forests to sagebrush covered, gently sloping alluvial fans. Steep slopes with maple and Gambel's oak exist as well as high ridges with mountain mahogany. Elevation varies from 5020' to 8040' above sea level.

The geology of the project area, according to Hintze (1980), consists of Cambrian deposits of Tintic Quartzite and Ajax Dolomite, Triassic/ Jurassic deposits of Navajo sandstone near the southern portion of the project area. Indianola Formation makes up the range top near the middle of the project area; Price River Formation forms the range top in the northern portion of the project area. Finally, valley fill from the Salt Lake Formation has created Scipio Pass.

Alluvial fans have formed along the base of the mountain range. The drainages of the area contain gravelly alluvium deposits while the ridges are primarily colluvium. Soil types consist of silt to sandy silt deposits. Dolomite outcrops can bee seen high on the ridges in the northern portion of the project area. Red sandstone is exposed in the southern portion near Meadow and Kanosh. Talus slopes are located on the steep slopes facing Pahvant Valley.

The climate within the project area is semiarid. The majority of the precipitation comes during the winter months. In Fillmore the average annual precipitation is 35.6 cm. Winters are cold, while the summers are hot and dry.

Vegetation within the project area consists of an Upper Sonoran Life Zone, which reflects the semiarid climate. Hills and ridges are dominated by pinyon *(Pinus edulis)* and juniper *(Juniper sp.)* woodlands. Sagebrush *(Artemisia spp.)* and a variety of bunch grasses can be found among the trees. Cheatgrass *(Bromus tectorum)* is also common.

Wildlife includes mule deer, elk, turkeys, mountain lions, trout, owls, raptors, and chipmunks. Deer and elk tend to live higher on the range until snow forces them to lower elevations in search for food. Areas along the range are migratory routes for wildlife and others areas are considered critical winter range for the ungulates. Tradition stories from the Kanosh Band of the Paiute Tribe tell of mountain goats, wolves, bear and mountain lions. Small numbers of bear and mountain lion may continue to live on the Pahvant Range, but mountain goats and wolves no longer occupy the area.

Permanent water sources exist within and around the proposed treatment units. Several springs exist along the western slope of the Pahvant Front Range. Five creeks are located in the area; including Pioneer, Wildgoose, Chalk, Walker and Meadow Creeks. These are year-round water sources. Spring run off fills the drainages with ephemeral water sources as winter snows melts from the Mountain Tops.

V. Cultural History

Paleoindian

Cultural occupation of Utah may have begun as early as 12,000 years before present with the Paleoindian Phase (12,000-8000 Y.B.P.). People during this time are believed to have relied on Pleistocene megafauna hunting for subsistence. Lithic technology supports this theory with the presence of large Clovis and Folsom fluted projectile points on Paleoindian sites. The Paleoindians lived in small groups that were relatively mobile. The sites in Utah are generally small suggesting a brief occupation of the site.

Paleoindian sites in Utah are relatively rare. This may be due to the low population density of Paleoindian people or lack of preservation of cultural materials. Danger Cave in the Eastern Great Basin yielded Paleoindian occupational evidence in the lowest cultural level. Radiocarbon dates from charcoal recovered from a hearth in the lowest level of cultural occupation placed deposits around 10,300 Y.B.P. (Jennings 1978). Two open-air Paleoindian sites are located west of Delta, Utah. The Hell'n Moriah Clovis Site (42Md1067) represents a unicultural lithic scatter (Davis et. al. 1996). Seven Clovis points or point fragments were recovered from the site. 42Md300 is located on a terrace of Lake Bonneville (Simms and Lindsay 1985). Several projectile points were recovered from the site including Folsom, Meserve, Western Stemmed and Crescent as well as other point types associated with Paleoindian cultures. Radiocarbon samples from test excavations were dated between 9,500 and 7,700 B.P.

Archaic

As the megafauna died off, so did the Paleoindian tradition, which made way for a change in subsistence strategy. As the Pleistocene ended, a climatic change made the area warmer and more arid. Flora and fauna adapted to the climatic change, as did the prehistoric cultures. Lithic technology shifted to smaller, notched points that were hafted to atlatl darts. The emergence of ground stone artifacts indicates an increasing importance of plants to Archaic subsistence. Artifacts became much more diverse during the Archaic Period. Netting, moccasins, digging sticks, bone tools and basketry are examples of artifacts recovered from Archaic sites. As the Archaic Period progressed, sites begin to move out of the lowlands to the upland regions of the area.

