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Julius Park Vegetation Management Project

Vernal Ranger District, Ashley National Forest
Uintah County, Utah

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INTRODUCTION

Summary and Background

We are proposing to implement the following vegetation management treatments on National Forest System lands in the Julius Park area of the Vernal Ranger District, Ashley National Forest (the Forest): approximately 211 acres of shaded fuel breaks, 26 acres of clearcutting, 148 acres of overstory removal, 92 acres of improvement cutting, 48 acres of sanitation and salvage, 215 acres of commercial thinning, and 89 acres of pre-commercial thinning (overstory removal would occur prior to the pre-commercial thinning on 65 of the 89 acres). The 764 acres of above described treatments would take place in a project area of approximately 1,057 acres in size. Forested vegetation in the area consists mostly of lodgepole pine, with some mixed conifer (spruce and fir) becoming the dominant species in approximately 30% of the project area. A total of up to 1 mile of short sections of temporary road, which would be closed and rehabilitated upon project completion, may need to be constructed to access landing areas. This project would improve long-term forest health and maintain ecosystem functions (including historic fire regimes) by influencing tree species composition; moderating stand densities; and adjusting stand structures and spatial patterns, while protecting, maintaining, or improving water and soil resources.

The Julius Park area has an extensive history of timber harvesting and other uses. Several old sawmill sites have been noted in the project area and a small body of water in the northern area of the project is named Mill Pond. The project area is also used heavily for recreation. The Paradise Park Reservoir, Paradise Guard Station, and Paradise Campground are located in the northern portion of the project area and the entire area around the reservoir is a popular destination for dispersed camping.

There has been substantial mountain pine beetle caused tree mortality in the project area and environs. This, in combination with the additional accumulation of broken tree tops from a heavy, wet snowfall event that occurred a few years ago, has contributed to high fuel loading in the area. Also, many of the regenerating stands in the area are currently susceptible to infestation by lodgepole pine dwarf mistletoe.

We did not identify any significant issues or unresolved conflicts concerning alternative uses of available resources during this analysis that required us to develop any alternatives to the proposed action. The proposed action, implemented with those project design elements and mitigation measures discussed later in this document, would have no significant effects on the environment. Expected non-significant effects from the proposed action are discussed in the *Environmental Consequences* section of this document.

Based upon the environmental analysis, the responsible official will decide whether the proposed action will proceed as proposed or not at all. If it proceeds, the responsible official will also decide what mitigation measures and monitoring requirements to apply.

Document Structure

The Forest Service has prepared this environmental assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This environmental assessment discloses the direct, indirect, and cumulative environmental impacts

that could be expected to result from the proposed action. The document is organized into the following sections.

Introduction: This section includes summary and background information as well this explanation of document structure.

Purpose, Need, and Objectives: This section discusses the purpose of and need for the project and details the project objectives.

Involvement, Issues, and Alternatives: This section details how the Forest Service informed the public of the proposal and any issues that arose during scoping and analysis. It also describes any alternative methods analyzed for achieving the stated purpose and need. Alternatives are developed in response to any significant issues raised by the public and other agencies.

Proposed Action: This section provides a detailed description of the agency's proposed action. It also includes proposed project design criteria and mitigation measures.

Relevant Laws and Policies: This section provides a brief overview of some of the relevant laws and policies that were considered during the analysis.

Environmental Consequences: This section describes the expected environmental effects of implementing the proposed action. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the expected environmental effects of each alternative. This section is based on specialist reports which used the best available scientific data and information in their determinations of effects and in their recommendations of mitigation measures. Evidence of the consideration of best available science may be found throughout the analyses and literature reviews in the specialist reports, throughout this document, and throughout the entirety of the project record.

Agencies and Persons Consulted: This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

Appendices: Appendix A contains vicinity and project area maps. Appendix B contains all comments submitted during the scoping period and our responses to them.

Additional documentation, including more detailed analyses of project area resources, may be found in the project planning record located at the Vernal Ranger District office in Vernal, Utah.

PURPOSE, NEED, AND OBJECTIVES

Purpose of and Need for the Proposal

A significant level of tree mortality has occurred in the project area as a result of past and current mountain pine beetle infestations. Most of the mortality occurred over 5 years ago and yet many of the trees still retain some economic value. Some recent mortality has also occurred as the mountain pine beetles have again increased in numbers due to proximity to nearby infestations. Heavy mortality has been observed 10 to 15 miles west of the project area over the past several years, and within the last 2 years a detectable increase in mortality has been observed only a couple of miles west of the proposed project area.

This mountain pine beetle mortality has contributed to high fuel loading in the project area. In addition a heavy wet snowfall event, approximately 6 years ago, broke the tops of many trees in the project area. The broken tops also made a significant contribution to the high fuel loading in the area. Some areas have over 50 tons per acre of fuel accumulation. The area is popular for numerous recreational pursuits, and the high fuel loading creates a public safety concern to recreationists in the area.

There is substantial potential for continued mortality and reduced tree growth due to forest pests and similar weather events. The future impacts of mountain pine beetle, lodgepole pine dwarf mistletoe, and snow and ice damage can be mitigated by managing forest stand composition, density, and structure. Maintaining tree growth and vigor would help reduce loss from damaging biotic agents and environmental events.

The purpose of this project, as stated in the *Introduction*, is to improve long-term forest health and maintain ecosystem functions (including historic fire regimes) by influencing tree species composition; moderating stand densities; and adjusting stand structures and spatial patterns, while protecting, maintaining, or improving water and soil resources.

Consequently, the proposed project would include the harvest of wood fiber to meet the following objectives.

Project Objectives

1. Improve the resilience and adaptive capacity of the forest stands within the project area.

2. Promote tree vigor and form to minimize the future impacts of forest pests, such as mountain pine beetles and lodgepole pine dwarf mistletoe, and to minimize damage from abiotic factors, such as wind and snow.

3. Reduce the risk of uncharacteristic or unacceptable wildfires by reducing hazardous fuel loading.

4. Maintain or improve long-term range conditions, water quality, and watershed conditions.

INVOLVEMENT, ISSUES, AND ALTERNATIVES

Public Involvement

The proposal has been listed in the Forest's quarterly schedule of proposed actions (SOPA) since October 2011. On February 1, 2012, we published a legal notice in the *Vernal Express* advertising a 60-day scoping period (ending April 1, 2012) during which time we accepted public comments on the proposal. Additionally, we mailed a scoping letter to 180 individuals and organizations on January 25, 2012 and emailed a scoping letter to 68 individuals and organizations on February 6, 2012.

We received comments from five individuals and organizations in response to these efforts. See Appendix B for our responses to these comments.

Using the input from those interested publics and agencies who commented on the proposal, as well as preliminary specialist input, the interdisciplinary team developed a list of issues to address.

Issues

Potential issues considered during the analysis included the following.

- Effects on terrestrial wildlife and aquatic species, including federally listed species, sensitive species, management indicator species, migratory birds, and other species of interest
- Effects on soils and water, including ponds and wetlands in the project area
- Effects on recreation, scenic values, transportation, and inventoried roadless areas, as well as the role of forest health education and interpretation
- Effects on heritage resources
- Effects on forested vegetation and old growth
- Effects on fuels and fire
- Effects on plants, including federally listed and sensitive species
- Effects on range and noxious weeds

None of these issues surfaced as being significant enough during analysis to prompt the development of an alternative. Project design criteria and mitigation measures (detailed in the *Proposed Action* section below), as well as current Forest Service practices and efforts (see Appendix B), alleviate these potential concerns.

Other Alternatives Considered

No unresolved conflicts concerning alternative uses of available resources were identified, therefore no additional alternatives are analyzed in this document (36 CFR 220.7[b][2][i]). One respondent to scoping commented that an interpretive sign could be erected in lieu of implementing the project. Increased interpretation could and may be done alongside the proposed action as well as if no action is taken, however, as interpretation in and of itself does not fulfill the purpose of and need for the project and is outside the scope of the project, we did not consider the erection of a forest health interpretive sign as a stand-alone alternative.

PROPOSED ACTION

Location of the Proposed Project Area

The project area is located approximately 18 miles north northwest of Lapoint, Utah and can be reached by traveling up Mosby Mountain on the Paradise Park Road (Forest Road 104). The project area is located on Hen Lee Bench and is bracketed by Paradise Reservoir on the north,

Mosby Canal on the east, and Julius Park Reservoir on the south. See Appendix A for a vicinity map and project area map. The legal description of the project area is:

> Uintah Meridian, Township 3 North, Range 1 East, all or portions of sections 7, 8, 17, 18, 20, 28, and 29. Salt Lake Meridian, Township 2 South, Range 18 East, portions of sections 3, 4, 9, 10, 15, 16, and 22.

Proposed Action

The proposed action includes the removal of some of the down and dead trees to capture the economic value of these trees and to reduce hazardous fuel loading; it also involves the removal or manipulation of other material that has no commercial value to reduce fuel loading and fire hazard. This project would manipulate tree species composition, stand density, and stand structure to maintain a diversity of Vegetative Structural Stages (VSS), minimize future forest pest losses, and to promote healthy, strong, and vigorous trees. The majority of the treatment area (70%) is dominated by lodgepole pine, with the remaining 30% being dominated by mixed conifer (spruce and fir) stands. Stewardship contracting authorities may be used to implement this project.

Proposed treatments would occur on approximately 764 acres of the 1,057-acre project area and include the following.

Shaded Fuel Breaks: Approximately 211 acres of shaded fuel breaks are proposed. Vegetation would be treated in the fuel breaks to approach fuel and fire characteristics for a fuel model 8[1]. Most of the area is currently a fuel model 10[2]. Partial removal of both live and dead understory vegetation would occur. Additionally, pruning of branches on remaining trees in the fuel break from ground level up to a height of 8 feet may also occur. Dead and down fuels would be reduced to approximately 10 tons per acre, through a combination of prescribed fire treatment, chipping, or removal. Vegetation treatment would include dead and damaged tree removal; additionally, mostly sapling and pole size trees would be removed to reduce the residual tree density to 180 to 300 trees per acre.

Clearcutting: Approximately 26 acres of clearcutting are proposed. This would be a regeneration treatment in small units where there has been heavy mortality, where there are few vigorous trees, and where there is little or insufficient regeneration present. Clearcut units would be limited to 10 acres in size.

Overstory Removal: Approximately 148 acres of overstory removal are proposed. This would be a regeneration treatment in areas where a manageable understory of seedlings or saplings is already present. We are proposing the removal of the overstory to promote the development of the understory and to reduce the future impact of dwarf mistletoe. The

[1] Fuel model 8 is a timber group fuel model characterized by slow-burning ground fires with low flame lengths, although fires may encounter occasional heavy fuel concentrations that can display more active fire behavior. This fuel model only poses a fire hazard under severe weather conditions involving high temperatures, low humidities, and high winds. (Anderson 1982)

[2] Fuel model 10 is a timber group fuel model characterized by greater fire intensity than the other timber litter models. Heavy amounts of dead and down material are present. Crowning out, spotting, and torching are more frequent in this fuel situation, leading to potential fire control difficulties. (Anderson 1982)

overstory trees in these areas are generally scattered, diseased, damaged, have poor form, or are of poor health and vigor.

Improvement Cutting: Roughly 92 acres of improvement cutting are proposed. This is an intermediate treatment to remove damaged, poor form, and poor vigor trees. Some dead and diseased trees may also be removed. Many of the trees removed would have dead tops, broken tops, and forked tops. This treatment would maintain a two-storied or uneven-aged stand structure and a mixed species composition of lodgepole pine and Engelmann spruce. This treatment would permit the future use of either even-aged or uneven-aged silvicultural systems depending on management objectives.

Sanitation and Salvage Cutting: This treatment is proposed for approximately 48 acres. This would be an intermediate treatment to remove dead and diseased trees. Dwarf mistletoe is the most prevalent tree disease in this area. A widespread regeneration event is not anticipated from the proposed treatment, although the harvest may be heavy enough in small isolated areas to create conditions favorable for lodgepole pine to regenerate.

Commercial Thinning: Approximately 215 acres of commercial thinning are proposed. This is an intermediate treatment designed to promote individual tree growth, good tree form, and tree vigor by managing stand densities. The treatment would remove trees most frequently from the intermediate and suppressed crown classes to reduce the residual tree density to 120 to 300 trees per acre; live trees removed would generally range in diameter at breast height (DBH) from 2.5 to 10.0 inches. Some dead and damaged trees may also be removed.

Pre-Commercial Thinning: Approximately 89 acres are proposed for pre-commercial thinning. The purpose of this treatment is to promote individual tree growth, tree form, and vigor by managing stand densities. This treatment would follow an overstory removal treatment on approximately 65 acres and would be the only treatment on the remaining 24 acres. Trees generally less than 6 inches DBH would be removed to reduce the tree density to approximately 300 trees per acre.

A total of up to 1 mile of short sections of temporary road may need to be constructed to get to landings. Specific locations would be determined during implementation in association with the identification of landing areas. All temporary roads would be closed and rehabilitated upon project completion. Closure techniques would involve blocking off access with boulders and dropped trees and slash. Re-seeding would occur if necessary.

Approximately 293 acres within the project area would be deferred from any kind of treatment at this time. These areas may be treated at some future time, but there is no proposal to harvest trees or manipulate the vegetation in these areas in the foreseeable future. Any possible future treatment of these deferred areas would be covered with subsequent NEPA analysis and decision documents.

Design Features

Design features are project specific measures or practices that would be followed to ensure that all regulatory requirements are met and that any potential negative consequences of the action are either reduced to acceptable levels or are eliminated.

Fisheries, Aquatics, Water, and Soils

SOIL & WATER 1. *Buffers*. Equipment would be excluded from riparian zones according to the following buffers. See map 3 in the 4/30/2012 hydrology specialist report in the project record for a depiction of relevant portions of the buffers.

- 300 feet from fish-bearing perennial streams, i.e. Paradise Creek. Also, areas to be treated adjacent to Paradise Creek's buffer would be reviewed after cutting and burning to determine if further measures may be needed to mitigate sediment delivery to the creek, such as laying mulch and/or seeding.
- To avoid sedimentation into the reservoirs, relevant buffers around Paradise Park and Julius Park reservoirs would be delineated by the District hydrologist prior to project implementation.
- 150 feet from standing water, including around Mill Pond, Tool Box Park, the meadow across from the Paradise Guard Station, various pothole features, and other unnamed ponds and wetland features in the project area. Wetland features would be located, identified, and marked prior to project implementation.
- 100 feet from intermittent and ephemeral streams, i.e. the ephemeral stream in the Dry Fork – Twin Creek watershed and its associated wet meadows.
- 100 feet from the open ditch sections of the Mosby Canal. Equipment would not operate on top of the canal. We would contact the canal company to identify appropriate locations to cross the canal if access is needed from the eastern boundary.
- We would avoid operating machinery in seasonally wet meadows.
- We would locate transportation facilities for mechanical vegetation treatments, including roads, landings, and main skid trails, outside of the above buffers to the extent practicable.

SOIL & WATER 2. *Coarse woody debris*. To mitigate for ground disturbance and to reduce soil loss, logging debris would be broadcast or left in place where possible. Five to 10 tons per acre of coarse woody debris would be left on the forest floor as a long-term source of carbon to sustain soil and the forest system.

SOIL & WATER 3. *Slash piling and burning.*

- No piling and burning of woody debris would occur within 50 feet of any meadows; however, broadcast burning would be allowed within the buffers as deemed necessary to reduce hazardous fuel loadings.
- If machine piling, a brush rake or grapple would be used to avoid damaging soil and to reduce the amount of soil that is incorporated into piles.
- Machine piling would be done when soils are drier than field capacity[3], frozen, or are covered with a continuous snow cover.

[3] Field capacity is the maximum amount of water that a soil can hold before the water is drawn away by gravity. If a field grab soil sample (taken from where it appears wettest in the top 12 inches [30

- When possible, machine piles would be placed on rocky areas or already disturbed sites such as landings, roads, and skid trails.
- Slash piles would be burned when soils have ≥30% moisture, are frozen, or after snow has fallen.
- Piles would be hand piled when possible and kept small (slash pile size should be limited to approximately 10 feet high and wide).
- Piles would be spaced to avoid cumulative heat effects and would be placed a safe distance from live trees to keep fire creep in duff from impacting tree roots and to prevent tree scorch.
- Large stumps and coarse woody debris would be kept out of piles to reduce burn time duration, hence reducing the heat pulse that goes into the soil.
- As needed, sterilized pockets of soil from slash burning would be remediated by the following: 1-3 shovelfuls of unburned soil would be scooped onto the pile scar, scarified with a rake or McLeod tool, seeded with a native seed mix if available, and thinly covered with litter, slash, or chipped material if available.

SOIL & WATER 4. *Use of machinery.*

- In order to minimize soil disturbance and prevent compaction and rutting of soils, heavy equipment would not be operated during periods of high water and saturated soil conditions (i.e., during spring snowmelt, during or right after a significant precipitation event, or if soils appear wet to saturated on the surface). Work would be maximized when soils are dry, frozen 3 inches or deeper, or covered by deep and continuous snow.
- Equipment operators should stay on designated roads and trails as much as possible during project implementation.
- Equipment use would be avoided on steep slopes (>35%).
- Machinery fluids (e.g., oil, fuel, antifreeze, etc.) would not be drained onto the ground and equipment would be fueled and maintained in designated areas outside of buffers.

SOIL & WATER 5. *Road and skid trail planning.*

- Log landings, haul roads, and major skid trails would be located prior to starting project work to minimize the number needed. Old roads and skid trails that haven't rehabilitated yet would be used when possible. Cables on skidders would be employed to minimize the density of skid trails and to keep equipment out of buffers around sensitive areas (e.g., ponds, swales with meadows, wetlands).
- Where possible, skid trails and temporary roads would be contoured to parallel slopes and fit the natural terrain as much as possible. Roads would be planned to avoid sustained excessive grades of 10-20% and to avoid long, straight sections on steep slopes. Roads and trails would be located to avoid polluting or dewatering wetlands.

centimeters]) maintains a ball in the hand after being formed and squeezed, the soil is likely above field capacity.

- Road construction near Mosby Canal should be monitored to ensure sediments are not going into the canal which could lead to a canal breach.

SOIL & WATER 6. *Closing roads and skid trails.*

- Roads and skid trails would be closed as soon as possible after project completion.
- Closure methods for skid trails, temporary roads, and non-system roads would be by broadcast and scatter of logs and coarse woody debris. Similar cover would be distributed along roads and trails to reduce illegal use, to reduce visibility of the roads and trails, to add to surface roughness, and to prevent surface runoff and erosion. Entrances to skid trails and roads would be blocked by boulders rather than tank traps and berms. Ripping is not needed.
- Water bars, broad based dips, and flare ditches would be constructed as needed to prevent roads and trails from channelizing water or causing sediment to enter hydrologic features in the area.

