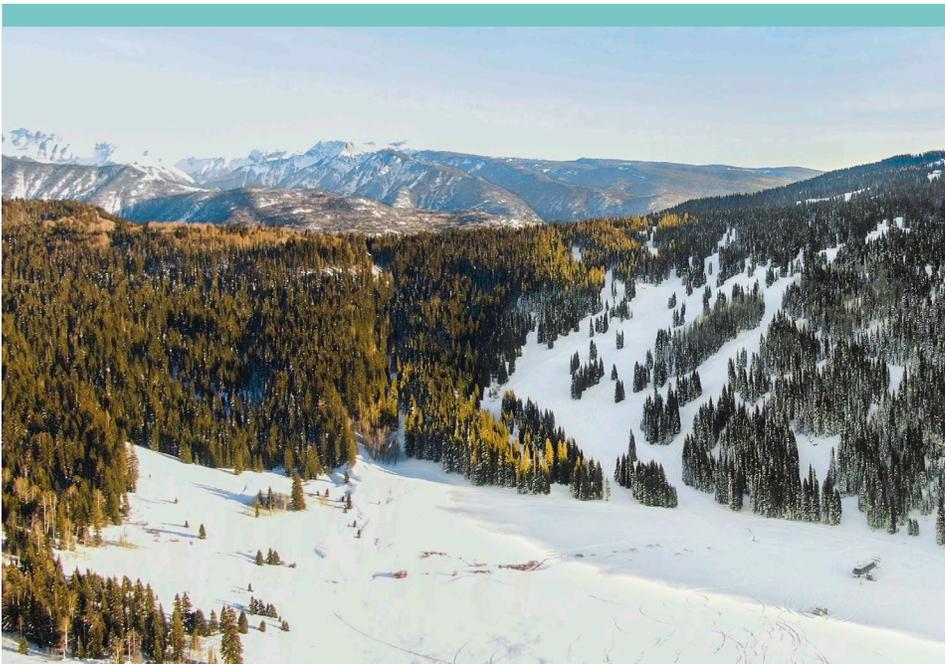




PURGATORY RESORT ICE CREEK PROJECT

ENVIRONMENTAL ASSESSMENT

March 2021



USDA Forest Service
San Juan National Forest
Rocky Mountain Region



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The following is a list of the hyperlinks that are included in this document.

EMBEDDED LINKS	URL
<u>36 CFR § 220.7(b)(2)(ii)</u>	https://www.govinfo.gov/content/pkg/CFR-2011-title36-vol2/pdf/CFR-2011-title36-vol2-sec220-7.pdf
<u>36 CFR § 800.13</u>	https://www.govinfo.gov/content/pkg/CFR-2012-title36-vol3/pdf/CFR-2012-title36-vol3-sec800-13.pdf
<u>40 CFR § 1502.25(b)</u>	https://www.gpo.gov/fdsys/pkg/CFR-1996-title40-vol18/pdf/CFR-1996-title40-vol18-sec1502-25.pdf
<u>40 CFR § 1508.13</u>	https://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol33/pdf/CFR-2011-title40-vol33-sec1508-13.pdf
<u>40 CFR § 1508.27</u>	https://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol34/pdf/CFR-2012-title40-vol34-sec1508-27.pdf
<u>40 CFR § 1508.27(b)</u>	https://www.gpo.gov/fdsys/pkg/CFR-2017-title40-vol37/pdf/CFR-2017-title40-vol37-sec1508-27.pdf
<u>State of Colorado's Open Burn Smoke Permit</u>	https://www.colorado.gov/pacific/cdphe/openburn
<u>Clean Water Act 404 Permit</u>	https://www.epa.gov/cwa-404/section-404-permit-program
<u>Executive Order 11988, Floodplain Management</u>	https://www.archives.gov/federal-register/codification/executive-order/11988.html
<u>Executive Order 11990, Protection of Wetlands</u>	https://www.archives.gov/federal-register/codification/executive-order/11990.html
<u>Forest Plan</u>	https://www.fs.usda.gov/detail/sanjuan/landmanagement/planning/?cid=stelprdb5432707
<u>Forest Service Handbook 1909.15</u>	https://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsh?1909.15
<u>National Historic Preservation Act, Section 106 Consultation</u>	https://www.achp.gov/sites/default/files/regulations/2017-02/regs-rev04.pdf
<u>NHPA</u>	http://xoxyohh9fh753j91bj7hl15l.wpengine.netdna-cdn.com/wp-content/uploads/2017/02/nhpaTitle54Dec2016.pdf
<u>NOPA</u>	https://www.fs.usda.gov/nfs/11558/www/nepa/113394_FSPLT3_5302320.pdf
<u>project webpage</u>	https://www.fs.usda.gov/project/?project=57877
<u>Section 7(d) of the Endangered Species Act</u>	https://www.gpo.gov/fdsys/pkg/CPRT-109HPRT98115/pdf/CPRT-109HPRT98115.pdf
<u>Stormwater Management Plan</u>	https://www.colorado.gov/pacific/sites/default/files/STORMWATER%20MANAGEMENT%20PLAN%20PREPARATION%20GUIDANCE.pdf
<u>Southern Rockies Lynx Management Direction</u>	https://www.fs.usda.gov/detail/r2/landmanagement/planning/?cid=stelprdb5356865
<u>WCPH</u>	https://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsh?2509.25
<u>HCWMP</u>	https://www.fs.usda.gov/nfs/11558/www/nepa/97270_FSPLT3_4176156.pdf