The Archaic Period is broken into three phases, Early, Middle and Late based on projectile point types. Pinto, Humboldt and Elko series projectile points represent the Early Archaic Period. Gatecliff Split Stem points emerge during the Middle Archaic. This is when the archaeological evidence indicates increasing reliance on upland flora and fauna. During the Late Archaic, a major shift begins to be seen. People move out of the caves and shelters that were previously occupied and away from the lakes. This move may be due to increased precipitation during this time that caused lakes to cover wetland areas (Jennings 1978). One cave site from this phase has been excavated. Crab Cave is located in Juab County and dates between 2,500 and 1,500 B.P. Projectile points are much smaller Rose Spring and Eastgate series and may indicate the appearance of the bow and arrow.

Formative

After 2500 B.P., evidence of the Fremont Tradition can be observed. In the area of this project, the culture is referred to as the Sevier Fremont. Three main patterns identify the Fremont Complex (Madsen 1989). The first is the domestication of plants. Maize and other plants were first cultivated around the Southern Wasatch Plateau between 2500 and 2000 years ago. Second, a material culture associated with domesticated plants emerged between 2000 and 1500 years ago. Several items including pottery, storage pits and grinding stones were added. By 1500 years ago, the subsistence and material culture changes had radiated out covering much of the Fremont region. The third common trait of the Fremont Complex is a change in dwellings. Structures changed from being small and thin-walled to larger semi permanent and permanent buildings. These architectural changes took place between 1750 and 1250 years ago. The change from a hunter-gatherer society to a sedentary, horticultural society defines the Fremont Tradition. Several large Fremont sites have been excavated in the area including Five Finger Ridge in Fremont Indian State Park, Backhoe Village, Pharo Village and Kanosh

Numic

Between A.D. 1000 and A.D 1350., Numic speaking cultures of the Paiute, Ute and Goshute immigrated into the Great Basin area from Southern California (Grayson 1993). These cultures resembled the Archaic cultures more closely than they did the preceding Fremont cultures. They practiced hunter-gatherer subsistence, which was supplemented by some domesticated maize. Other resources utilized by Numic cultures included pinyon nuts, sedge fruits, marmots and ground squirrels. These resources were available at different times of the year and suggest that they may have been stored. Other characteristics include the Desert Side-Notched projectile point, brown ware ceramics, basketry, wickiups and brush shelters. The pottery is course tempered, unpolished and undecorated (except for occasional fingernail incisions), which contrasts Fremont pottery. Based on ethnographic accounts, it was the Pahvant Utes who occupied the area at the time of European contact. While camping northwest of Pahvant Butte, the Fathers Dominguez and Escalante encountered a band of Southern Paiutes. Escalante's journal describes the Natives as "full- bearded and pierce-nosed ones" (Chavez 1995:79).

Historic

According to the Dominguez and Escalante Journal (Chavez 1995), the Fathers traveled through Scipio Pass before turning west and traveling along Eightmile Creek in the Church Hills, west of the project area on October 1, 1776. They noted rocky hills and sagebrush and at the time of their expedition, Eightmile Creek was dry. They headed to Pahvant Butte for the night and continued west then south on their way back to Santa Fe. From 1821 to the 1840's traders and trappers established trade routes through Utah. Mormon pioneers settled in the Salt Lake Valley in 1847 and proceeded to found many communities including Fillmore. In 1848, Utah was acquired from Mexico when the Mexican and American War ended. It became a territory in 1850 and from 1851 to 1856 Fillmore was the Territorial capital. The Mormon settlers had numerous hostile encounters with the Native Americans as they competed for resources. The town of Cedar Springs (now Holden) was founded in 1855. Due to the Indian conflicts, residents first constructed a fort inside which the community would be built. In the 1870's, the Ute

populations abandoned the area and settled on the Uintah Reservation. The Kanosh Reservation exists near the project area. The Kanosh Band of the Paiute Tribe occupies this reservation today. The EuroAmerican residents of the area surrounding the western slopes of the Pahvant Front Range began irrigating fields and today the area is still primarily used for agriculture. Evidence of historic logging activities is common within the Project Area by historic stumps and segments of old logging trails through the hills.