SOIL & WATER 7. *Landings.*

- Landings would be located where excavation needs and erosion potential are minimal.
- Landings would be designed so that drainage is planned and moves surface runoff away from streams or other water sources.
- Landings would be closed with the following methods:
    - Surface would be roughed or scarified to create micro-pockets that would speed re-vegetation. Sub-soiling or ripping is not recommended.
    - Landings would be seeded as necessary (by Forest personnel) according to the methods described below in the WEEDS 1 measure.
    - Seed would be covered with a thin layer of slash, litter, chips, or other material available to anchor seed, to hold in soil moisture, and to prevent erosion.
    - Landings would be monitored for invasive species by the District soil scientist one year following project completion.

SOIL & WATER 8. *Chipping and mastication treatments.*

- Use of mastication equipment would occur when soils are dry, frozen, or have snow cover to prevent soil compaction and rutting.
- Chip depth would be kept to ≤ 3 inches (8 centimeters) and gaps would be left in the masticated material to prevent anaerobic conditions which could damage soil, water, and plants in the area.

SOIL & WATER 9. Continued stream surveys and stability assessments should be performed periodically in the stream channels and riparian zones within the project area to assure detrimental effects are not occurring. We would implement other mitigation measures as needed to help prevent sediment delivery to hydrologic features in the project area.

SOIL & WATER 10. Continued monitoring should be performed at the field monitoring locations set up by the Vernal Ranger District soils scientist to track the type and extent of forest floor disturbance, including erosion and changes in litter and bare soil. Any site found severely impacted would receive continued monitoring and any necessary remediation.

SOIL & WATER 11. We would also adhere to additional general best management practices (see pages 28-30 of the 4/30/2012 hydrology specialist report in the project record).

Fuels

FUELS 1. Forest fire and/or recreation personnel would clean up wind-throw (through mastication, removing, or piling and burning) in the vicinity of developed recreation sites and along roads for several years following project completion in order to prevent fuel build up.

Heritage

HERITAGE 1. Three National Register eligible sites are located within the project area: the Hen Lee Sawmill (AS-00105 [state site number 42UN644]), the Paradise Guard Station (AS-00306 [42UN1432]), and a prehistoric lithic scatter (AS-02247 [42UN7881]). All three sites would be avoided by establishing a 100-foot (30-meter) avoidance buffer around each site. If trees need to be removed within the site or buffer area, they would be individually selected and removed by hand after the Forest heritage specialist has determined that such activities would not adversely affect the historic property. The Forest heritage specialist would provide geographic information systems (GIS) shapefiles for the avoidance buffers.

HERITAGE 2. If previously unknown archaeological artifacts or remains are discovered at any time during the project, all ground disturbing activities within 300 feet (100 meters) of the discovery would cease immediately and the project supervisor would immediately contact the Forest heritage specialist regarding the discovery.

Range

RANGE 1. Any current range improvements (such as fences, water developments, pipelines, corrals, cattle guards, etc.) would be identified and protected from any damage associated with project activities. If damage were to occur, structures would be replaced.

Recreation and Visuals

RECREATION/VISUALS 1. Existing trees would be retained in amounts to leave adequate screening in appropriate areas such as popular dispersed camping areas.

RECREATION/VISUALS 2. We would conduct efforts to provide appropriate and adequate public awareness of operations and safety, i.e. signing and public notices, especially when treating areas along Forest roads open to dispersed camping.

RECREATION/VISUALS 3. Any treatment within the Paradise Campground should be done during the off-season or must involve a special closure of the campground to provide adequate public safety.

RECREATION/VISUALS 4. Any temporary roads should be completely blocked after operations in order to prevent them from turning into illegal roads.

Vegetation

VEGETATION 1. A large component of spruce exists in the area and some spruce would be harvested with the proposed action. To prevent spruce beetle population increases and subsequent outbreaks as a result of treatments, all slash, cull, and butt logs should be addressed as follows.

- Spruce should be cut as low to the ground as possible (less than 1.5 feet).
- Remove, debark, or burn larger-diameter (>10-inch DBH) logs and tops.
- If removal or treatment of slash is not possible within 12 to 18 months of when the infestation or damage first occurs, the slash should be cut into small pieces (<18 inches in length) and scattered into areas receiving maximum sunlight.

VEGETATION 2. Another damaging insect associated with slash creation is the pine engraver beetle (*Ips pini*). This species would affect areas where green lodgepole pine slash greater than 4 inches in diameter is left on site. Slash mitigation measures include the following.

- If slash is treated with fire, burning should occur during fall or winter.
- To mitigate an increase in pine engraver populations, pre-commercial thinning should be conducted after August 1st. Slash production should be avoided from January through June.
- Regardless of when the thinning occurs, all thinned material >4 inches in diameter should be lopped and scattered, masticated, or piled and burned.
- If slash cannot be treated right away, all lopped slash >4 inches in diameter should be cut to 1-foot lengths and scattered in areas of maximum sunlight to promote drying.
- When hand piles of slash are created, all smaller diameter material should be placed in the center with the larger logs piled on top. Slash piles should not be placed against residual standing trees. Slash piles should be distributed throughout the treatment area and burned if possible before the following spring. Slash management is critical, particularly in sites with poor site quality or stress prone areas. Slash treatments should occur within the first 30 days after slash creation to reduce pine engraver beetle production.

VEGETATION 3. Pruning techniques should increase the distance of live crown from the ground surface to maximize distance between live crowns and burning surface fuels. Pruning should occur during late fall, winter, or spring before bud break to minimize pathogen introduction into wounds. Properly pruned limbs would be pruned just outside the branch collar to which the limb is attached (no further than 1 inch from the bole) and would remove no more than 30% of the lower live crown.

VEGETATION 4. An assessment of blowdown risk to areas being proposed for commercial thinning, improvement cutting, sanitation salvage, and shaded fuel breaks must occur before project implementation. In general, basal area reductions would not exceed 30-50% in the lodgepole pine or spruce-fir forest types, depending on windfall risk situations such as aspect, slope, soils, and geographical terrain.

Weeds

WEEDS 1. The following measures would be taken and comply with the 1999 Executive Order on Invasive Species, the *USDA Forest Service Guide to Noxious Weed Prevention Practices* (Forest Service 2001) and the *Ashley National Forest Environmental Assessment for Noxious Weed Management* (Forest Service 1994).

- Ground disturbing heavy equipment used for spreading straw, mulch, or seed would be thoroughly cleaned at an off-Forest location prior to being transported to the project area.
- Micro-mill sites, log landings, skid trails, and burn piles would be seeded as necessary (by Forest personnel) with a recommended seed mix from the Forest ecologist to take advantage of the seedbed and prevent the establishment of noxious weeds. Seed mixes would include species that germinate rapidly to provide a quick cover of vegetation. Seed mixes used for rehabilitation purposes would be noxious weed free certified. The timing and rate of application would occur according to the Forest ecologist's recommendation as well, most likely fall (October 1 to November 1) or spring (May 1 to June 15) at a rate of 9-11 pounds/acre.
- If used for rehabilitation purposes, only noxious weed free hay, stray, and mulch would be used within the project area.
- Noxious weeds, should they become established, would be controlled on all disturbed areas.

Wildlife

WILDLIFE 1. The Forest is considered unoccupied habitat for the Canada lynx, which has an Endangered Species Act (ESA) listing of threatened. There is also potential habitat for the North American wolverine (which is a current candidate species for ESA listing) on the Forest, though no suitable habitat exists in the project area. In the unlikely event that lynx or wolverine were to be detected on the Forest, project work would be discontinued until a further effects analysis is completed.

WILDLIFE 2. The proposed project treatment areas are within two dominant conifer forest types. These are mixed conifer in the eastern treatment sites and lodgepole pine in the western treatment areas bordering the Paradise Park Road (Forest Road 104). Mitigation measures for northern goshawk are similar for both forest types, but some differences do exist. Based upon the *Decision Notice and Finding of No Significant Impact and Non-Significant Amendment of the Forest Plans in Utah for the Utah Northern Goshawk Project*, also known as the Goshawk Amendment (Forest Service 2000), the following mitigation measures are provided and are differentiated by forest type as appropriate. The goshawk measures below include requirements or adjustments that would suffice for the three-toed woodpecker, boreal owl, and flammulated owl as well.

- If nesting goshawks or an active post-fledging area (PFA) are discovered in the project area, standard r and guidelines s, u, and v would be activated. Specifically, the following would occur: forest vegetation manipulation activities would be discontinued within the active nest area (approximately 30 acres) during the period of March 1st to September 30th (standard r).

- The project design and vegetation management activities would provide the number and size of snags (for the applicable forest type) shown in the table below (guideline h). If the minimum number of snags is unavailable, the largest available green trees on site should be substituted. Where available, snags should represent all size classes above the minimum and be present at the stand level average distributed over each 100 acres. This provides goshawk prey species habitat.

Table 1. ***Snag specifications to meet goshawk prey base requirements by applicable forest vegetative cover type (from guideline h in the Goshawk Amendment).***

Cover type	*Minimum snags per 100 acres*	*Minimum preferred snag size*
Mixed conifer and spruce/fir	300	18-inch DBH < - > 30 feet tall
Lodgepole and aspen/lodgepole	300	8-inch DBH < - > 15 feet tall

To suffice for three-toed woodpecker, the above minimum number would need to be increased to an average of 6 snags per acre (greater than 12 inches DBH) that should be left standing in areas beyond the shaded fuel breaks and the 300-foot firewood gathering access buffer along roads. Trees selected as future management snag replacements and true snags being retained should be distributed in clumps to meet the 6 snag per acre minimum and within a 500-acre general home range area. The 500-acre home range area should include portions within the project treatment area but may also include areas adjacent to, but outside of, the project treatment area if these areas would remain untreated/unharvested in the future (i.e., areas with minimal harvest potential such as designated old growth or inventoried roadless areas).

- The project design and vegetative management activities would retain the minimum amount and size of down logs and woody debris shown in the table below (guideline i) for goshawk prey base habitat. As available, these habitat components should be present at the stand level on average and distributed across each 10 acres.

Table 2. ***Downed log and woody debris specifications to meet goshawk prey base requirements by forest vegetative cover type (from guideline i in the Goshawk Amendment).***

Cover type	*Minimum down logs per 10 acres*	*Minimum log size diameter < - > length*	*Minimum coarse woody debris ≥ 3-inch diameter*
	Down logs take precedence over tons of coarse woody material.	Mid-point diameter; or if minimum size not available, largest available on the site.	Tons per 10 acres, inclusive of down logs.
Mixed conifer and spruce/fir	50	12 inch < - > 8 feet	100
Lodgepole and aspen/lodgepole	50	8 inch < - > 8 feet	50

RELEVANT LAWS AND POLICIES

Forest Plan Consistency

The National Forest Management Act requires the development of long-range land and resource management plans (Forest Plans). The Forest Plan for the Ashley, required by this Act, was approved in 1986. The Forest Plan, along with all amendments, provides guidance for all management activities on the Forest. The Act requires all projects and activities to be consistent with the Forest Plan, which has been reviewed in consideration of this proposal.

The project area is located within Forest Plan management area prescriptions f, *dispersed recreation roaded*, and n, *range of resource uses and outputs* (Forest Service 1986). The project is expected to meet the direction, objectives, and standards and guidelines for management areas f and n, including the following.

Table 3. ***Applicable Forest Plan guidance.***

Applicable direction	
Timber direction for management area f. Harvest designed to enhance recreation, wildlife, and visual opportunities. Transitory range allocated to wildlife. (p. IV-7)	
Timber direction for management area n. Harvest coordinated with wildlife and recreation. Some old growth retained. Low investment. (p. IV-10)	
Riparian direction for management area f. Maintain. Control as needed to protect streambank stability, minimize sedimentation, prevent compaction, and maintain visuals. (p. IV-8)	
Riparian direction for management area n. Maintain and restore (p. IV-11).	
Wildlife direction for management area f. Improvements designed to enhance recreation opportunities and optimize species diversity. Key or critical areas will be emphasized. (p. IV-7)	
Wildlife direction for management area n. Access may be controlled to enhance wildlife habitat. Improvements allowed on a low investment basis. Habitat diversity would remain fairly stable. (p. IV-10)	
Protection direction for management area f. Prescribed burning used to manage resources but aggressive prevention and suppression to protect resources under heavy use levels (p. IV-8).	
Applicable objectives and standards and guidelines	
Timber objective #1. Harvest timber commensurate with timber allocation (within Forest Plan) (p. IV-34).	
	Administer all timber sales and free use programs within the constraints of the Plan and environmental assessments (applicable to both f and n, p. IV-34).
	Accomplish site preparation on all clearcut acres within 2 years after logging has been completed (applicable to both f and n, p. IV-34).
	Prepare silvicultural prescriptions that will include an economic analysis and be in accordance with all applicable standards and guidelines (applicable to both f and n, p. IV-34).
	Use logging systems and techniques capable of minimizing soil loss, compaction, and other resource impacts (applicable to both f and n, p. IV-34).
	Even-age management permitted (applicable to both f and n, p. IV-34).

	Plan one pre-commercial thinning by age 15 (applicable to f, p. IV-34).
	Plan one or more commercial thinnings (applicable to f, p. IV-34).
	Clearings up to 40 acres are permitted (applicable to both f and n, p. IV-35).
	Pre-commercially thin only 40% and commercially thin only 12% of harvested acres (applicable to n, p. IV-35).
Timber objective #2. Locate clearcut openings to achieve the desired management area resource objectives and to meet National Forest Management Act objectives (p. IV-35).	
	Stands may be harvested adjacent to openings that have reached an average height sufficient to provide hiding cover for the management indicator species (MIS) using the area (applicable to n, p. IV-35).
	Leave areas of uncut timber between openings created by clearcuts large enough to meet all resource needs (applicable to both f and n, p. IV-35).
	Stands may be harvested adjacent to openings that have reached an average height sufficient to provide needed wildlife hiding cover (applicable to both f and n, p. IV-36).
	Stands may be harvested adjacent to openings that have reached an average height sufficient to meet the adopted visual quality objective (VQO) (applicable to both f and n, p. IV-36).
Timber objective #3. Accomplish timber stand improvements consistent with silvicultural needs and management prescriptions (p. IV-36).	
	Conduct insect and disease detection surveys annually to determine hazard potential and needed control (applicable to both f and n, p. IV-36).
	Harvest and silvicultural treatments will be located and timed to maintain or enhance wildlife habitat (applicable to n, p. IV-36).
	Harvest and silvicultural treatments will be located and timed to enhance recreation opportunities and/or provide public safety (applicable to both f and n, p. IV-36).
Soil, water, and air objective #1. Increase water yields through resource management activities (p. IV-37).	
	Utilize appropriate modeling techniques to analyze cumulative impacts of sediment and water yielding resource activities. Determine sediment and water yield thresholds to meet aquatic habitat objectives. (Applicable to both f and n, p. IV-37.)
	Utilize timber harvest units and other silvicultural activities to increase water yields (p. IV-37).
	The stream channel stability rating shown in the tables on p. IV-38 of the Forest Plan will determine the percent of watersheds (1,000 acres or larger) allowed in equivalent clearcut area (ECA). Equivalent clearcut area includes actual clearcuts, partial cuts, and the supporting road system. The ECA of partial cuts is shown on p. IV-38 as well. Following timber harvest, the ECA is reduced as hydrologic recovery occurs. (Applicable to both f and n, p. IV-38.)
	Water yield improvement activities permitted (applicable to n); water yield improvement activities permitted if compatible with recreation (applicable to f) (p. IV-39).
Soil, water, and air objective #2. Maintain or improve soil stability, site productivity, and repair or stabilize damaged watersheds (p. IV-39).	
	Stabilize road corridors and control road use to reduce soil erosion (applicable to both f and n, p. IV-39).

	Design activities to minimize project-caused sediment rates, not to exceed a 125% increase of the pre-project rates the first year and a 105% increase at the end of 5 years (applicable to both f and n, p. IV-40).
Soil, water, and air objective #3. Control and minimize air pollutant impacts from land management activities (p. IV-42).	
	Integrate air resource management objectives into all resource planning and management activities (applicable to both f and n, p. IV-42).
	Mitigate any adverse impacts from prescribed fire on the air resource of the National Forest and the air resource outside Forest Service jurisdiction (applicable to both f and n, p. IV-42).
Riparian objective #1. Maintain or improve riparian areas and riparian dependent resource values including wildlife, fish, vegetation, watershed, and recreation in a stable or upward trend. Manage for species diversity. (p. IV-45)	
	Maintain the hiding and thermal cover qualities of riparian areas giving priority to the preservation of old growth for cavity dependent species, the preservation of hiding cover adjacent to mineral licks, wallows, and calving or fawning areas, and the preservation of hiding and thermal cover along waterways (applicable to both f and n, p. IV-45).
	Maintain capability of riparian areas to act as an effective sediment buffering zone in relation to upslope activities (applicable to both f and n, p. IV-45).
	Restrict facilities and ground disturbing activities to areas outside riparian areas unless alternative routes have been reviewed and rejected as being more environmentally damaging (applicable to both f and n, p. IV-45).
Riparian objective #2. Manage vegetation to enhance the riparian ecosystem (p. IV-46).	
	Manage vegetation in riparian areas to be in good or excellent condition, with a stable or upward trend (applicable to both f and n, p. IV-46).
	Special harvesting techniques to protect riparian zones, such as directional felling and cable yarding will be applied when needed to protect the riparian ecosystem (applicable to both f and n, p. IV-46).
	Prohibit landings and decking areas and limit temporary roads within riparian areas (applicable to both f and n, p. IV-46).
Wildlife objective #1. Develop and implement a habitat management plan that will include key ecosystems and maintain habitat for supporting threatened, endangered, or sensitive plants and animal species and management indicator species (p. IV-28).	
	Designate and protect old growth areas for dependent species. Old growth should be a minimum of 160 contiguous acres and have old growth characteristics. (Applicable to both f and n, p. IV-29.)
	Retain 5% of area in old growth conditions at all times (and close the old growth area to fuelwood harvesting). (Applicable to n, p. IV-29.)
Protection objective #1. Develop and implement a cost-efficient fire management program based upon resource values (p. IV-54).	
	Maintain a fire management program to protect investments. Consider effectiveness of pre-suppression, fuels reduction, and treatment areas (applicable to both f and n, p. IV-54).

Other Laws and Regulations

Other relevant laws and regulations include the following: the Endangered Species Act; Sensitive Species (Forest Service Manual 2670); Clean Air Act; Clean Water Act; Wetlands (Executive Order 11990); Floodplains (Executive Order 11988); Migratory Birds (Executive Order 13186);

Environmental Justice (Executive Order 12898); National Historic Preservation Act; Archaeological Resources Protection Act; and Native American Graves Protection and Repatriation Act. The analysis conducted for this proposal included consideration of all of the above. See relevant specialist reports in project record and the following *Environmental Consequences* section below for additional information related to compliance with these laws and regulations.

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social, and economic environments of the affected project area and the potential changes to those environments due to implementation of the proposed action.

Fisheries and Aquatics

Federally Listed Aquatic Species

Affected Environment and Environmental Effects

There are four federally listed endangered fish species that occur within Uintah County. These species – the humpback chub, bonytail, Colorado pikeminnow, and razorback sucker – are all native to the Colorado River Basin; however, no suitable habitat for these species exists on the Forest. The U.S. Fish and Wildlife Service has identified water depletions from the Upper Colorado River Basin to be a major factor in the decline of these four species and has stated that any depletion would jeopardize their continued existence and would likely contribute to the destruction or adverse modification of their critical habitat.

There would be no direct, indirect, or cumulative effects on these four endangered fish species as a result of the implementation of the proposed project. There is no suitable habitat for any aquatic federally listed or candidate species in the vicinity of the project area or on the Forest and no water depletions would occur as a result of this proposed project. No downstream impacts are anticipated as a result of this project due to the great distance between the proposed activities and occupied habitat. As stated in the aquatics biological assessment completed for this project, we determined that there would be **no effect** on any of these four fish species.

Forest Service Sensitive Aquatic Species

Affected Environment

There are three Forest Service sensitive aquatic species that are known or suspected to occur on the Forest: Colorado River cutthroat trout (CRCT), boreal toad, and Columbia spotted frog. The project area does not provide habitat for cutthroat trout. There is an established population of CRCT in Dry Fork Creek, however, which lies approximately 1 mile to the east of the project area. Some suitable habitat for the boreal toad exists on the Forest in higher elevation lake shoreline areas, however, no boreal toads have been found in the project area. Habitat for the Columbia spotted frog exists on the Forest as well, however, this species has not been found on the Forest.

Environmental Effects

No Action

With implementation of a no action alternative, there would be no immediate direct effects to any sensitive aquatic species or to their habitats. In the short term, indirect effects may include more suppression of the understory vegetation in a no action alternative, resulting in a lack of cover for (and possible increased predation on) amphibians as they migrate from one pond to another. Long term indirect effects may include the potential for large, high intensity wildfires and erosion which could have a detrimental effect on aquatic species.

Proposed Action

The project area is located 1 mile west of Dry Fork Creek where CRCT are found and several miles below the Dry Fork headwater streams, though some cutthroat trout may escape through the Mosby Canal, which drains out onto the town of Maeser's agricultural fields below. As stated in the aquatics biological evaluation completed for this project, we determined that this project **may impact individuals, but is not likely to cause a trend to federal listing or loss of viability** of CRCT or their habitat.

Field surveys have been conducted in the project area and no sensitive amphibians were found to be present. Because it is unlikely that these species exist in the area, we determined that this project would have **no impact** on either the boreal toad or the Columbia spotted frog.

Aquatic Management Indicator Species

Affected Environment

Aquatic management indicator species (MIS), used by the Forest of indicators of overall health of the aquatic ecosystem, include CRCT and macroinvertebrates, including mayflies (*Epeorus* sp., *Ephemerella doddsi*, and *Ephemerella inermis*), stoneflies (*Zapada* sp.), and midges (order Diptera, family Chironomidae). In addition to being an MIS, CRCT is also a Forest Service sensitive species and is discussed above. Macroinvertebrates are discussed in this section. A visual survey of Paradise Creek and Mosby Canal revealed that these waterways have good water conditions, including high levels of dissolved oxygen, low pollutants, and low sediments, to support macroinvertebrates such as mayflies, stoneflies, and caddis flies.

Environmental Effects

Higher levels of use of the existing roads in the area could increase the probability of road surface erosion impacting adjacent meadow habitats, although erosion rates would be considerably less than if the project were not implemented and a high-intensity wildfire were to occur. In the fall of 2011, barricades were placed near Tool Box Park to prevent unauthorized off-highway vehicle which should improve habitat in the area. The degree of sediment delivery to the meadows and to Mosby Canal would depend upon road conditions and maintenance. Upon completion of the project, sedimentation delivery would return to previous levels. Skid trails and temporary roads would be constructed in compliance with relevant mitigation measures which should protect water resources from sedimentation from these sources. We do not expect any significant effects on MIS or associated habitats due to implementation of this project.

Cumulative Effects

Potential cumulative impacts to fisheries, amphibians, macroinvertebrates, and aquatic habitat from past, present, and reasonably foreseeable future activities within the analysis area include effects from vegetation management projects, roads and recreation that impact riparian areas, introduced non-native fish species which interbreed with and compete with native cutthroat trout (as is the case in Dry Fork Creek), and habitat fragmentation caused by reservoirs and water diversions.

Past vegetation management projects within the project area and the watershed were evaluated through site visits and previous established studies. Evidence of past detrimental effects on aquatic habitat is virtually non-existent. Julius Park Reservoir is acting as a sediment trap prior to the water draining down into the Maeser area below. Past timber harvest areas have regenerated well. The ongoing Lodgepole Pine Timber Stand Improvement Project, the implementation of which began in 2012, is occurring in the Whiterocks River and Paradise Creek watersheds. This treatment is not impacting any aquatic resources of concern and may help reduce the chance of negative impacts from unacceptable wildfires.

The ongoing implementation of the Forest's Motorized Travel Plan, which includes the rehabilitation of identified illegal user-created roads and restricts motorized dispersed camping to within 150 feet of designated forest routes and at least 100 feet away from water, is expected to minimize impacts to riparian areas from motorized vehicles and improve aquatic habitats for resident fishes, amphibians, and macroinvertebrates for several years.

The Utah Division of Wildlife Resources and the Forest have been implementing a Colorado River cutthroat trout conservation agreement and strategy to comprehensively address threats, including hybridization and non-native competition, to CRCT and to work towards eventually achieving an upward CRCT population trend on the Forest. The Julius Park Vegetation Management Project is not expected to have any direct, indirect, or cumulative impact that would negate this effort.

Forested Vegetation

Affected Environment

The project occurs mostly on the Alpine Moraine (AM1, AM7[4]) and Parks Plateau (PP4, PP5[5]) land type associations, with about 10% of the treatment areas (fuel breaks) occurring on the Trout

[4] Alpine Moraine land type – coniferous land type characterized by moraines, or glacial debris, in alpine terrain. AM1 has hummocky lateral moraines interspersed with potholes, varying from open ponds all the way to filled in swales and little to no erosion. Areas that are not potholes and wet meadows are dominated by an overstory of lodgepole pine and Engelmann spruce. AM7 has bouldered lateral moraines with swales containing some wet and dry meadows, with little erosion. Timber harvest and regeneration of harvested areas on the AM land types has been successful. For good regeneration on this land type, some debris must be left in place. Compared to other coniferous land types, reduced harvest and harvest other than large clearcuts are appropriate for this land type.

[5] Parks Plateau land type – coniferous land type characterized by lodgepole pine forested plateaus cut by drainages. PP4 has flat to gently rolling plateaus; local erosion can be quite severe in places. This land type provides much of the timber base for harvest. Regeneration has been rapid. PP5 is comprised of side slopes and stream bottoms of moderate to steep relief, often with wet meadows in the bottom; local erosion can be quite severe. Only 27 acres of the proposed treatment areas fall within PP5.

Slope (TS2[6]) land type association. All are coniferous land types. At elevations of approximately 9,700 to 10,000 feet, some stands in the project area are predominantly lodgepole pine, while spruce and fir and become dominant species in approximately 30% of the project area.

The four properly functioning condition indicators - composition, structure, disturbance, and patterns - are generally within historical ranges for the lodgepole pine type. The *Regional Assessment of Properly Functioning Condition* (Forest Service 2009) associates risks with lodgepole pine disturbance regimes, noting that "there is very little balance of structural stages in the lodgepole pine type." It identifies a short-term risk associated with the mature age class structural stage due to susceptibility to landscape scale mortality caused by mountain pine beetle outbreaks and fire. Where dead lodgepole stems fall to the ground, travel corridors are blocked for large animals. The risk of undesirable wildfire also rises due to increased fuel loads on the forest floor, possibly delaying regeneration due to increased burned times and abiotic damage to forest soils. A large amount of surface fuel loads contributes to fire severity (the damage done to the abiotic and biotic forest); coarse woody debris contributes significantly to an increased burn time as well as imposes a significant hindrance in fire suppression or "resistance-to-control" (Brown et al. 2003). Crown fire risk may be increased when beetle-killed snags fall to the ground and understory tree growth creates ladder fuels (Romme et al. 2006). Stand characteristics in many parts of the project area resemble such pre-fire conditions.

Vegetative structural stage (VSS) is a six-class vegetation scheme to describe the developmental stages of a forest ecosystem. We calculated VSS for each forested stand in the project area using two distinct classifications, one for lodgepole pine stands and one for mixed conifer stands. Current VSS distributions indicate a general deficiency of the smallest and largest structure classes and an overabundance of the mid-structure classes.

Twelve stands in the project area are currently exhibiting minimum old growth characteristics (according to criteria defined in Hamilton 1993[7]). Fragments of only three stands, located in the area proposed for the shaded fuel break treatment, are currently identified for retention as designated old growth in management area n.

Environmental Effects

No Action

Properly Functioning Condition

With no action, the project area is likely to generally remain within historical ranges of properly functioning condition. The lodgepole pine type, however, is associated with landscape scale

[6] Trout Slope land type – coniferous land type characterized by non-glaciated lands with blocky or angular, large, coarse soil fragments. TS2 has boulder covered slopes, ranging in pitch from gentle to 40%, and no signs of active gullying in the drainages cutting these slopes. Fines being produced from chemical solution of the boulders wash from the steeper slopes and bury boulders in the lower areas. This land type has often been associated with timber harvest in the past. Regeneration has been fairly rapid on some units and slow on others.

[7] Minimum old-growth characteristics in the lodgepole pine forest type are described as having 25 or more live trees per acre that exceed 11 inches DBH and are 140 years or more of age. For the spruce-fir forest types, minimum characteristics are described as having 15 or more live trees per acre that exceed 15 inches DBH and are 150 years or more of age. Additional characteristics that apply to old growth such as standing dead, damaged, and down trees are further described in Hamilton's compilation of old-growth forests in the Intermountain Region.

mountain pine beetle outbreaks and wildfire largely due to the susceptibility of the mature age structure stage classes. Also, dwarf mistletoe has and does affect growth in all age classes causing significant deformation and loss of branches.

Vegetative Structural Stage

VSS would remain the same in the short term. Until there is a disturbance, dwarf mistletoe could be expected to increase in the area affecting tree growth and inhibiting tree recruitment into larger structure stages. Trees able to meet VSS characteristics associated with larger stage classes would be limited in size and function. In addition, with the absence of density management, the trees' ability to compete for nutrients and sunlight would also inhibit their recruitment into larger structure stages. In the future as large-scale disturbance risk increases, abrupt changes affecting larger landscapes would result in larger amounts of smaller structure stage classes than desired to meet resource objectives. One benefit of large-scale disturbance associated with stand replacing wildfire is the reduction of dwarf mistletoe infected trees, decreasing spread and levels of infection.

Old Growth

There are stands within the project area that meet minimum criteria for old growth. In the short term under the no action alternative, no change or effect to old growth is expected. With no action, the maintenance of old growth is less probable due to greater risk of large stand-replacement disturbance events such as wildfire. With no managed disturbance, age class diversity is decreased on the landscape making the type less resilient to mountain pine beetle outbreaks.

Proposed Action

Properly Functioning Condition

Composition

With implementation of the proposed action, species composition would remain similar to existing condition, with overall composition ranging from lodgepole pine dominance shifting to climax species Engelmann spruce and subalpine fir. These variations remain within properly functioning condition for the lodgepole pine type.

Structure

Structure classes would see a small shift from the mid-size classes to younger size classes, adding to the structural/age diversity and resiliency in the project area. In the thinning areas, late VSS classes would be achieved earlier than if no action is taken. Greater age and size diversity would help the stands in the project area be more resilient to disturbance in the future which could help lead stands into the older size classes as well.

Disturbance

The reduction in basal area and number of trees would reduce stand susceptibility to mountain pine beetle attack and the associated reduction in dead debris and canopy bulk density would reduce risks associated with the stand replacement and mixed severity fires typical of this area. Also, trees infected with dwarf mistletoe would be selected for harvest, reducing infection of the regeneration in the understory.

Patterns

Under the proposed action, patterns would be altered due to the 25 acres of proposed clearcutting and would be potentially altered due to the 148 acres of proposed overstory removal harvests.

Clearcut harvests would contribute to some fragmentation on the landscape. However, proposed clearcuts are small in size (10 acres or less) and number (four are proposed) and are located in areas where stand deterioration is already occurring. Harvests would remove excessive debris and unhealthy trees that are occupying sites that could otherwise be available for regeneration establishment and future site cover. In addition, proposed clearcuts would not be positioned with small-width buffer/leave strips between cut blocks, a previously used treatment strategy that has altered historical ecological patterns. Although the proposed clearcuts are not following large stand-replacement fire patterns and sizes, the locations and sizes are consistent with mixed severity fire patterns that burn in a mosaic (areas of high-severity patches where most trees are killed), which is consistent with fires in the lodgepole pine subject area.

Overstory removal harvests would contribute to some fragmentation where existing regeneration has not reached sufficient heights to provide cover. Sufficient heights and densities are expected, however, in much of the project area following treatments.

The Forest Plan has standards and guidelines related to clearcut harvests and to overstory removal where the remaining understory regeneration has not reached sufficient hiding cover heights. The proposed action would be in compliance with these standards and guidelines.

Vegetative Structural Stage

The VSS would change where the clearcutting and overstory removal harvests are proposed. A younger structure class would either become established (shortly after clearcutting) or left remaining (with overstory removal) after removing the larger structure classes from the stand. Both harvest methods would move treated areas into the VSS1, VSS2, or VSS3 classes. Where proposed cutting consists of creating fuel breaks and commercial thinning, no change to VSS is expected through most of the treated areas because the size class already dominating the stand would remain. An exception is on approximately 22 acres where commercial thinning of a smaller stand structure class would leave a dominant larger structure class (VSS5) remaining after thinning. Overall structural diversity at the project scale would be improved.

Old Growth

The table below shows the stands in proposed treatment areas that are exhibiting old growth characteristics. The three shaded stands have been identified for retention as old growth in management area n.

Table 4. ***Stands in project area exhibiting minimum old growth characteristics.***

Proposed treatment	*Management area(s)*	*Stand number*	*Stand acres*	*Acres in project area*	*Forest type*	*Status with project implementation*
Overstory removal	n	0022260101	47	2	LP*	Removal
Commercial thin	n	0022260102	22	22	LP	Affected
Clearcut	n	0022260108	6	6	LP	Removal
Fuel break	f	0022290007	122	10	LP	Affected
Fuel break	n	0022370037	68	3	LP	Affected
Improvement cut	f, n	0022260010	154	89	ES**	Affected
Fuel break	f, n	0022260010	154	41	ES	Affected
Improvement cut	n	0022360017	45	2	ES	Affected

Clearcut	n	0022360017	45	2	ES	Removal
Commercial thin	n	0022360017	45	1	ES	Affected
Fuel break	n	0022370066	28	5	ES	Affected
Fuel break	n	0022370065	169	17	ES	Affected

* LP = lodgepole pine; ** ES = Engelmann spruce

With implementation of the proposed action, 25 acres of retained old growth (17 acres of which is included in a patch of greater than 160 contiguous acres) would be affected. Although minimum criteria for old growth would be maintained, characteristics that apply to old growth, such as standing dead, damaged, and down trees, would be removed or reduced in number in the proposed shaded fuel break. The removal or reduction of these characteristics in such a relatively small area along the road would not be enough to significantly alter the old growth characteristics or status at the multi-stand scale of 871 contiguous acres of old growth in this area. However, the area along the road and campground is not favorable as old growth if the area is maintained as a shaded fuel break for road and campground safety. Therefore, we would remove these acres from old growth retention and keep the remaining 854 contiguous acres in old growth retention (still well exceeding the Forest Plan requirement for designated old growth to be in patches of at least 160 acres). Also, after the removal of all 25 of these acres from old growth retention, we would still remain in compliance with the Forest Plan requirement to have at least 5% of management area n designated for old growth retention (with a 25-acre removal, 29,817 acres are in old growth retention, still representing 5.4 percent of the 552,599 total acres in management area n).

As seen in the above table, there are other stands in the project area that, although they have not been placed in retention as designated old growth, meet minimum old growth criteria (according to Hamilton 1993) as well. The proposed action would affect these stands (totaling 175 acres) that are not in retention in the following ways.

1. In stands proposed for overstory removal or clearcutting, essentially all live trees that contribute to the minimum criteria would be removed. These areas total approximately 10 acres.

2. In areas proposed for commercial thinning, old growth live trees are not to be cut unless they are damaged. The proposed commercial thinning would remove trees that are less than 10 inches DBH. This diameter is smaller than the criteria for old growth live trees to be greater than or equal to 11 inches or 15 inches DBH depending on the forest type. Although minimum criteria for old growth would be maintained, characteristics that apply to old growth, such as standing dead, damaged, and down trees, would be removed or reduced in this proposed treatment area. The proposed commercial thinning would affect approximately 23 acres that meet minimum old growth criteria.

3. In stands proposed for improvement cutting, damaged and diseased trees with poor form and vigor would be selected for removal. Live trees that contribute to the minimum old growth criteria may also be cut that fit this description. Stands in this treatment category are of the spruce-fir cover types where minimum old growth characteristics include 15 or more live trees per acre that exceed 15 inches DBH. Based on a review of diseased and damaged tree records collected during stand examination, the removal of damaged, diseased, and poor health trees in the stand would not reduce the trees over 15 inches to less than 15 trees per acre. Although minimum criteria for old growth may be maintained, characteristics that apply to old growth, such as standing dead, would be reduced in number in this proposed treatment area. The proposed improvement cutting would affect approximately 91 acres that meet minimum old growth criteria.

4. In the remaining stands proposed for fuel break treatment (not in retention), the proposed action would affect another 51 acres of this treatment type that meet minimum old growth criteria.

In all proposed treatment areas that meet minimum old growth criteria where harvesting would occur, logging would slightly increase fragmentation within the stands by creating skid trails and landings to access timber.