VI. Impacts

Three basic threats to historic properties must be considered in order to identify the resources that may be impacted by the proposed project.

1. Threats from fire itself; heat intensity and duration
2. Threats from fire control activities
3. Threats from post fire erosion and erosion control activities

Certain types of cultural resources can be impacted by exposure to high temperatures and prolonged exposure to heat. Bennett and Kunzmann (date unknown) have conducted experiments to determine the temperature at which damage occurs for different material types. Lithic and ceramic artifacts begin to show damage from temperatures around 500° C. Historic glass will begin to melt at the same temperature. Bone is damaged when temperatures reach 300° C. Subsurface material is not impacted by fire, as temperatures below ground remain cool.

Ground disturbing activities from fire control activities, such as hand lines and staging areas will impact cultural resources. Post fire erosion can cause displacement of sediments on archaeological sites.

VII. Identification of Heritage Resources-At-Risk

"Resources-at-risk" refers to resources that: 1) have some potential to be important (eligible to NRHP); and 2) the important characteristics of resources that have a reasonable potential to be substantially damaged or destroyed by the nature of the proposed fire activity.

The resources types that are known to exist, or are expected to exist within the treatment units have been assessed as either High Risk or Low Risk sites. High-risk resources have potential to be impacted by the proposed project. Low risk resources are unlikely to be effected by the proposed action.

HIGH RISK

- *Historic sites with standing or downed wooden structures or other flammable features*
- *Rock Art Images*

- *Prehistoric sites with flammable architectural elements and other flammable features*
- *Prehistoric artifact scatters located in potentially unstable geomorphological settings*
- *Historic and prehistoric sites with the potential for hearths and datable charcoal or other fire sensitive deposits*
- *Prehistoric and historic cemeteries*
- *Culturally modified trees*
- *Traditional Cultural Properties (based on consultation with tribes)*
- *Rockshelter sites*
- *Cultural landscapes*

LOW RISK

- *Prehistoric and historic sites with deeply buried cultural deposits*
- *Prehistoric and historic artifact scatters in stable settings*
- *Prehistoric and historic sites with non-flammable surface features*
- *Historic earthworks*
- *Sites determined ineligible for inclusion to the NRHP. Eligibility determinations are based on Criteria established in the 36CFR 60.4*

VIII. Previous Surveys

An archival records search was conducted at the State Historic Preservation Office (SHPO), Fishlake National Forest Service office in Richfield and the Fillmore BLM field office in April 2003. Records indicated several previous surveys and sites recorded within and around the current project area.

A search was conducted of the General Land Office (GLO) maps located in the Fillmore BLM office. Several historic roads and one telegraph line are recorded on the GLO maps within the project area. No historic cabins or homesteads were recorded.

A total of 9889 acres have been inventoried for cultural resources within and near the Pahvant Interagency Fuels Reduction Project Area. These projects resulted in the recording of 117. A total of 487 acres (3%) have been surveyed within the boundaries of proposed treatment units. These surveys have identified a total of 15 sites. The results of all the previous surveys have been compiled to determine the resources that are anticipated during any additional fieldwork.

IX. Determining Effects to Resources

Prehistoric lithic scatters are the most common site types within the project area. They are very unlikely to sustain considerable damage from low intensity heat of prescribed fire. The fire will be allowed to burn over lithic scatters unless the soil type or fuel loading requires additional protection.

Sites with subsurface features do not sustain considerable damage during low intensity prescribed burning. Sites with these features may need some fuels reduction on or around the sites in order to reduce temperatures of the fire.

Historic sites tend to have numerous artifacts that can be affected by the heat of fire. Glass artifacts have been observed to melt into unidentifiable masses during wildfires. Lower temperature prescribed fire lessens the damage to these artifacts, but historic sites may require some effort to reduce the heat intensity on the site.

Rock art and culturally modified trees can be severely damaged or destroyed from smoke or high heat intensity of the fire. Higher temperatures can cause spalling or breakage and possible deterioration of the rock or burning of the trees. Sites with rock art and/or culturally modified trees will require protection from heat and smoke damage. Since each site may require different tactics, fire personnel and archaeologists will work together to determine the necessary measures (hand lines, black lines, fuel reduction, etc…) in order to avoid impacting the sites.

Burial sites are considered sacred places to Native American Cultures and special protection is given to the protection of these types of sites. Any known burial site will be completely avoided. The extent of the avoidance will be established through consultation and coordination with interested Native American Tribes.