Under the proposed action, a higher probability of maintaining old growth in the area (in and adjacent to the project area) is expected in the future. With surface fuel clean up and reduction of canopy fuels, the risk of unwanted wildfire is reduced. In addition, with managed disturbance, age class diversity is increased on the landscape mitigating the effects of mountain pine beetle outbreaks.

Cumulative Effects and Commitments

Past, ongoing, and planned harvested areas in the subwatersheds of the project area are documented and analyzed at appropriate scales in the hydrology and wildlife specialist reports in the project record. Previous harvest activities have contributed to reduced hazardous fuel loads in the watershed due to the removal of dead trees and crown fuels in areas of clearcuts or select cuts.

There are no irreversible commitments of the tree resource. Trees would be lost during temporary road construction but upon project completion and subsequent road area rehabilitation, temporary roads would be allowed to regenerate with trees. The removal of old growth from retention in areas along the road is an irretrievable commitment for the foreseeable future. Although the maintenance of minimum live tree criteria for old growth is expected with the proposed action, other characteristics applicable to old growth are not expected to be maintained. This loss of certain old growth characteristics on these acres would be in exchange for the benefits and safety that the fuel break leading into the campground would provide. Although technically irretrievable at the scale of the actual acres involved, this loss would remain in compliance with the Forest Plan. Also, in terms of context and intensity per the definition at 40 CFR 1508.27, this loss would not be significant. The area affected is small and adjacent to the road, represents a very small proportion of old growth in the area and on the Forest, and could be replaced in the Forest's identified retained old growth inventory in management area n with an equal or greater amount of old growth acres in the area.

Timber Management Requirements

Timber management requirements (FSM 1920) for cuts that are designed to regenerate an even-aged stand of timber (e.g., clearcut harvest) apply to 26 acres of proposed clearcuts in the Julius Park project area. Clearcutting methods may be applied where it is the optimum method, where cut blocks are shaped to the extent practicable with the natural terrain, where cuts are carried out according to maximum size limit requirements, and where stands of trees are harvested according to requirements for culmination of mean annual increment (CMAI) of growth. CMAI applies only at time of regeneration harvest and is not applicable to intermediate harvests such as thinning, stand improvement cutting or salvage/sanitation harvests (FSH 1909.12, ch. 60).

The *Julius Park Vegetation Management Project Stand Diagnosis* (Forest Service 2009) documents clearcutting as the optimum treatment method for those stands proposed for clearcut harvest. Substantial tree mortality and trees heavily infected with dwarf mistletoe are present in these stands. Clearcutting is a recommended treatment method when harvesting infected stands (Hawksworth and Johnson 1989). This method reduces risks of infection to lodgepole pine

regeneration as it becomes established by removing the infected overstory; heavily infected trees near regeneration would otherwise create an ideal situation for dwarf mistletoe spread.

Proposed cut blocks are placed on gentle slopes approximately 600 feet to ½ mile apart in areas of natural stand deterioration (small and irregular shape). The proposed action would also be in compliance with the Forest Plan's standards and guidelines related to opening sizes.

The *Julius Park Vegetation Management Project Stand Diagnosis* (Forest Service 2009) documents compliance with CMAI requirements (16 U.S.C. 1604 [m]).

Final regeneration harvests must be adequately restocked within 5 years (FSM 1921.12g). Regeneration harvest applies only to proposed clearcutting in the Julius Park project area. Intermediate harvests are not designed to regenerate a stand after harvest, but rather promote tree health and vigor to residual trees. Overstory removal harvests are also not designed to regenerate a stand after harvest because the regeneration is already established.

Due to predominance of open cone habit in the lodgepole pine in the project area, dispersal of sufficient seed to adequately restock an area often is only about 200 feet, a distance equivalent to an approximate 3-acre round opening. Prevailing winds, thermal effects, or scudding on the snow may disperse seeds far beyond these distances, however (Forest Service 1990). Seed dispersal in proposed clearings is expected to adequately seed the created openings. Previous clearcuts within the project area far exceeding 3 acres have ample regeneration.

To demonstrate that natural regeneration stocking levels are met, stand exam crews would complete 3rd and 5th year reforestation surveys after treatment using common stand exam protocol.

Fuels

Affected Environment

The role fire naturally plays in an ecosystem is generalized as a fire regime. It is characterized by fire frequency, predictability, seasonality, intensity, duration, scale (patch size), as well as regularity or variability. Descriptions of the five basic fire regimes follow.

- Fire regimes I and II include fire return intervals in the 0-35 year range. Regime I includes ponderosa pine, other long needle pine species, and dry site Douglas-fir. Regime II includes the drier grassland types, tall grass prairie, and some Pacific chaparral ecosystems. In fire regime I, fire effects are low to moderate in severity. In regime II, effects are more severe, resulting in more stand replacement outcomes.

- Fire regimes III and IV include fire return intervals in the 35-100+ year range. Regime III includes interior dry shrub communities such as sagebrush and chaparral ecosystems that result in mixed severity fires. Regime IV includes lodgepole pine and jack pine that historically burned at intensities that resulted in stand replacement.

- Fire Regime V is the long interval (infrequent), stand replacement fire regime and includes temperate rain forest, boreal forest, and high elevation conifer species.

Fire regimes can be assigned descriptors called "condition classes" that indicate the assessed degree of departure that a current landscape has from the natural regime's historic range of variability. Condition class 1 indicates low departure (0-33%) from historical conditions and

good ecological integrity. Condition class 2 indicates a moderate departure (34-66%) from the natural regime and declining ecological integrity. Condition class 3 landscapes reflect vegetation and disturbances that have high departure (67-100%) from and are uncharacteristic of the natural regime. Fire regime and condition class for a particular landscape are often referred to as FRCC.

The project area falls within the mixed conifer/aspen stratums of both of the subwatersheds where it occurs. In these areas in both subwatersheds, the fire regime is IV and the condition class is a 2 trending to a 3.

We established planar intercept plots in the project area to determine that current fuel loading averages approximately 15.29 tons per acre. Maximum fuel loading was 52.01 tons per acre and minimum fuel loading was 0.99 tons per acre.

The majority of the project area is a fuel model 10, a timber model in which fire burns in the surface and ground fuels with greater intensity than in the other timber models. Crowning out, spotting, and torching of individual trees is more frequent in this fuels situation, leading to potential fire control difficulties. Other, smaller portions of the project area are a fuel model 8, which generally consists of closed stands of short needle conifers that would have slower burns and lower flame heights.

Environmental Effects

Direct and Indirect Effects

Shaded Fuel Breaks

The fuels reduction methods outlined in the proposed action are recognized as standard practices for reducing fuel loading and for fuel model conversion. Mechanical treatments such as thinning from below and removing damaged trees, along with pruning remaining trees would decrease canopy bulk densities, increase the height of the live crown base, and reduce ladder fuels. Treating ground fuels via mechanical methods such as mastication or chipping would alter the fuel bed arrangement and reduce the majority of ladder fuels needed to sustain a crown fire. Crown fires, on occasion under windy conditions, may burn independently in dense stands. However, most often crown fires need to be supported by a heat source generated by available fuels on the ground. By treating both the overstory and ground fuels, the fuel bed would only be able to support low intensity, low severity fires that are generally associated with a fuel model 8. Research suggests that when the fuel leg (surface and aerial fuels) of the fire behavior triangle is reduced by silvicultural activities, fire intensity and severity are lowered. Cram et al. (2006) observed that mechanical treatment followed by prescribed fire (including pile burning) had the greatest influence toward mitigating fire severity. Specifically, as density and basal area decreased and mean tree diameter increased, fire severity decreased. The positive effects of creating a shaded fuel break are two-fold: 1) it would allow for the safe egress of Forest visitors along the Paradise Park Road (Forest Road 104); and 2) it would allow firefighting resources to more successfully directly attack and suppress wildland fires.

Clear Cutting, Overstory Removal, Improvement Cutting, Sanitation/Salvage Cutting, Commercial Thinning, and Pre-commercial Thinning

The proposed harvest, stand improvement, and thinning activities, though they have stand-alone primary purposes, would have a secondary hazardous fuels reduction benefit. Each of these activities, other than the 24 acres of stand-alone pre-commercial thinning, has a component to remove dead, damaged, or diseased trees, most of which have already started the decay process

and will eventually succumb to falling within the next 30-40 years. If no action were to be taken, the unharvested trees would add to an already high fuel load. The removal of merchantable timber would decrease fuel loadings in the greater than 3 inch size class. However, under these proposed treatments, accumulations of less than 3 inch woody debris can be expected to increase to amounts greater than pre-activity measurements. Mechanical treatment without piling and burning would, however, alter the fuel bed arrangement and raise the canopy base heights of the stands. Increasing the height of the live crown base and opening canopies (reducing densities and lowering overall basal area per acre) would result in lower fire intensities, less probability of torching, and a lower probability of crown fire.

While reducing coarse woody debris from the forest floor in the above treatment areas may not be practical due to the sheer size of the project, it should be noted that effects on stands would be met with mixed severities in the event of a wildfire. Cram et al. (2006) conducted survey work that showed that while the lop, pile, and burn method was the most effective way to reduce surface and crown damage in the event of a wildfire, the lop and scatter method was nevertheless more effective than leaving the stands untreated.

Associated with any timber removal project is the risk of future wind-throw. The degree of wind-throw is dependent upon the amount of trees removed. By opening canopies, trees once protected from high wind events become more susceptible. This especially holds true for those subalpine coniferous species that have shallow root systems, such as Engelmann spruce and subalpine fir. In the event of increased windthrow, fuel loadings would increase and would surpass pre-treatment levels. The decision for this project should include provisions to remove wind-throw trees for the next several years. Over time it is expected the remaining trees would show improved vigor and strengthened root systems.

Cumulative Effects

There are no foreseen cumulative effects on hazardous fuels in the proposed project area. Previous logging activities undoubtedly reduced fuel loadings in the project area. However, the passage of time has allowed fuels to accumulate once more, changing fuel models from an eight to a ten. The project would create an area where suppression efforts would be more effective. Moreover, in the event of a large wildfire moving across the landscape, the project area would act as a “speed bump” that could slow fire spread due to the reduction in canopy densities.

Heritage

Affected Environment

In accordance with the National Historic Preservation Act, the American Indian Religious Freedom Act, and the Native American Graves Protection and Repatriation Act, Federal agencies are required to conduct adequate reviews to assess the possible effects of proposed projects upon heritage resources. The Forest conducted a cultural resources survey and report for the project area.

There are three National Register eligible sites located in the area of potential effects that, without mitigation, could be adversely affected by the project: AS-00105 (state site number 42UN644), AS-00306 (42UN1432), and AS-02247 (42UN7881). These sites are the Hen Lee Sawmill, which falls within the proposed commercial thinning area, and the Paradise Guard Station and a prehistoric lithic scatter, both of which fall within the area of potential effects but outside of any specific treatment area.

Environmental Effects

All three sites would be avoided by establishing a 100-foot (30-meter) avoidance buffer around each site. If trees need to be removed within the buffer around the sawmill, they would be individually selected and removed by hand after the Forest heritage specialist has determined that such activities would not adversely affect the historic property. Although the guard station is outside of any specific treatment area, the nearby proposed shaded fuel break would involve follow-up burning, so strict avoidance of the buffered area would ensure that this structure would not be adversely affected. Likewise, the prehistoric lithic scatter is outside of any specific treatment area, but would also be avoided with a buffer.

Given the above avoidance measures, the Forest heritage specialist determined that this project would not adversely affect these three National Register eligible sites and should have no direct, indirect, or cumulative effects on cultural resources in the area. The Utah State Historic Preservation Office (USHPO) concurred with this determination.

Noxious Weeds

Affected Environment

Two noxious weed species, (Canada thistle and hoary cress) have been historically, or are currently, located within the project area. Because ground disturbing activities create niches for noxious weeds to become established, care must be taken to prevent weed infestation associated with the proposed action. In addition, since noxious weeds can be easily transported by motorized vehicles there is a high potential for noxious weed seeds or propagules (plant parts that can grow) to be transported to the disturbed sites. Currently, the Vernal Ranger District does not have a substantial noxious weed problem and has been actively involved in the control of noxious weeds on National Forest System lands in cooperation with state and local weed control organizations. However, the threat of experiencing an increase in noxious weeds from disturbance is possible due to the close proximity to Julius Park, the Mosby Canal, and the Paradise Park Road (Forest Road 104). As a result, implementing comprehensive noxious weed prevention measures are of vital importance.

Environmental Effects

The proposed project would have short-term, localized adverse impacts due to the ground disturbance from the action. Exposed bare soil may allow for opportunistic or early seral species to increase. Depending on the extent of the removal, herbaceous vegetation may respond favorably, increasing cover of grasses and forbs in the short-term and various shrubs in the long-term. We anticipate that plant communities would likely be resilient to the disturbance and recover in an acceptable timeframe with mitigation. Early detection and monitoring is recommended to reduce the threat of invasion or spread of noxious weeds in the area. With implementation of the noxious weed mitigation measures outlined above in the *Design Features* section, there should be no significant direct, indirect, or cumulative effects and the potential for the introduction and spread of noxious weeds would be greatly reduced.

Plants

Federally Listed Plant Species

Affected Environment and Environmental Effects

The only federally listed (i.e., listed as threatened, endangered, proposed, or candidate under the Endangered Species Act) plant species expected to occur on the Forest is *Spiranthes diluvialis* (Ute lady's tresses). All other federally listed plant species are well removed from the Forest in distance and/or their habitat is not found on the Forest. Based on surveys and collections, Ute lady's tresses are not expected on the Forest on the south slope of the Uinta Mountains, in which the project area occurs. The area on the Forest in which the plant does occur, along the Green River between Little Hole and the Forest boundary, is far removed from the proposed project area. Therefore, there would be no direct, indirect, or cumulative effects to any federally listed plant species from implementation of the proposed action. As stated in the plants biological assessment completed for this project, we have determined this project would have **no effect** on Ute lady's tresses.

Forest Service Sensitive Plant Species

Affected Environment and Environmental Effects

The only sensitive plant species expected to occur in the ecological land type of the proposed project area is *Cypripedium fasciculatum* (clustered lady's slipper). The Forest conducted surveys for this plant in the project area in 2008 and 2009 and no plants of this species were found. Therefore, there would be **no impact** on any sensitive plants from implementation of this project.

Range

Affected Environment and Environmental Effects

The proposed project area lies within the Paradise pasture of the Mosby Mountain summer grazing cattle allotment and the Hen Lee Bench pasture of the Dry Fork allotment. The project area is approximately 2% of the grazing allotments. The majority of the project area, in its current state, is considered unsuitable for livestock grazing because of the heavy timber and lack of understory vegetation. Because of the relatively small size of the project coupled with the largely unsuitable grazing habitat, there would be no anticipated cattle grazing related conflicts. The removal of trees adjacent to the canal and surrounding areas would somewhat improve livestock movement from one pasture to the next. Openings created from the project would increase the available forage supply for ungulates and potentially enhance herbaceous and shrub plant diversity, thereby providing a benefit to the rangeland condition in the area. Implementation of the proposed action would have no direct, indirect, or cumulative adverse effects on livestock grazing.

Recreation and Scenery

Affected Environment

Recreation Opportunity Spectrum

The recreation opportunity spectrum (ROS) is a method of inventorying opportunities for recreation in a range from highly developed to natural and untrammeled. The proposed project area is currently inventoried as a roaded natural ROS classification.

Recreational Activities

Recreational activities within the proposed project area consist of mostly unstructured recreational activities that include but are not limited to hiking, biking, off-highway vehicle use, cross-country skiing, snowmobiling, hunting, camping, sightseeing, and any other leisure activity considered to be recreational in nature by the user.

The Paradise Campground is a developed campground located within the proposed project area. This campground receives moderate to high use during the summer recreation season. It is a popular destination for many people due to its relative remoteness and the numerous dispersed recreational opportunities which are available in the area.

The Paradise Guard Station, also located within the proposed project area, is a historical cabin built by George Walkup, who was the Whiterocks District Ranger at the time. In the past this cabin has been available to the public for rent. The guard station is currently undergoing some restoration work, after which we will again put it into our public recreational facility rental program.

Roads and trails that lie within the proposed project area (according to the Forest's 2012 motorized travel map) include the following.

Table 5. ***Roads and trails within the proposed project area.***

Road/trail number	*Motor use designation*	*Dispersed camping allowed*	*Proposed treatment*
104	Roads open to all vehicles	Y	Fuel break/slash burning
295	Roads open to highway legal vehicles	N	Fuel break/slash burning
752	Special vehicle designation	Y	Fuel break/slash burning
750	Special vehicle designation	Y	Fuel break/slash burning
294	Special vehicle designation	Y	Fuel break/slash burning
296	Special vehicle designation	Y	Improvement cut/ overstory removal/ slash burning
676	Special vehicle designation	Y	Fuel break/slash burning
464	Special vehicle designation	Y	Commercial thinning/ fuel break/slash burning

Visual Resources

The area within the proposed project has a natural appearing landscape character with attributes that include mostly conifer vegetative cover with some open meadow areas throughout. Existing

visual integrity of the area appears unaltered. The scenic attractiveness of the area may or may not be stable depending on several factors, some of which include resource damage by users, diseased trees, and the overall health and vigor of the trees within the project area.

The project area includes the following visual quality objectives (VQOs) from the Forest Plan: approximately 204 acres of modification and approximately 625 acres of partial retention. Modification VQO allows for management actions that may dominate the scenery but borrow from natural line, form, texture, and/or color to the degree that the management is subordinate to the characteristic landscape when viewed as background (not dominant when seen from more than 3 to 5 miles away). Under the partial retention VQO, management actions must appear subordinate to the characteristic landscape from views within 5 miles, and as a natural part of the landscape when viewed as background.

Inventoried Roadless and Potential Wilderness

The proposed project area does not fall within an inventoried roadless area (IRA) as delineated in the 2000 roadless area inventory, or within a potential wilderness area as delineated in the 2005 potential wilderness area inventory. The project area is, however, adjacent to an IRA and potential wilderness area.

Environmental Effects

No Action

Direct and Indirect Effects

Recreational opportunities and use would most likely not change in the near future. Over time the current growth and disease would continue to progress and most likely increase with time. Increasing tree mortality and the risk of severe fire would increase with time as well. Either the tree mortality or a change in aesthetics due to a severe fire may reduce the recreational opportunities of the area due to the change in scenery, cover, and character. The natural appearing landscape character would likely remain unchanged. Visual quality may improve, but scenic attractiveness may be reduced by the appearance of dead or dying trees, and/or from the possibility of wildfire.

Cumulative Effects

Cumulative effects would include any changes to the landscape for any number of reasons including but not limited to: wildfire, flooding, tree mortality, tree infestations, or other events. This may influence some recreationists to choose another location to spend their leisure time if they perceive a change in the attractiveness of recreational opportunities available in the area.

Proposed Action

Direct and Indirect Effects

This project would not result in any change to the current ROS classification (roaded natural). Recreation opportunities and possibly visitor perception of the area would be interrupted for the duration of the treatment of the proposed project area. Visitors sensitive to logging operations may choose different destinations due to the changes in the setting. All current recreational activities are expected to continue during and after proposed project operations. Treatments within the Paradise Campground should be carried out during the off season when the campground is closed to the public, or have a special closure of the campground in order to

provide adequate safety to forest visitors. Roads may be affected by logging truck traffic for the duration of project implementation. Wear on roads would be mitigated by normal maintenance. After the proposed treatments, public safety along FR 104 would be slightly improved due to higher visibility.

This project would not affect the current VQO classifications of the project area. Although implementation of this project would alter some visual appearance of the area, the treatment would meet the VQOs of modification and partial retention as long as these visual management guidelines are followed during the duration of the proposed action operations.

With implementation of the proposed action, the likelihood and intensity of large fire events would be slightly reduced and the consequences to recreation and visual resources would be similarly reduced.

Although not within an IRA or potential wilderness, these delineated areas do lie adjacent to the project area. Noise levels may temporarily increase during the implementation of operations within the project area. Primitive and semi-primitive recreational opportunities may slightly decrease in the IRA directly adjacent to the project area. Once the proposed project treatments are completed noise levels would return to normal and the opportunities for primitive and semi-primitive recreation would also return to their current state with no adverse effects to that roadless area characteristic. All other roadless characteristics within the adjacent IRA would not be affected during or after project implementation. Likewise, the proposed treatments would not alter the potential for wilderness designation in the adjacent potential wilderness area. Noise levels may temporarily increase and solitude and primitive recreational opportunities may temporarily decrease; however, once the proposed project treatments are completed, the wilderness characteristics of solitude and primitive recreational opportunities would return to their current state without being adversely affected.

Cumulative Effects

Potential landscape changing events that could cumulatively impact the area would be similar to those listed under the *No Action* section above, however the likelihood of large fire events would be slightly reduced. Other past, present, and reasonably foreseeable future projects and special use permits in the project area in combination with the proposed action would not significantly affect recreation opportunities or visual resources.

Social and Economic

Affected Environment

The proposed project area is located in western Uintah County, Utah approximately 4 miles from the Uintah County - Duchesne County line. Uintah County encompasses approximately 4,480 square miles (Census Bureau 2013). Only 15% of Uintah County lands are privately owned (Berg Engineering and Uintah County 2011); the remaining lands are public lands managed by government agencies or lands that fall on a portion of the Uintah and Ouray Indian Reservation.

The Utah Department of Workforce Services identifies the oil and gas industry to still be the chief support of the county's economy. Other important industries are government, trade, recreation services, and the Ute Indian Tribal enterprises. Because the county's main industry is oil and gas, highs and lows that closely parallel the price of oil on the international market are felt across the

county in its economic vitality and unemployment rate. (Utah Department of Workforce Services 2013)

Per the U.S. Census Bureau's 2011 population estimate, the county population was 33,163. The minority population (including all those who identify themselves as a non-white single race, a combination of two or more races, or Hispanic or Latino of any race) in Uintah County was 17.6%, the largest sub-groups of which were American Indian at 7.9% and Hispanic or Latino at 7.5%. The minority population in all of Utah was a larger percentage at 19.9%; the national minority population was larger still at 36.6%. Also as of 2011, 11% of the county population was living below the poverty level; state (11.4%) and national (14.3%) figures for individuals below the poverty level were similar and slightly higher, respectively. The poverty level figure in the county has declined by several percentage points in the last few years, based on wage increases and falling unemployment rates. Median household income in the county was $62,450. This is above state ($57,783) and national ($52,762) figures. The county is rural and has a low population to land ratio, with around seven people per square mile being recorded in 2010. State and national densities were 34 and 87 people per square mile, respectively. (Census Bureau 2013; 2010 and 2011 figures)

Environmental Effects

The proposed action is not expected to disproportionately impact human populations. The project would not have an adverse effect on civil rights or adversely affect minority or low-income populations. No concerns were identified through the scoping process or consultations with affected publics. There are also no human health or safety factors associated with biological or physical factors influenced by the proposal that would affect low-income or minority populations in the area.

The proposed action would not adversely affect state agencies, other federal agencies, American Indian Tribes, commercial/industrial organizations, or public health and safety.

The proposed action would not have national, regional, or statewide consequences. It would not have any significant local social or economic consequences either, but the proposed timber harvest and thinning contracts would provide some benefits to the local/rural community. There would be no uncertain, unique, or unknown effects on the social and economic environment with implementation of this project. Any direct, indirect, or cumulative effects would not be significant.

Soils

Affected Environment

The project occurs mostly on the Alpine Moraine (AM1, AM7) and Parks Plateau (PP4, PP5) land type associations, with some smaller sections occurring on the Trout Slope (TS2) land type association (see footnote descriptions of these land types on pages 19-20 above). The higher elevation (ranging from approximately 9,700 to 10,000 feet) and correspondingly higher annual precipitation (24-28 inches per year), combined with the properties of the soils and underlying materials, creates a tendency for present and potentially wet soils in the project area.

Consideration of high water tables is important so that management activities can avoid wetland areas and can time activities to prevent impacts to meadows or forested areas with periodic high water. When a soil has perched water, the saturated zone has lost all bearing strength and this

creates a potential for damage from compaction, displacement, or erosion. Also, heavy equipment could disturb or alter the normal hydrology of the area. If ruts intersect the water table flow, the water table can rise and soils can become saturated. The fine-textured horizons that perch water also make the entire soil slow to drain and dry, hence the mitigation to allow soils to dry after a precipitation event prior to continuing work.

The proposed project was designed to avoid wetland impacts by not including the pothole topography in treatment units and by creating buffer zones around all wetland areas on the ground.

Field monitoring of the current condition in the project area revealed that forest floor disturbance is rare and localized. A few field sites that intersected past old roads or skid trails had some sheet wash erosion. Compaction potential is minimal throughout most of the area, but any use of heavy equipment has the potential to cause compaction and rutting which can damage soil for decades. Timing equipment use to maximize work when soils are dry, frozen, or have continuous snow cover can mitigate many compaction effects. Planning projects to reduce the number of roads and skid trails constructed and using equipment that is track-mounted or has wide rubber tires are important management considerations.

Literature and monitoring indicate that slash piling and burning can cause compaction, soil displacement, detrimental changes in soil chemistry, and soil sterilization unless implemented with the soil resource in mind (see *Design Features* section above).

Likewise, literature and monitoring indicate that masticated or chipped material, as long as it is limited in depth and continuity, can bring several benefits to the soil resource. The material can act as protective mulch, preventing erosion and helping retain soil moisture. It can provide a relatively fine sized source of organic matter, adding to soil water holding capacity, biological activity, porosity and structure, and the availability and cycling of nutrients.

Detrimentally disturbed soil should be limited to less than 15% of the project area. Detrimental disturbance includes compaction, rutting, puddling, erosion, and severely burned soil. All wetland pockets should remain unaffected and areas of periodic high water tables should have no to minimal impacts so that normal subsurface flow is not interrupted. Slash, forest litter, and the duff-humus layer should be maintained and protected as much as possible as a source of carbon, nutrients, and soil cover.

Environmental Effects

For most timber harvest operations, potential effects on soils relate to two categories: 1) trafficking – the impacts of compaction, soil displacement, and rutting and the effects that stem from these disturbances, and 2) the removal of canopy overstory and the associated loss of organic matter to the ecosystem.

Fuel Breaks, Clearcutting, Overstory Removal, Improvement Cutting, Sanitation/Salvage, Commercial Thinning, and Pre-commercial Thinning Portions of Proposed Action

Direct Effects

Impacts on soils from equipment working in the area could result in compaction, rutting, soil displacement, and erosion on roads, skid trails, and landings. Additional areas where logs are yarded may also have compaction and disturbance of the forest floor. Compaction and rutting

impacts on soils includes loss of porosity and corresponding increase in soil bulk density. The available oxygen and water in soil is reduced, soil structure is destroyed, and roots and rhizomes are broken. Rutting results in localized puddling and saturated soils. If ruts are very deep they can interrupt normal subsurface flow of the water table. Displacement of soils would include loss of the normal litter and duff-humus cover, and mixing of the surface and subsurface horizons. Clearcut areas are expected to have the highest displacement and scarification of the forest floor, resulting in the highest amounts of bare soil.

Indirect Effects

In the limited areas where compaction occurs, there could be temporary negative effects on soils. Increased bulk density and loss of soil structure would reduce the ability of roots to penetrate and would slow plant growth. Pore reduction would result in reduced oxygen and water in soils that may slow microbial activity, resulting in less available nitrogen and other nutrients for plant uptake. Increased bulk density, destroyed soil structure, and rutting would result in reduced water infiltration. Reduced infiltration would result in soils having less available water for plants and an increase in surface runoff rates. Soil erosion in the form of sheet wash or rilling may result. Erosion loss of surface soil reduces the amount of available topsoil which is the most active area of the soil for nutrient exchange. Soil horizons which are displaced and mixed from construction would have altered structure and texture. Areas where the normal protective litter and duff-humus layers are displaced by equipment would have reduced organic additions to the soil and be prone to erosion.

Reduced vegetation canopy and understory would increase the temperature fluxes of the soil and soils may become drier. Temperature changes in the soil may alter microbial activity and the rate nutrients are made available. Plant growth from roots, rhizomes, and seeds can increase or decrease with altered temperatures and opening of the canopy. These changes would be most extreme in clearcut areas. Areas of disturbed or bare soil may be slow to re-vegetate due to reduced water infiltration and loss of surface soil, and invasive species may become established. A reduction in overstory and/or understory canopy would result in slower accumulations of organic matter and reduced organic additions to the surface soil. Organic additions to soils are important for creating sites of nutrient exchange, building soil structure, and adding to soil porosity and infiltration rates.

The reduction in fuels would reduce the risk of damaging wildfires. Wildfires can result in severely burned soils leading to hydrophobic surfaces that are prone to erosion. High-intensity fires can result in soils that are sterilized and that are slow to recover their normal structure, organic matter content, and microbial populations.

Cumulative Effects

Soil disturbance could be compounded if off-highway vehicle drivers or other recreationists use skid trails and temporary roads and the surface areas of the project continue to be impacted. If roads and skid trails lack enough drainage and cover from slash and coarse woody debris, they may begin to channel water and become localized areas of erosion. Grazing impacts from wildlife and livestock in open areas that offer forage could add to any impacts created in open areas from the project. Soils would be slower to regain normal litter and surface horizons if additional disturbance occurs. The Mosby Pipeline Project, a range improvement activity that we are currently proposing in the general area to add to water sources for livestock, does not physically intersect with the Julius Park Vegetation Management Project, and effects should not be cumulative.

Effects Summary

Suggested mitigations (see *Design Criteria* section above) would greatly reduce impacts from compaction and rutting of soils and prevent the possible disruption of the high water table. The soils in Julius Park have medium-sized surface textures that are most prone to compaction. Mitigations to time work to avoid compaction and rutting impacts are important throughout the project area. The most sensitive soils are in the swales and potholes left by glacial activity and soils under the forest canopy along Hen Lee Bench that have periodic high water tables. Depending on the level of disturbance and properties of the soils, some impacts such as rutting or compaction could take time to recover, but we do not expect soil quality and long-term productivity to be damaged by the proposed project. Buffers would keep timber activity away from all watershed concerns including ponds, the Mosby Canal, wetlands, and wet meadows. A good portion of the project has a relatively low slope gradient and substantial surface rock cover, and these factors would help reduce the potential for erosion. We expect that detrimental soil disturbance would be concentrated in areas of equipment use – on roads, skid trails, and landings – and would be below 15% of the project area. We expect that, with implementation of relevant design criteria and mitigations, these highly impacted areas would re-vegetate, regain normal forest floor conditions of litter and duff-humus, and would gradually return to normal soil bulk density.

Slash Piling and Burning Portions of Proposed Action

Direct Effects

Slash piling and burning is an efficient way to reduce fuel loads. If done by machine, piling impacts can include soil compaction, rutting, displacement, mixing of surface and subsurface horizons, and creation of areas with bare soil that are prone to erosion. Machine piling can excavate some of the soil into the piles, causing localized displacement and loss of litter, duff, and surface soil. Burning piles typically creates enough of a heat pulse to leave pockets of sterilized soil. Effects from fire also include changes to soil chemistry.

Indirect Effects

Soils can become warmer and drier with reduced vegetation canopy. The change in temperature and moisture can affect microbial activity and nutrient availability. Organic additions to the soil surface may be reduced. If machine pile areas are not seeded they can become sites where cheatgrass or other invasive plant species become established. Sterilized soil can be slow to regain a microbial population and to return to normal nutrient cycling. Reduced fuel loads would lessen the risk of severe wildfire which can be very damaging to soils.

Cumulative Effects

Slash piling and burning would occur adjacent to the main road between Julius Park and Paradise Park Reservoirs. Surface runoff from the road may add to any erosion that is caused by ground disturbance.

Effects Summary

Effects from piling and burning can be mitigated to a large extent, and rehabilitation on sterilized pockets has proven effective on other Forests. We expect negative impacts on soils to be short term. Using brush rakes for machine piling has proven effective on the Forest to reduce soil disturbance and also aid in re-vegetation. The impacts from burning can be mitigated by conditions of $\geq$ 30% soil moisture, frozen soils, or snow cover. If some of the same area is used for chipping, that material would be useful for areas impacted by piling and burning.

Chipping and Mastication Portions of Proposed Action

Direct Effects

Chipping and mastication are efficient methods to alter fuels into finer coarse woody debris on the forest floor. The chips and masticated coarse wood debris can help retain soil moisture, moderate soil temperatures, and prevent surface runoff and erosion.

Indirect Effects

Chipped material is a readily decomposed carbon source and can result in an increase in microbial populations. Microorganisms also take up nitrogen while decomposing the carbon, so soils typically have a period of nitrogen immobilization at the early stages of decomposition. Chipped and masticated material adds nutrients including nitrogen, phosphorus, calcium, magnesium, and iron to the soil. If chipped material creates anaerobic conditions, phenolic compounds can leach out of the woody material. Chipped and masticated material, although the fuel rearrangement can stop crown fires, is a fuel that could potentially add to fire severity and damage to soils from wildfire.

Cumulative Effects

The chipping and mastication of woody material is a treatment proposed along the main road corridor between Julius Park and Paradise Park. These materials could act like a compost and intercept runoff from the main road, reducing potential surface runoff and erosion. Water additions from the road could also increase the rate that these materials decompose.

Effects Summary

The forest floor and soil condition should benefit from the organic additions of chips and masticated material.

No Action

Direct and Indirect Effects

The no-action alternative would result in no additional compaction or displacement of soil from equipment. No additional surface runoff and erosion from disturbances would follow and prior skid trails and roads would continue to move toward becoming re-vegetated and regaining their normal forest floor layers and bulk density. Without the impacts of equipment, yarding of materials, and piling of fuels, surface and subsurface horizons would not be displaced and mixed. The surface layers of coarse woody debris, litter, duff -humus, and the surface mineral horizons would remain distributed and unaltered.

Current fuel levels would remain and increase. Organic matter in various forms would build in the area, including the amount of coarse woody debris, fine fuels, litter, and the thickness of the soil organic horizons. Soils would continue to receive nutrients from organic matter as it decomposed. The organic matter would help build the organic content of the soils, building soil structure and water and nutrient holding capacities. The organic materials above the soil could moderate soil temperatures, increase soil moisture, and prevent erosion. The risk of wildfire causing damage to soils would increase with the increase in surface fuels.

Cumulative Effects

Without implementation of the proposed treatments, the occurrence of pine beetle and mistletoe could increase, adding to the amount of standing and downed coarse woody material. More fuels would increase the risk of severe fire.

As the proposal would not be implemented, there would be no potential cumulative effects in combination with other activities in the area (such as the proposed Mosby Pipeline Project).

Water

Affected Environment

The project area lies within the Paradise Creek - Whiterocks River and Dry Fork - Twin Creek subwatersheds. The project occurs mostly on the Alpine Moraine (AM1, AM7) and Parks Plateau (PP4, PP5) land type associations, with some smaller sections occurring on the Trout Slope (TS2) land type association (see footnote descriptions of these land types on pages 19-20 above). Project area elevation ranges from approximately 9,700 to 10,000 feet and slope ranges from 0-40%. Winter snowpack is the predominant water source and average annual precipitation is 24-28 inches. Spring (May-June) snowmelt is the main runoff period for the area's streams with summer storm events providing shorter periods of heightened flows.

Streams

Paradise Creek is the only perennial stream in the project area. For this analysis, Mosby Canal is considered an intermittent stream, due to it running when the canal company is releasing water to the Julius Park Reservoir. There is also an ephemeral streambed located in the southeastern portion of the project area that feeds into Mosby Canal. Paradise Creek is in the Paradise Creek - Whiterocks River subwatershed. Mosby Canal and the ephemeral streambed are in the Dry Fork - Twin Creek subwatershed.

Water Quality

There are no water bodies within the subwatersheds or adjacent to the project area that are listed as impaired in the Utah Division of Water Quality's 303(d) list of impaired waters and 305(b) water quality assessment in the state's latest biennial integrated report (UDWQ 2010).

In 2011, the Ninth Circuit Court of Appeals held in Northwest Environmental Defense Center (NEDC) v. Brown, 620 F.3d 1063, that stormwater runoff associated with two logging roads were a point source discharge and were not exempt from National Pollutant Discharge Elimination System (NPDES) permitting, a decision potentially leading to the application of NPDES permitting for stormwater discharges from all logging roads. However, on March 20, 2013, the Supreme Court reversed the Ninth Circuit's decision, backing the Environmental Protection Agency's long-standing policy that logging roads are not an industrial point-source of pollution and therefore do not require Clean Water Act permits.

Floodplains

There are minor floodplains associated with the several perennial, intermittent, and ephemeral watercourses within or adjacent to the project area. The project does not propose any development of or modification to any of these floodplains.

Reservoirs, Ponds, and Wetlands

A short portion of the project area borders Paradise Reservoir, approximately 90 feet in length, on the northwestern end of the project. The southern end of the project borders Julius Park Reservoir for approximately 3,500 feet. Julius Park Reservoir is fed by the inputs from the Mosby Canal, and also controls the output to the downstream canal. There are also several kettle ponds, none of which were identified as having stream inputs or outlets during field visits. The largest of these ponds is called Mill Pond, which is located in the north-central part of the project area. There are no proposed treatments for the areas where these kettle ponds exist.