X. Avoidance and Protection Measures

Prior to ignition of prescribed fires, a cultural resources inventory must be completed to identify, evaluate and protect significant archaeological resources. Fire is a natural occurrence and has been occurring in the area long before the first human occupation. Most, if not all, archaeological sites have been burned over at one time or another. Cultural surveys for prescribed fire are conducted differently than other archaeological surveys. Sample surveys are acceptable, with concurrence from the State Historic Preservation Office (SHPO). Numerous experiments have determined which resources are most vulnerable to damage from the heat and smoke of fire. Therefore, emphasis is placed on locating sites that will be directly impacted by the project.

By compiling cultural data that exists for areas within and near the current project location and conducting statistical analysis, the cultural resource types that are most likely to occur within the proposed treatment units have been identified. Mitigation measures based on site and artifacts types have been defined. Additionally, the most probable locations of cultural resources have been identified. Site location patterns can be used to determine the size of the sample survey, and define a strategy that will promote the discovery of fire sensitive resources and areas with high site density potential.

Historic properties at high risk that cannot burn over will be protected through the use of natural topographic features, previously constructed roads, fuel breaks, and non-ground disturbing techniques such as wet lines and black lines.

Other protection measures include hand-thinning fuels from within and around site boundaries to reduce heat intensity and duration on sites. Specific protection measures are identified in Table 1.

TABLE 1 Heritage Resources Site Identification and Treatment measures for Pahvant Interagency Fuels Reduction Project.

Resource Type (SITE TYPE)	Attributes at risk	Risk Conditions or Activities	Management Objective	Treatment alternatives
Lithic scatters and prehistoric sites with subsurface deposits	Surface artifacts Surface features Subsurface hearths	Devegetation, erosion, new carbon introduced into features, mineral soils exposed	Maintain anchoring vegetation, eliminate root burn, Maintain vegetation cover	Allow to burn over, Hand remove all woody fuels from ground, hand cut trees, Monitor for erosion
Historic sites	Surface artifacts Surface features Subsurface hearths	Devegetation, erosion, new carbon introduced into features, mineral soils exposed	Maintain anchoring vegetation, eliminate root burn, Maintain vegetation cover	Hand remove all woody fuels from ground, hand cut trees, Monitor for erosion
Rock Art sites and Culturally Modified Trees	Native American Religious Concerns Surface Features	Smoke Blackening, Rock Spalling	Maintain anchoring vegetation, eliminate root burn, Maintain vegetation cover	Hand remove all woody fuels from around site, hand cut trees, Monitor for erosion
Burial Sites	Native American Religious Concerns Subsurface Features	Devegetation, erosion, new carbon introduced into features, mineral soils exposed	Maintain anchoring vegetation, eliminate root burn, Maintain vegetation cover	Fire will not be allowed to burn over Burial Sites

XI. Additional Fieldwork

Sample Design

Archaeological survey for the Pahvant Interagency Fuels Reduction Project will consist of intensive inventory of up to 25% of each treatment unit. The sample size and locations will be determined based on the results of previous surveys and natural topography. The previous survey results will help determine the probable locations of cultural resources. The sample surveys will be designed to cover the areas with the highest site density and to identify sites that have been determined to be sensitive to fire.

Any number of sites will not be identified through the use of a sample survey. A probability exists that a low number of fire sensitive sites will not be identified during the cultural survey. These sites may be impacted by the proposed project, either directly or indirectly. Through the design of the sample, this likelihood has been significantly reduced. Sites that are located in the unsurveyed portions of the treatment units will most likely be lithic scatters, which should not sustain substantial damage from the prescribed fire. Archaeologists will work with the Fire Boss to establish areas where low intensity fire must occur. These areas can include resource areas and areas that are not covered by the sample survey. This will further decrease any damage to unevaluated heritage resources.

The fieldwork will also include 100% survey of any areas where ground-disturbing activities will occur. This will include any mechanical or hand fire lines, or staging areas. Also, post-fire monitoring of sites will take place. Any sites identified during the sample survey that are at high risk for substantial erosion or other types of damage will be monitored for up to 10 years after project implementation.

Project Methodology

Pedestrian transects spaced 15 meters apart will be the inventory method in order to survey 100% of the sample areas. Sample areas will be identified in the following sections. The sample design will be based on results of previous surveys and recorded sites in the vicinity. This data will be used to identify higher site density and areas where fire sensitive sites are more likely to occur.