Several wetland areas were noted during field visits. Those associated with the ephemeral stream were located in non-treatment areas as well as in treatment areas within the project boundaries. There are also several wetlands in the Mill Park vicinity, outside of proposed treatment units. In the southwestern part of the project, Tool Box Park contains a small pond and a wet meadow area. On 9/14/2011, rock barriers were put in place at the southern end of the Park to help mitigate damage caused by unauthorized OHV use.

Municipal Watersheds

The Dry Fork - Twin Creek watershed is part of the source area for the municipal water supply for Vernal, Utah. However, the position of the Mosby Canal creates a sub-drainage within the watershed. Due to engineering, the canal remains on the ridge top and crosses watershed boundaries into the Mosby Creek Watershed. This separates the project area from the municipal watershed source area.

Environmental Effects

Vegetation management and timber harvesting can potentially adversely impact water quality by altering water temperature, increasing sediment loads, and increasing nutrient loads (Gravelle et al. 2009). Due to the nature of the project, with its relatively limited crown removal and almost all slopes below 30%, we expect that soil disturbance would be kept to a minimum and where it does occur, it would be sufficiently upslope of watercourses and buffered from riparian areas and wetlands (see mitigation measures in the *Design Features* section above) such that the risk of sediment delivery to watercourses is low. Short-term sedimentation may increase with increased usage of the roads in the area, but would be mitigated by using best management practices and by the fact that implementation of the project would be spread out over several years. There is no predicted increase in sediment delivery due to the harvesting activities themselves, so when the project is done and road traffic returns to pre-harvest levels, the increased predicted sedimentation rate would return to pre-harvest background levels. In comparison, WEPP FuME modeling, as detailed in the hydrology specialist report for this project, revealed that if no action were to be taken, potential sediment introduction could be very high, as the likelihood of a stand replacing fire would be higher under no action than if the project were to be implemented.

As the project does not propose any development of or modification to any of the small floodplains in the area, there would be no adverse effects on any of these floodplains.

There should also be no adverse effects on the municipal water supply for Vernal, Utah as the project area is separated from the municipal watershed source area as explained above in the *Affected Environment* section.

Cumulative Effects

As prescribed in the 1986 Forest Plan, an equivalent clearcut acres (ECA) analysis can be performed to assess the level of impact from previous harvest activities. Such an analysis is a tool used to assess potential increases in water yield based on past and proposed activities such as clearcuts, partial cuts, roads, and burned areas within a drainage. Allowable ECA percentages range from 10% (of total watershed area) for drainages with poor channel stability to 40% for drainages with excellent channel stability. Also, the more time that passes since an activity, the less it contributes to the ECA. Past silviculture activity, system and non-system roads, turnouts, and past fires in combination with the proposed project (including harvest areas, skid trails, and landings) would result in an ECA of 5.10% for the Paradise Creek - Whiterocks River subwatershed and 7.31% for the Dry Fork - Twin Creek subwatershed. Both figures are well within allowable percentages.

Other past, present, and foreseeable future activities in these subwatersheds that were analyzed for potential cumulative effects include livestock grazing and associated range improvements, wildlife utilization, roads, and recreation. Numerous Forest studies continue to demonstrate that current levels of grazing and wildlife utilization have not been detrimental to the recoveries of harvested areas, thus recovery concurrent with current levels of grazing and wildlife foraging can be expected. The project activity of building skid trails and temporary roads could lead to an increase in unauthorized off-highway vehicle use in the area. However, if these skid trails are not built adjacent to any perennial streams, intermittent streams, or wetland areas, water quality impacts would not be expected. Upon completion of harvesting activities these skid trails and temporary roads would be closed and allowed to rehabilitate, returning recreation impacts on water resources back to pre-harvest levels.

Wildlife

Federally Listed Terrestrial Wildlife Species

Affected Environment

There are two terrestrial wildlife species with ESA listing status that could be affected by this proposed project. These species are the Canada lynx (threatened) and the North American wolverine (candidate). No known populations exist on the Forest for either species; however, potential habitat does exist.

The Forest is considered unoccupied, peripheral habitat for Canada lynx. Low suitability habitat does occur within the proposed project area, which falls within two mapped lynx analysis units (LAUs) – the Whiterocks River and Dry Fork units (LAUs 17 and 18, respectively). The last recorded Uinta Mountain lynx specimen was collected a half century ago. Winter snow track surveys, baited hair snare surveys, and a post graduate study (Bunnell et al. 2005) have all failed to detect any current lynx presence in the Uinta Mountains.

On the Forest, higher elevation areas capable of longer duration snow accumulation and persistence, such as the alpine and subalpine zones of the High Uintas Wilderness Area, may provide potential North American wolverine habitat. No suitable habitat for this species is found within the project area; however, there is a limited expanse of subalpine and alpine habitat at the northern end of each of the LAUs mentioned in the previous paragraph that may provide some limited or marginal potential wolverine habitat. The U.S. Fish and Wildlife Service does not list wolverine on any of the county lists for the Uinta Mountains of the Forest. While limited historical information indicates that wolverine may have existed in Utah, no verified and

confirmed Utah records exist beyond 1921. Winter snow track surveys, hair surveys, and photo bait station surveys conducted on the Forest have not detected wolverine presence.

Environmental Effects

Canada Lynx

Because project effects on lynx can be expected to vary by individual treatment methods and design, proposed treatment activities are grouped into the following three categories for analysis: potential positive effects, potential neutral effects, and potential negative effects. These are all categories of indirect effects. There would be no real direct effects due to the absence of lynx on the Forest.

Potential Positive Effects

The clearcuts, overstory removal that is not followed by pre-commercial thinning, and to some extent sanitation and salvage harvest could provide future habitat improvements for lynx. All three treatment designs provide forest regeneration potential (although the sanitation and salvage harvest may not provide these conditions uniformly in all areas). The treatment could potentially create a short term (for a duration of less than 10 years) lynx foraging habitat condition of "unsuitable" in the treated areas until regeneration growth protrudes above normal winter snow conditions. New forest vegetative growth that responds to overstory and competitive tree removal could improve ground level habitat conditions important to the snowshoe hare, the principal lynx prey species (Forest Service 2007). Improved conditions would be of a relative short duration and last until natural limb pruning and tree growth decreased the amount of ground reaching branches. Snowshoe hare habitat consists of areas where two major conditions exist: 1) sites where young tree and shrub growth is dense, often greater than thousands of woody stems per acre, and 2) sites where mature forest growth provides high ground cover from tree branches that grow down to snow level and includes a tree understory component (Forest Service 2007). These treatments would be applied to a combined total of approximately 157 acres. These potential positive effects would amount to less than 1% of the total LAU area.

Potential Neutral Effects

The 92 acres of proposed improvement cutting, all of which fall within LAU 18, would involve the removal of diseased, malformed, damaged, and dead trees and would maintain a two-storied or uneven aged structure with mixed conifer species. Existing understory vegetation would not be altered and no new understory would result from the treatment. Therefore, we anticipate that this treatment (which would influence less than 1% of LAU 18) would have a neutral effect on hare or lynx habitat.

Potential Negative Effects

The shaded fuel breaks, pre-commercial thinnings, and commercial thinnings could generally be expected to negatively affect lynx habitat. These three treatments total approximately 515 acres and amount to around 1% of the combined acreages of both LAUs.

The shaded fuel breaks would involve the removal of understory vegetation and the pruning of existing taller tree limbs to a height of 8 feet. Snowshoe hare habitat would be diminished on these sites and subsequently lynx foraging habitat would be reduced. Most of the shaded fuel break is along a high recreation use road accessing Paradise Park Reservoir and the associated nearby administrative and campground sites.

The pre-commercial and commercial thinning activities would remove smaller trees ranging from 2.5 inches to 10 inches in diameter. The group targeted for removal is of the age and growth form class that generally provide snowshoe hare habitat. The net effect would be losses to snowshoe hare habitat and associated lynx foraging habitat.

Cumulative Effects

Lynx and lynx habitat can be affected by fire and timber harvest, principally through their influence on prey base habitat conditions. The immediate effect from fire and timber harvest is generally negative though regenerating timber stands do provide improved ground cover and create higher quality prey base habitat as they grow back in (Ruediger et al. 2000). Fire, firewood gathering, and timber harvest acres in LAUs 17 and 18 are well within the standards set in lynx management directives.

The project area is popular for public recreation, including picnicking, sightseeing, camping, hiking, off-highway vehicle travel, fishing, hunting, and winter snowmobile riding. Forest roads are utilized for access to popular recreation sites in the area. Noise and human disturbance levels from the project could increase above normally occurring levels while active timber harvest and vegetation management activities are ongoing. These actions would not further alter habitat and would be short term in nature, therefore cumulative effects would be expected to be minimal.

According to the *Canada Lynx Conservation Assessment and Strategy* (Ruediger et al. 2000), grazing can affect lynx through removing forage resources that would otherwise be available for snowshoe hare and other lynx prey. Grazing is managed under approved allotment plans which incorporate grazing practices that account for wildlife needs and are based upon vegetative condition monitoring. Therefore, grazing effects on lynx coupled with this proposed project would be negligible. A water pipeline development project is currently proposed in several grazing pastures to the south of the project area. Cumulative effects on lynx should be minimal.

Noxious weeds have the potential to significantly alter vegetation and consequently habitat conditions. If this occurs, lynx habitat could be negatively affected over time. However, a Forest Integrated Pest Management Program monitors and addresses noxious weed control. The potential cumulative effect of noxious weeds would be negligible and managed should it occur.

Potential lynx habitat within LAUs 17 and 18 are surrounded by Forest lands and therefore would be unlikely to be affected by non-federal actions. Irrigation system canals and diversions are operated through special use permits and while operated by non-federal entities are overseen and permitted through routine Forest oversight and management. There are no other known cumulative effects from non-federal actions within or adjacent to the LAUs or project area.

We have determined that although effects to potential lynx habitat may result from the project, they are **not likely to adversely affect** this species even when combined with effects from other past, present, and reasonably foreseeable future actions in the area.

North American Wolverine

No suitable wolverine habitat is found within the project area. However, there is a limited expanse of subalpine and alpine habitat that could provide marginal potential habitat at the northern end of LAUs 17 and 18, therefore these LAUs provide a reasonable foundation for reviewing indirect and cumulative effects. There would be no real direct effects due to the absence of wolverine on the Forest.

Indirect Effects

Since wolverine appear to have a stronger link to areas with colder temperatures and deep spring snow persistence than to specific vegetative habitat components (Copeland et al. 2010), the proposed project would have only a minimal indirect effect through altering potential prey base habitat.

Cumulative Effects

The project area is popular for public recreation including picnicking, sightseeing, camping, hiking, off-highway vehicle travel, fishing, hunting, and winter snowmobile riding. Forest roads are utilized for access to popular recreation sites in the area. However, project effects would occur below the alpine and subalpine life zones and would have minimal effects on the wolverine or its habitat.

Grazing is managed under approved allotment plans which incorporate grazing practices that account for wildlife needs and are based upon vegetative condition monitoring. Therefore, grazing effects on wolverine coupled with this proposed project would be negligible. A water pipeline development project is currently proposed in several grazing pastures to the south of the project area. Cumulative effects on wolverine should be minimal to non-existent.

Noxious weeds have the potential to significantly alter vegetation and consequently habitat conditions. If this occurs, habitat could be negatively affected over time. However, a Forest Integrated Pest Management Program monitors and addresses noxious weed control. The potential effect of noxious weeds would be negligible and managed should it occur.

Potential wolverine habitat is above the project area in elevation and is encased by Forest lands and therefore would be unlikely to be affected by non-federal actions. Irrigation system canals and diversions are operated through special use permits and while operated by non-federal entities are overseen and permitted through routine Forest oversight and management. There are no other known cumulative effects from non-federal actions within or adjacent to wolverine habitat or the project area.

We have determined that even when combined with effects from other past, present, and reasonably foreseeable future actions in the area, this project is **not likely to adversely affect** the wolverine.

Forest Service Sensitive Terrestrial Wildlife Species

Affected Environment

There are 13 sensitive avian and mammalian species designated by the Intermountain Region (R4) Regional Forester with relevance to the Forest. Of these species, five occur or have potential habitat in the project area: the boreal owl, flammulated owl, great gray owl, northern goshawk, and three-toed woodpecker. Three more on the sensitive species list are also candidates for federal listing under the ESA: the North American wolverine, greater sage grouse, and yellow-billed cuckoo. The North American wolverine is discussed above in the *Federally Listed Terrestrial Wildlife Species* section. The greater sage grouse and yellow-billed cuckoo, as well as the remaining five sensitive species on the list, do not occur within and have no suitable habitat in the proposed project area; therefore, they are not discussed further here.

The boreal owl inhabits spruce/fir or mixed conifer forest. It also may use aspen if conifers are nearby. This species preys on small mammals, birds, and insects. It is a secondary cavity nester

and requires large cavities for nesting. Four boreal owls have been recorded during winter calling surveys on the Forest (1993, 1996, and 1999). There are no known nesting pairs on the Forest, although both foraging and nesting habitat exists. The accepted year-round range of boreal owls has generally not included Utah (Hayward and Hayward 1993).

Although the flammulated owl is strongly associated with ponderosa pine forest types, it also occurs in mixed conifer types on the Forest. It is a secondary cavity nester and preys upon insects. This species was detected approximately 1 mile south of the project area in an audio call survey transect conducted in June 2010 (Slater 2010). The local area is considered secondary flammulated owl habitat.

The great gray owl requires mixed conifer forests. It nests in old stick nests constructed by other species, in the depressions at the tops of large, broken-off tree trunks, and in debris platforms from dwarf mistletoe. Prey consists of small mammals such as pocket gophers and voles. The Uinta Mountains are at or just beyond this species' southern limit. Although occurrence of this species in the Uinta Mountains is considered rare or outside its normal range, we detected three individuals during winter calling surveys on the Forest in 1996. These individuals are thought to be accidental migrants. There are no known nesting pairs on the Forest and there have been no other call detections prior to or since 1996 (Forest Service 2006b).

The northern goshawk (which, in addition to being a Forest Service sensitive species, is also a Forest management indicator species for old growth forests) uses a wide variety of forest types, but most of the known breeding territories on the Forest are in lodgepole pine or mixed conifer stands. This species establishes stick nests in old trees. Home ranges include a variety of stand ages and structures. For foraging, this species prefers stands with large trees and relatively open understories. For nesting, the goshawk prefers older-age stands with a high density of large trees, relatively high canopy closure, and high basal area. Both foraging and nesting habitat are present in the project area. The goshawk is sensitive to disturbance during the nesting season. There are no known nesting territories within the project area. However, there are four historic nesting territories in the general project vicinity, ranging from approximately ¾ mile to 2 ½ miles from the nearest project area boundary. All four of these territories have been inactive for several years and the nest trees are falling down. Although a recorded audible call survey did not elicit goshawk responses in 2011, birds have been observed near the Paradise Park guard station or campground in both 2010 and 2011. The August 2011 bird was a juvenile which may reflect a nest site in the general area.

The three-toed woodpecker is found year-round in coniferous and mixed forest types at elevations up to 9,000 feet. Boring insects associated with dying, dead, and decaying wood provide this species' principal food source. The three-toed woodpecker requires snags for nesting and foraging. Pine beetle infestations and burned forest snags are common foraging areas. Three-toed woodpeckers occur within the project area.

Environmental Effects

Boreal Owl

Direct and Indirect Effects

Forest structure alterations resulting from the project could directly impact owls if cavity bearing nest trees are removed during the breeding or fledging season. However, project design would not significantly reduce mature forest age structure. Commercial and pre-commercial thinning

(215 acres and 89 acres, respectively) would target the removal of younger trees from 2 to 10 inches DBH. Shaded fuel break management is proposed for an additional 211 acres and would remove only understory vegetation and limbs to a height of approximately 8 feet. Both of these actions could actually improve foraging habitat for boreal owls (Hayward 1994). The proposed overstory removal (148 acres), stand improvement (92 acres), and sanitation/salvage (48 acres) cutting may alter forest age structure as diseased, malformed, or damaged trees are removed. This could decrease potential cavity nest sites and older age segments of the local sites to some degree. However, mitigation recommendations for woodpeckers and goshawks would ensure that sufficient standing snag and prey base forest floor litter would remain. Clearcuts, proposed for 26 total acres, would remove small tracts of forest cover which would be a net loss and direct effect to immediate boreal owl habitat.

Another potential direct impact would include disturbance from increased human presence and noise during the proposed project activity period. However, boreal owls appear to tolerate human and machine noise (Hayward 1994) so this impact would be minimal.

Indirect impacts of the project could be a reduction in boreal owl prey. This could occur if the forest floor vegetative structure or litter is altered to the point that prey habitat is unavailable or significantly reduced. The mitigation measures proposed for three-toed woodpeckers and goshawks would ensure that prey habitat sufficiently remains. Because boreal owls are not common to the project area or to the Forest, the determination is that the project **may impact individuals but is not likely to cause a trend to federal listing or loss of viability**.

Flammulated Owl

Direct and Indirect Effects

Both direct and indirect impacts of the proposed project on flammulated owls would be minimal. The project area is peripheral to primary habitat. The proposed tree harvest associated with the project targets small diameter trees and the mitigation measures proposed for three-toed woodpeckers and goshawks would provide protections for snag and other cavity producing older age trees. Flammulated owls are generally tolerant of human presence and direct impacts of increased activity should not be a problem (McCallum 1994). Indirectly, the results of the proposed harvest should open understory canopy cover and benefit flammulated owl foraging. The determination is that the project **may impact individuals but is not likely to cause a trend to federal listing or loss of viability**.

Great Gray Owl

Direct and Indirect Effects

In the rare event that great gray owls may occur in the project area, direct impacts would include increased human activity throughout the working life of the project. Since this species relies on stick nests constructed by other species and often nests in the broken tops of older aged trees, impacts to nesting habitat could occur (Duncan and Hayward 1994). The removal of broken, diseased, or malformed trees within the overstory removal, stand improvement, and sanitation/salvage cuts (148 acres, 92 acres and 48 acres, respectively) could reduce nesting habitat. However, on the converse, tree thinning may provide increases in older aged trees that would support similar nest construction. Because this species is rare to the Forest, it is determined that the project **may impact individuals but is not likely to cause a trend to federal listing or loss of viability**.

Northern Goshawk

Direct and Indirect Effects

There are no known goshawk nests within the project area and the four known nesting territories associated with the general drainage area have been inactive for several years. Therefore, the proposed actions would have little or no direct effects on nesting and post-fledging areas. Although a recorded audible call survey did not elicit goshawk responses in 2011, birds have been observed near the Paradise Park guard station or campground in both 2010 and 2011. The August 2011 bird was a juvenile which may reflect a nest site in the greater area. Noise and increased human activity during the working phase of the project could have direct effects on individual birds that may use the area post fledging. If nesting activity is detected within the project area, adherence to the Goshawk Amendment and the mitigation measures described above in the *Design Features* section would provide recognized protection.

Site visits and general habitat assessments during 2011 indicate that the project area is not currently prime goshawk nesting habitat. Forest stand alterations that open understory through smaller diameter tree thinning, yet maintain adequate snags and down debris for prey species, could generally improve goshawk habitat. An evaluation of Vegetative Stand Structure (VSS) and available mature forest is included in the forested vegetation specialist report in the project record. The results indicate that the mature stand class (VSS 6) remains lacking. Following the proposed project, the youngest structure classes (VSS 1 and 2) would move closer to the desired distribution, and VSS classes 3, 4a, 4b, and 5 would move closer to the desired distribution at the project level. Overall structure diversity at the project scale would be improved. Additionally, with project implementation, we would remain at the Forest Plan standard of having at least 5% of management area n being identified old growth to retain and would not compromise the size of existing contiguous ≥160-acre old growth stands. The proposed action would raise the probability of maintaining old growth (in and adjacent to the project area) in the future.

In summary: 1) there are no known goshawk nests or territories within the project area; 2) recorded audible call surveys produced no responses; 3) adjacent known and traditional nest sites have been unoccupied for several years; 4) recent goshawk observations are from late summer at the trailing end of the fledging season; 5) project area forest conditions are below optimum for goshawk habitat; 6) vegetation treatments may improve future goshawk habitat (VSS class distribution and subsequent mature forest representation); and 7) the Goshawk Amendment standards and guidelines are maintained. Therefore, we have determined that the proposed project **may impact individuals but is not likely to cause a trend to federal listing or loss of viability**.

Three-toed Woodpecker

Direct and Indirect Effects

Snag removal is proposed at varying degrees within approximately 666 acres of the project area. These treatments include improvement cuts (92 acres), overstory removal (148 acres), commercial thinning (215 acres) and shaded fuel breaks (211 acres). Additionally, approximately 26 acres of clear cutting is also proposed. These treatments singularly, and in total, would remove habitat components critical to three-toed woodpeckers. Losses would reduce forage resources and nesting/breeding habitat. Effects would be both direct through immediate losses to individuals currently associated with the area and indirect through the long term loss of resources for continued support of resident birds. Therefore, mitigation actions would be required to maintain three-toed woodpecker nesting and foraging habitat capability within the project area.

Three-toed woodpeckers are reportedly tolerant to human activities (Leonard 2001). The short term increase in noise and human presence during the project activity period would, therefore, not be expected to disturb woodpecker nesting or habitat use patterns. Based upon the foregoing review and the mitigation measures defined above in the *Design Features* section, the determination for three-toed woodpeckers is that the project **may impact individuals but is not likely to cause a trend to federal listing or loss of viability**.

Cumulative Effects on Sensitive Terrestrial Wildlife Species

Cumulative effects on sensitive species were considered both within the project area and the adjacent areas across the Mosby Mountain and Hen Lee Bench area. Cumulative effects include past timber harvest, firewood gathering, grazing, roads, off-highway vehicle use, noxious weeds, human recreation in the various forms present in the area, and future projects in the area.

The Paradise Park and Julius Park areas receive considerable human recreation use in the form of camping, hiking, biking, horseback riding, summer off-highway vehicle use, and winter snow machine travel. Aside from the original impacts of these permitted activities, the project would not likely increase these factors in the long term. Firewood gathering is allowed along established roadways. Effects from this project would not add to this existing public use.

Grazing occurs both within the project area and adjacent to it through allotment permits which are periodically reviewed. Grazing plans are designed to account for wildlife habitat needs. Grazing may reduce forage and cover resources available for wildlife use, inclusive of prey species habitat. The Forest is currently analyzing a water pipeline and trough replacement project south in several pastures south of the project area. We expect any cumulative effects of this project, the existing effects of grazing, and the proposed pipeline and trough project to be negligible.

Timber harvest, as it has been reviewed above, can have negative impacts on various wildlife species. No timber harvest has occurred within the past two decades or longer. Regeneration from historic cutting in the project area now supports a host of wildlife species. Pine beetle infestations across the Forest as well as in the general area of the project coupled with the mitigation measures that have been recommended in this report should ensure that cumulative effects would not exceed the sensitive species tolerance levels.

The principle vector for noxious weed infestation on Forest lands is through vehicles and along vehicular access areas. The cumulative effect of the proposed project on top of the vehicle access that already occurs in the area would be negligible. Additionally, the established Forest Service Integrated Pest Management Program identifies noxious weed areas and addresses control and treatment.

Given the considerations discussed above, the cumulative effects on wildlife are expected to be negligible both individually and combined. Therefore, we have determined that any cumulative effects may impact individuals but are not likely to cause a trend to federal listing or loss of viability of the sensitive species discussed in this section.

Terrestrial Wildlife Management Indicator Species

Affected Environment

Management indicator species (MIS) are monitored species that reflect wildlife population welfare in various habitats. They also include species that are monitored due to other reasons, such as social or economic value. See the table below for a list of terrestrial wildlife MIS (as

designated in our current Forest Plan), the habitat type each species represents, and whether or not it is present in the project area. Habitats, life requirements, and population trends for these species are summarized in *Life Histories and Population Analysis for Management Indicator Species of the Ashley National Forest* (Forest Service 2006a).

Table 6. ***Ashley National Forest terrestrial wildlife management indicator species, represented habitats, and presence/absence in the project area.***

MIS	***Habitat type represented***	***Habitat in project area***
Red-naped sapsucker	Deciduous woodlands	Yes
Warbling vireo	Deciduous woodlands	Yes
Northern goshawk	Old growth timber	Yes, discussed in *Forest Service Sensitive Terrestrial Wildlife Species* section above
Golden eagle	Cliffs/rock	No
Lincoln's sparrow	Riparian shrub	Yes
Song sparrow	Riparian shrub	Yes
Sage grouse	Sagebrush	No
White-tailed ptarmigan	Alpine meadow	No
Species of economic value	***Habitat type represented***	***Habitat in project area***
Rocky Mountain elk	Various	Yes
Mule deer	Various	Yes

Environmental Effects

Red-naped Sapsucker and Warbling Vireo

Both the red-naped sapsucker and the warbling vireo are Forest MIS for deciduous woodland habitats. Vegetative management activities do not target aspen or riparian vegetation removal or alteration, except for what little of these vegetation types may occur within the shaded fuel break treatment. Therefore, little impact on breeding or foraging habitat is expected in the short or long term. Direct impact from logging and other associated actions during the active treatment period could include increased human presence and increased noise. Only periodic and short-term displacement would be expected. To the extent that proposed treatments release aspen regeneration and remove conifer from aspen and the margins of wet areas, both red-naped sapsuckers and warbling vireos may benefit from habitat improvement created by the project in the long term. The project is not expected to negatively affect the population trend of either species nor the ability of the Forest to provide well-distributed habitat.

Lincoln's Sparrow and Song Sparrow

Both the Lincoln's sparrow and the song sparrow are Forest MIS for riparian shrub habitats. Direct impacts from the project would include noise and increased human presence during the active project period. These activities would be short term and could displace individual birds but would not have lasting effects. Since the project vegetative actions do not target the restricted habitat utilized by Lincoln's sparrows and would also avoid most of the preferred habitat of song sparrows, indirect and long-term effects would be minimal. Timber harvest may slightly increase and improve habitat for both species by reducing conifer encroachment into wet areas and riparian systems. The proposed project would not affect population trends nor impair the Forest's ability to provide well distributed habitat for either species.

Mule Deer and Rocky Mountain Elk

Both mule deer and elk are Forest MIS covering various habitats and have high economic value considerations for local economies. Direct effects on both mule deer and elk would include increased human presence during the project work period. This would also include increased noise levels from timber management equipment and vehicles. Both would function to diminish immediate habitat availability and preference for deer fawning and elk calving. The effect would be short term and only serve to temporarily displace both species to different areas. Indirectly, the actions could be beneficial for both species in the long term. As forest understory regenerates in harvested areas, forage and hiding habitat should increase. If harvest activities continue through the fall hunting seasons, some hunter displacement and dissatisfaction could result. However, these too would be short term.

The Julius Park Vegetation Management Project may temporarily displace and, therefore, affect individual deer and elk in the short term. However, the project would not decrease the ability of the Forest to provide functioning habitat for these species across the portion of their range administered by the agency. In fact, the project may have beneficial effects in this realm.

Cumulative Effects on Management Indicator Species

Cumulative effects of the proposed project upon MIS would be minimal. The increased human presence and noise that may accompany the active project would add little to the existing recreation traffic of the area. Domestic firewood cutting is fairly limited to established roadsides and would not create large overlap with the project area or the larger effects area. Domestic cattle grazing and associated range improvements occur within and adjacent to the project area. Understory vegetation that is important for use as ground nesting habitat and prey base production for MIS would not be further altered by the proposed project. Any cumulative effects of the project in combination with past, present, and reasonably foreseeable future activities in the area would be minimal.

Migratory Birds

Affected Environment

The Forest Service and U.S. Fish and Wildlife Service (USFWS) developed a memorandum of understanding that provides direction in promoting migratory bird conservation (Forest Service and USFWS 2008). Also, the Utah Partners in Flight (PIF) working group (Parrish et al. 2002) has identified priority avian species for conservation consideration. Additionally, Executive Order 13186 outlines the responsibilities of federal agencies to protect migratory birds. The table below combines those migratory bird species from the USFWS Bird Conservation Region 16 (Southern Rockies/Colorado Plateau) Birds of Conservation Concern (BCC) list and the Utah PIF species list that may be present in the project area. Habitats, life requirements, and population trends for these species are discussed in the terrestrial wildlife specialist report for this project.

Table 7. ***Migratory bird species (from the U.S. Fish and Wildlife Service Birds of Conservation Concern list and the Utah Partners in Flight priority species list) that may be present in project area.***

Species	*USFWS BCC Region 16 list*	*Utah PIF list*
Broad-tailed hummingbird		X
Cassin's finch	X	
Flammulated owl	X	
Lewis's woodpecker	X	X
Three-toed woodpecker		
Veery	X	

Environmental Effects

Potential effects on the broad-tailed hummingbird, Cassin's finch, Lewis's woodpecker, and veery are discussed below. Because effects on the flammulated owl and three-toed woodpecker are discussed above in the *Forest Service Sensitive Terrestrial Wildlife Species* section above, they are not reiterated here.

Broad-tailed Hummingbird

The proposed management activities associated with the Julius Park Vegetation Management Project would have little effect upon the small amount of riparian habitat type found in the project area. Therefore, few long-term and indirect project effects could be anticipated for this species. Timber harvest that creates open areas with meadow or park-type habitat capable of sustaining wildflowers would likely benefit broad-tailed hummingbirds. Direct impacts from the project would involve increased human activity and noise during the harvest and management periods. Although unknown, disturbance could lead to nest abandonment or displacement of individuals during the breeding season. Therefore, the project may temporarily impact individuals but would not diminish the ability of the Forest to provide habitat in support of viable populations.

Cassin's Finch and Lewis's Woodpecker

The proposed project would likely have few detrimental effects on populations or habitat of either the Cassin's finch or Lewis's woodpecker. Cassin's finch nesting habitat (open coniferous forests) would still be available in a broad spectrum of the harvested forest area following the proposed action. Being a habitat specialist (primary Utah breeding habitat is ponderosa pine and secondary habitat includes lowland riparian and frequently mountain shrub), the Lewis's woodpecker has a small amount of habitat within the project area. With the mitigations for both goshawks and three-toed woodpeckers that are listed earlier in this document, standing dead snag habitat and ground woody material should be available. Similar to the other species, direct effects would include increased human presence and noise. However, the short-term nature of this disturbance may affect individuals through temporary displacement but would not impact populations nor the Forest's ability to provide habitat.

Veery

Dense, shrubby understory vegetation associated with riparian habitat types is very limited throughout the project area. While wet and semi-boggy areas are present, there is insufficient woody vegetation to create high value veery nesting and breeding habitat. Direct and indirect impacts from the proposed project would be unlikely to affect veery populations or alter habitat.

Cumulative Effects on Migratory Birds

We expect cumulative effects of the proposed project upon migratory birds to be minimal. The increased human presence and noise that may accompany the active project would add little to the

existing recreation traffic of the area. Domestic firewood cutting is fairly limited to established roadsides and would not create large overlap with the project area or the larger effects area. Domestic cattle grazing and associated range improvements occur within and adjacent to the project area. Any cumulative effects of the project in combination with past, present, and reasonably foreseeable future activities in the area would be minimal.

AGENCIES AND PERSONS CONSULTED

The Forest Service consulted the following individuals; Federal, State, and local agencies; tribes; and non-Forest Service persons during the development of this environmental assessment.

Interdisciplinary Team Members:

James McRae - Interdisciplinary Team Leader and Timber Management Officer
René Arce - Recreation Specialist
Garry Brown - Rangeland Management Specialist
Christopher Gamble - Fuels Specialist
Melissa Hendrickson - Hydrologist
Allen Huber - Plant Ecologist
Sarah Leahy - Soils Scientist
Alexander New, Tara Hamilton, and Jeffrey Rust - Archaeologists
Dave Olsen - Wildlife Biologist
Troy Osborne and Dan Abeyta - Fisheries Biologists
Lesley Tullis - Environmental Coordinator
Colette Webb - Silviculturist

Federal, State, and Local Agencies:

Bureau of Indian Affairs, U.S. Department of Interior
Bureau of Land Management, U.S. Department of Interior
Fish and Wildlife Service, U.S. Department of Interior
National Park Service, U.S. Department of Interior
Army Corps of Engineers, U.S. Department of Defense
State of Utah Historic Preservation Office
State of Utah Division of Wildlife Resources
Daggett County Commissioners
Duchesne County Commissioners
Uintah County Commissioners
Wasatch County Commissioners
Central Utah Water Conservancy District
Uintah Water Conservancy District

TRIBES:

Ute Indian Tribe, Fort Duchesne, UT

OTHERS:

The above entities and all others with whom the Forest Service consulted are contained in the scoping letter mailing lists in the project record.

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APPENDICES

Appendix A. *Vicinity and project area maps.*

Appendix B. *Responses to comments from scoping.*

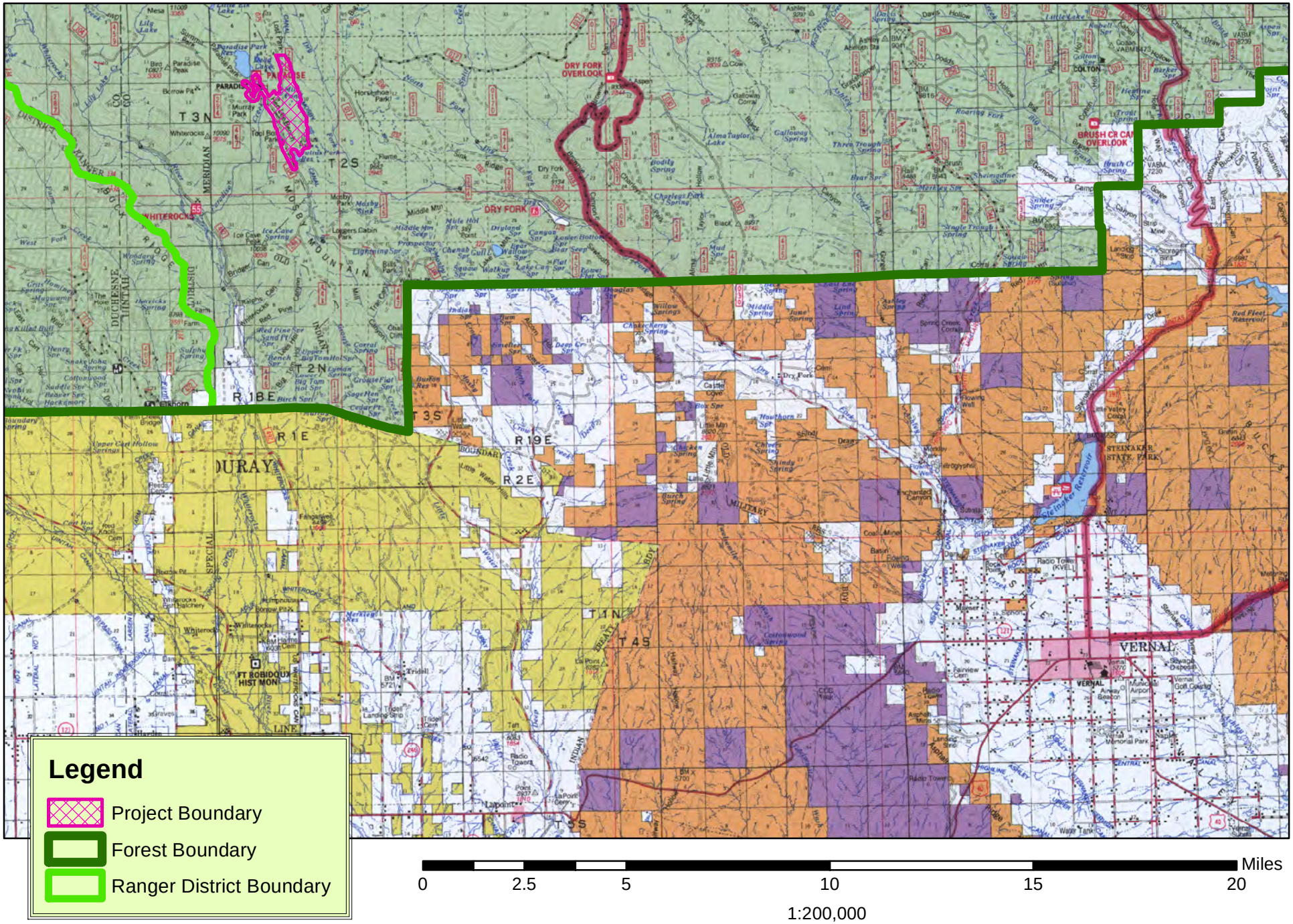
EA compiled by:
Lesley Tullis
NEPA Coordinator
Vernal Ranger District
4/10/2013