An archaeological site shall be defined as greater than 10 artifacts of the same type and material within a 5 square meter area. As the number of artifact types and/or materials increases, the size limits also increase. For example, one flake, one sherd and one mano within a 15 square meter area may be considered an archaeological site. Some discretion is left to the professional archaeologist with years of experience. The boundary of a site is determined when another artifact is not encountered for a distance of 30 meters. Sites are documented on Intermountain Antiquities Cultural Sites (IMACS) forms. The site is plotted onto a 1:24,000 scale topographic map, either by hand or using a GPS unit. Sites are photographed and a sketch map is created. The determination of eligibility to the National Register of Historic Places is based on criterion established in the Code of Federal Regulations 36.60.4.

Cultural resources that are not considered part of a site are recorded as isolated occurrences. Isolated occurrences are described and the location is plotted, but the documentation is not as thorough as it is with sites

XII. Unanticipated effects

If any previously unidentified and unevaluated cultural resources are found which may or have been damaged by the undertaking, the resources will be evaluated. The evaluation will determine whether protective measures have failed or resources were affected in unanticipated ways. Procedures for discoveries and unanticipated effects as described in 36CFR 800.13 (b-d).

XIII. Consultation

Tribal consultation has been initiated by BLM and FS and will be ongoing through the project. Various tribes have requested field visits to certain treatment units prior to project implementation. Tribes have also requested that consultation continue throughout the duration of the project.

Consultation with the Utah State Historic Preservation Office (SHPO) has been initiated and will continue to be conducted throughout the duration of the project. The Utah SHPO has approved the sample survey design and methodology. In accordance with Section 106 laws, any additional fieldwork and site eligibility determinations will be submitted for compliance prior to treatment.

XIV. Summary

Through the compilation of previous archaeological work conducted within and in the vicinity of the Pahvant Interagency Fuels Reduction Project, sites types and locations have been identified. This information has been used to establish sample survey plots in order to most effectively identify areas where fire sensitive sites are located and areas with an expected higher site density. General recommendations have been established to reduce the impacts to cultural resources that are expected to be located within the project area. These include fuel reduction on or around the sites, hand lines or black lines to protect sites from fire and have identified the need to consider indirect impacts before they occur.

One benefit of the proposed project on heritage resources will be the identification of new archaeological sites. Once these sites are identified and recorded, valuable information is documented. Federal laws can properly protect the sites that are determined eligible. The sites can be monitored for artifact collecting or looting. In the likely event of a wildfire, some site locations will be known so they can be avoided during fire suppression activities, like bulldozer fire lines.

Some cultural resource surveys have been conducted within the proposed treatment units. The SHPO has concurred with the results of those surveys. Cultural resources surveys

would be completed for the remainder of the treatment units. Concurrence from the SHPO would be obtained prior to implementation of the proposed action on those units.

No ground-disturbing activities would be conducted through known National Register of Historic Places eligible sites. In areas not previously inventoried an archaeologist would be present to monitor any ground-disturbing activities. Eligible sites would be protected through the use of firelines or hand thinning of fuels within and around site boundaries to reduce heat intensity and the duration of fire on sites. Coordination with agency cultural resource specialists will ensure proper application of mitigation measures for known sites and any sites discovered during project implementation.

Appropriate mitigation measures to protect cultural resource sites will be utilized during project implementation. There will be no adverse effects to heritage resources eligible to the National Register of Historic Places.

XV. Recommendations

No ground disturbing activities will occur through areas that have not been inventoried for cultural resources. This includes the construction of hand lines or any other firebreaks that disturb the surface of the soil. The BLM FFO or Fishlake NF archaeologist will receive prior notification of any ground disturbing activities. These activities will be monitored through areas where archaeological sites may be present.

Cultural material identified by fire crews will be reported to the responsible archaeologist, through the appropriate line of command. It will be the responsibility of fire personnel to disclose the locations of such materials to the archaeologist by providing a map plot, GPS point or a field visit to the area.

Pile burning will not occur if a pile is placed atop a cultural site. Fire crews will be required to move the slash to an area outside the boundary of the site. A Cultural Resource Specialist will monitor this activity to insure placement of slash in an area devoid of cultural materials

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