APPENDIX A
Vicinity and Project Area Maps

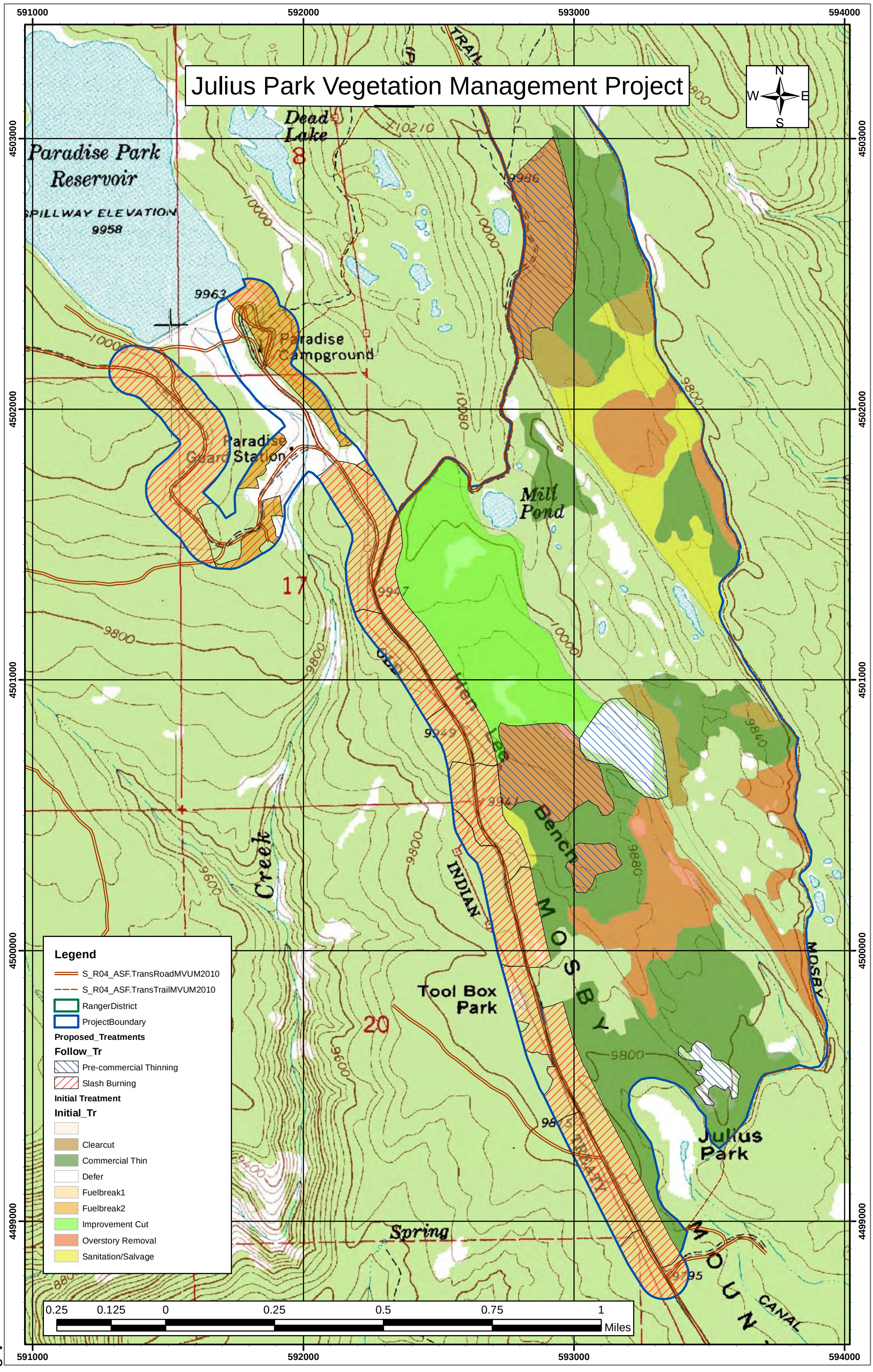
Julius Park Vegetation Management Project
Ashley National Forest
Vernal Ranger District

Julius Park Vegetation Management Project
Vicinity Map
Ashley National Forest
Vernal Ranger District

A-1



Julius Park Vegetation Management Project



APPENDIX B

Responses to Comments

Julius Park Vegetation Management Project

Ashley National Forest
Vernal Ranger District

Comments Received in Response to the 1/25/12 Scoping Letter, 2/1/12 Legal Notice of Scoping, and 2/6/12 Scoping Email	
0012 – Dick Artley (2/7/12 and 2/14/12):	
Comment	**Response**
1. Disagreement that project would achieve its stated purpose. "I retired in 2003 as the forest planner on the Nez Perce National Forest. I led the IDT [interdisciplinary team] on 3 to 5 field monitoring visits each year of the 11 years I was the forest's planner. . . . About 70% of our monitoring trips were to completed timber sales. For each timber sale we visited I summarized the Purpose & Need statements from the NEPA document and we collectively determined of [sic] the timber sale met the goals. The goals that indicated natural resource functioning would be improved by the sale were not achieved by the sale in most cases. The yearly M&E [Monitoring and Evaluation] reports were not refreshing to read. After several years of repeated M&E Reports critical of the link between timber sale NEPA documents and the actual ecological results of the sale our forest supervisor changed forest policy. She directed the District Rangers to **ONLY** include P&N [Purpose and Need] goals that were likely to be achieved by the timber sale. This would be based on monitoring of past timber sales of similar conditions." "Incredibly P&N statement #4 is one of the trumped-up goals to trick the public into believing the sale will be ecosystem friendly. To wit: 'The purpose of this project is to improve long-term forest health and maintain ecosystem functions . . .' Anyone with experience knows that taking action to eliminate natural disturbance evens [sic] does not 'improve long-term forest health and maintain ecosystem functions'."	**VEG, ECOL, NEPA**[1] As stated in the scoping letter, the purpose of this project is to improve long-term forest health and maintain ecosystem functions (including historic fire regimes) by influencing tree species composition, moderating stand densities, and adjusting stand structures and spatial patterns, while protecting, maintaining, or improving water and soil resources. The proposed treatments would include the harvest of wood fiber to: 1. Improve the resilience and adaptive capacity of the forest stands within the project area. 2. Promote tree vigor and form to minimize the future impacts of forest pests, such as mountain pine beetles and lodgepole pine mistletoe, and to minimize damage from abiotic factors, such as wind and snow. 3. Reduce the risk of uncharacteristic or unacceptable wildfires by reducing hazardous fuel loading. 4. To maintain or improve long-term range conditions, water quality, and watershed conditions. The achievement of these ecological objectives would not be evident immediately after the project as they are all long-term objectives. Refer to the Environmental Assessment (EA) and relevant specialist reports in the project record for the expected effects of the project.

[1] We assigned each comment one or more categories. The relevant category/categories of each comment appear in green above the response. We received comments in the following categories: **VEG (vegetation)** (9 comments); **ECOL (ecology)** (6 comments); **NEPA (National Environmental Policy Act or planning)** (5 comments); **REC (recreation)** (3 comments); **INTERP (interpretation)** (1 comment); **FUELS/FIRE** (4 comments); **SAFETY** (2 comments); **WATER** (5 comments); and **ROADS** (2 comments).

2. Opposition to timber harvest near a popular recreation area. "Anyone with experience knows that logging over a square mile so near to a popular recreation area is not wise."	**REC** Measures would be taken to ensure that project implementation would not conflict with high use recreation times, such as avoiding work on holiday weekends and during popular hunts. Also, we would erect signs on the roads to warn the public of logging truck traffic. Additionally, all temporary roads and skid trails would be closed and allowed to rehabilitate upon project completion in order to prevent unauthorized continued recreational use. See recreation specialist report in project record and relevant portions of EA for more information.
3. Belief that a better option would be to erect interpretive signs rather than implement project. "The best option would be to erect interpretive signs at various places to educate the public about the natural resource benefits. They would include the benefits of: • leaving dead and dying trees in place, • natural disturbance events such as insect activity, and • trees that are not vigorous".	**INTERP, ECOL** Increased interpretation could be done under the proposed action as well as if no action were to be taken. The Forest currently has several interpretive signs across the Forest educating the public on natural disturbance cycles. Also, there are many Forest Service provided educational leaflets and online education information opportunities regarding forest health. Also, although western forests have experienced regular bark beetle infestations throughout time, for various reasons the western United States is currently in the midst of the largest bark beetle outbreak in recorded history, with unprecedented environmental and social impacts (Forest Service 2011). With this level of epidemic, there are more impacts than benefits. Resource objectives tied to this project are most likely to be met by conducting the proposed treatments rather than proceeding with no action. There are hundreds of thousands of affected acres that will not be treated on the Forest and throughout the Intermountain West, where the benefits and impacts of a "no action" strategy will be evident.
4. Call for an additional alternative and criticism that the purpose and need is too narrow. "Please develop a public education alternative. Remember, NEPA requires a reasonable range of alternatives to be analyzed in detail. Several court opinions warn agencies not to craft the P&N so narrow that it excludes all alternatives but the proposed action."	**NEPA** We considered public education as an issue in our analysis. Current Forest practices include efforts to educate the public on forest health and ecology. Increased education and interpretation could be done in conjunction with the proposed action or if no action were to be taken. We did not consider this to be a significant issue or unresolved conflict concerning alternative uses of available resources that would prompt the need to develop an alternative. Also, this alternative would not meet the purpose and need. The purpose and need is not a particularly narrow one. As stated in the EA, it is to improve long-term forest health and maintain ecosystem functions (including historic fire regimes) by influencing tree species composition; moderating stand densities; and adjusting stand structures and spatial patterns, while protecting, maintaining, or improving water and soil resources. No specific number of alternatives is required or prescribed (36 CFR 220.7[b][2]). When there are no unresolved conflicts concerning alternative uses of available resources (NEPA, section 102[2][E]), the EA need only analyze the proposed action and proceed without consideration of additional alternatives (36 CFR 220.7[b][2][i]). See also the *Involvement, Issues and Alternatives* section of the EA for additional information.

0013 – Wasatch County Public Lands Committee (2/10/12):	
Comment	**Response**
5. General support of project. "Wasatch County supports your efforts to use a commercial timber harvest and non-commercial manipulation of hazard fuels and prescribe [sic] fire to reduce wildfire risk and promote the resilience and adaptive capacity of forest stands in order to sanitize timbered acres of insect, disease and hazardous trees."	**VEG, FUELS/FIRE, ECOL, SAFETY** Thank you for your comment.
6. Support of maintaining stand diversity for forest health. Call to treat wind thrown and beetle infested spruce stands in addition to proposal. "Wasatch County further supports your efforts to maintain and enhance all timber stand diversities and age classes to create a healthy forest condition. Wind thrown and beetle infested Spruce Stands should receive constant attention to prevent future outbreaks of Spruce Bark Beetle in addition to your proposal."	**VEG, ECOL** One of the aims of the project is to increase stand diversity to minimize future forest pest losses and to promote healthy, strong, and vigorous trees. Portions of the project include areas of Engelmann spruce. For example, the improvement cutting would maintain an uneven-aged stand structure and mixed species composition of lodgepole pine and Engelmann spruce after damaged trees are removed. In order to reduce the risk of blow-down incidents in the treatment areas, blow-down risk assessments would occur prior to thinning treatments to determine allowable basal area reductions. To prevent spruce beetle population increases and to minimize residual tree losses to this beetle, all slash, cull, and butt logs would be treated according to the slash management recommendations provided in the Forested Vegetation Specialist Report in the project record.
7. Support of multiple use and sustained yield. "Wasatch County encourages public lands to be managed for multiple use and sustained yield and to prevent waste and deterioration of natural resources. Commercial removal of bark beetle infested timber within the Julius Park drainage would allow an opportunity to utilize needed natural resources."	**VEG, NEPA** In accordance with the Multiple-Use Sustained-Yield Act of 1960 (as amended), national forests are to be managed for outdoor recreation, range, timber, watershed, and wildlife and fish purposes without impairing the productivity of the land. This proposed project fits into the coordinated overall management of the Forest and is in compliance with this Act.
8. Encouragement of slash treatment to reduce bark beetle problems. "Wasatch County would encourage proper treatment of all slash generated as a result of this project to prevent a buildup of Ips and to reduce further infestations of bark beetle."	**VEG, ECOL** The pine engraver beetle (*Ips pini*) affects areas where green lodgepole pine slash greater than 4 inches in diameter is left on site. Abundant slash left on treated sites could increase pine engraver beetle populations. Slash management guidelines recommend removal or treatment of all green pine slash greater than 4 inches in diameter. To minimize residual tree losses to pine engraver beetles, slash will be treated according to the slash management recommendations provided in the Forested Vegetation Specialist Report in the project record.
9. Conclusion that categorical exclusion #14 should be used. "Wasatch County supports a conclusion that actions may be categorically excluded from further analysis and documentation in an EIS or EA. Portions of this project clearly falls [sic] within category FSH 1909.15 31.2 (14) 'Commercial and non-commercial sanitation harvest of trees to control insects or disease not to exceed 250 acres, requiring no more than ½ mile of temporary road construction, including removal of infested/infected trees and adjacent live uninfested/uninfected trees as determined necessary to control the spread of insects or disease.' It is the position of Wasatch County that: . . . . Efficient and effective use of National Environmental Policy Act Documentation for limited timber harvest will be encouraged."	**NEPA** Because the proposed acreage and length of proposed temporary road construction for the total project exceed the categorical exclusion limitation, we analyzed effects in an EA.

10. Support of protecting timber and other resources from adverse impacts of fire, insects, disease, storm damage, etc. "It is the position of Wasatch County that: . . . . Management strategies shall protect timber and adverse impacts to other resources from devastating effects of fire (in accordance with the National Fire Plan and the National Healthy Forest Initiative), insects, disease, wind throw, blow down, ice storms, or imminent risk of such epidemics because of conditions on adjacent land."	**FUELS/FIRE, VEG, ECOL** We expect that this project would improve the resilience and adaptive capacity of forest stands within the project area as well as reduce uncharacteristic or unacceptable wildfires by reducing hazardous fuel loading.
11. Support of fuels management to minimize urban interface fires and to prevent catastrophic events. "It is the position of Wasatch County that: . . . . Sound fuel load management techniques shall be used to minimize fire potential at the urban interface and prevent catastrophic events."	**FUELS/FIRE** Although not in a designated urban interface area, this project would reduce fuel loading in the vicinity of popular recreation areas including Paradise Park Campground and Reservoir. Also, the proposed shaded fuel breaks along Forest Road 104 would support a safe egress route for Forest visitors in the event of a wildfire.
12. Support of the maintenance or enhancement of watershed health. "It is the position of Wasatch County that: . . . . Forest management techniques shall be implemented that will maintain or enhance watershed health and long-term water quantity, yield and quality."	**WATER** See the hydrology specialist report in the project record for modeling scenarios and expected effects on the watershed if the project were to be implemented as well as if no action were to be taken.
13. Support of the harvest of forest products. "It is the position of Wasatch County that: . . . . Management programs must provide opportunities for citizens to harvest forest products for personal needs, economic value and forest health."	**VEG** Thank you for your comment. Portions of this project would provide such an opportunity.
14. Suggestion to sign and/or gate temporary roads during project then close and obliterate them when project is complete. "Wasatch County suggests that proposed temporary roads required to harvest these stands be signed and/or gated to restrict public access at the beginning of the project. Temporary roads should be closed or obliterated following harvest and reforestation efforts to prevent future recreational travel access."	**ROADS, REC, VEG** The temporary roads would not be gated during project implementation; however, the Forest policy is that roads are closed to public access unless posted open. Also, the road sections would be short and would end at log decks so would generally not attract use. During periods of contractor inactivity and on busy recreational weekends, we have contractors pull a log or two across temporary roads or block the roads with heavy equipment to discourage unauthorized use. Following project implementation, all sections of the proposed up to 1 mile of temporary road would be closed with such means as barrier rocks, dropped trees, and slash to allow the roads to rehabilitate and to prevent future resource damage from unauthorized vehicle access.
0014 – Uintah County Commission (2/15/12):	
Comment	**Response**
15. Support of project. "Uintah County is supportive of such action and is always interested in the health and safety and multiple use of the forest."	**VEG, SAFETY** Thank you for your comment.
16. Encouragement to keep camping areas and roads open. "Since this area is used heavily for recreation, we would encourage the Vernal Ranger District to continue keeping the camping areas and roads open."	**ROADS, REC** We plan on keeping the system (not temporary) roads open and would schedule work in and adjacent to Paradise Campground outside of its normal operating season in order to avoid impacting recreation.

0015 – U.S. Army Corps of Engineers (2/21/12):	
Comment	**Response**
17. Possible need for Clean Water Act Section 404 permit. "The Corps of Engineers' jurisdiction within the study area is under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. Waters of the United States include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows and seeps. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of Army authorization prior to starting work."	**WATER** This project would not impact waters of the United States. Buffers would be adhered to around all hydrologic features found in the project area. Equipment would not be allowed to work within 100 feet of open ditch sections of the Mosby Canal and intermittent and ephemeral streams; within 150 feet of non-fish-bearing perennial streams, ponds, and wetlands; and within 300 feet of fish-bearing perennial streams. There should be no need to obtain a 404 permit.
18. Wetland delineation. "To ascertain the extent of waters on the project site, the applicant should prepare a wetland delineation, in accordance with the 'Minimum Standards for Acceptance of Preliminary Wetland Delineations', under 'Jurisdiction' on our website at the address below, and submit it to this office for verification. A list of consultants that prepare wetland delineations and permit application documents is also available on our website at the same location."	**WATER** See hydrology specialist report in the project record for information on wetland identification and avoidance. There should be no need to submit a wetland delineation to the U.S. Army Corps of Engineers because all wetlands would be avoided with 150-foot buffers and no 404 permitting would be required.
19. Avoiding the discharge of dredged or fill material into waters of the United States. "The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be developed to compensate for the unavoidable losses resulting from project implementation."	**WATER, NEPA** No dredged or fill material would be discharged into waters of the United States. See applicable portions of the EA as well as the hydrology specialist report in the project record for more information.
0016 – Uintah Water Conservancy District (3/23/12):	
Comment	**Response**
20. Support of project. "As a water agency we are in support of projects that continue to protect and enhance Water Shed Areas and reduce the possibility of uncontrolled fires."	**WATER, FUELS/FIRE** Thank you for your comment.

Total = 20 comments from 5 individuals/groups
Respondents included 1 individual, 2 county governments, 1 federal government agency, and 1 local water conservation district

ADDITIONAL LITERATURE CITED

Forest Service, U.S. Department of Agriculture. 2011. Western bark beetle strategy: human safety, recovery, and resiliency. 11 July. Available online at: http://www.fs.usda.gov/main/barkbeetle/home.