Purpose and Need

The San Juan National Forest (SJNF) has prepared this environmental assessment (EA) in compliance with the National Environmental Policy Act of 1969 (NEPA) and other relevant federal and state laws and regulations. The EA contains a summary of the environmental impacts of the projects being pursued as the proposed action. Technical reports providing detailed information on resources analyzed in this EA were completed by specialists to inform analysis and are summarized within their corresponding resource sections. These technical reports can be found in their entirety on the [project webpage: https://www.fs.usda.gov/project/?project=57877](https://www.fs.usda.gov/project/?project=57877). The entire project file can be found at the Columbine Ranger District office of the SJNF and is available upon request.

For general information regarding Purgatory Resort (Purgatory) and background information regarding the proposed project, refer to the [notice of proposed action \(NOPA\)](#) that was published for public review on June 5th, 2020.

PURPOSE AND NEED OF THE PROPOSED ACTION

The purpose of the proposed action is to respond to a proposal by Purgatory that aims to increase ski terrain for skiers of low-intermediate ability at Purgatory, addressing guest demand. Additionally, the purpose of the proposal is to provide an appropriate learning progression for guests with lower ability levels to complement previously-approved beginner terrain near the top of the Twilight lift.

As a result of the current lack of low-intermediate ability level terrain, some low-intermediate ability level guests ski too fast

on beginner and novice-level terrain or ski uncomfortably above their ability level on intermediate terrain. Furthermore, warming temperatures create poor snow conditions at this lower elevation (approximately 8,750 feet above sea level), impairing the ability of the Columbine beginner area to meet learn-to-ski demands. The proposed project improves the quality, quantity, and distribution of low-intermediate terrain by developing additional terrain within the existing special use permit (SUP) area at a higher elevation.

Purgatory and surrounding areas also receive heavy snowmobile use. Purgatory's proposal seeks to provide safe recreational experiences for skiers and snowmobilers alike. A snowmobile outfitter and guide service currently operates out of the base village, and dispersed snowmobilers can use a snowmobile parking area along Hermosa Park Road (Forest Service Road [FSR] 578) near the base area. Both guided and dispersed snowmobilers generally travel west through the Purgatory SUP area and continue to adjacent National Forest System (NFS) lands. The proposed project reduces user conflicts by moving future snowmobile use to specific-use trails, away from low to intermediate-level skiers on proposed ski terrain.

FOREST SERVICE MANAGEMENT DIRECTION

Forest Service management direction was presented in the [NOPA](#). The proposed action has been reviewed for consistency with all other relevant direction from the [2013 San Juan National Forest and Tres Rios Field Office Land and Resource Management Plan \(Forest Plan\)](#) including management goals, objectives, and standards and guidelines for

resources including terrestrial wildlife, aquatic ecosystems and fisheries, water resources, scenery and visual resource management, and heritage and cultural resources.

The following list summarizes applicable and important management direction that influences the proposed action:

- ◆ The Forest Plan designates Purgatory’s SUP area as Management Area 8 and Management Area 2. The project area contains both management designations (USDA Forest Service 2013).
- ◆ A primary function of these lands is generating socioeconomic benefits through the provision of recreational opportunities; SUPs and motorized recreation in summer and winter are allowed.
- ◆ The Hermosa Creek Watershed Special Management Area (SMA) is subject to management direction provided in the 2018 Hermosa Creek Watershed Management Plan (HCWMP), an amendment to the Forest Plan.
- ◆ The HCWMP designates the Hermosa Creek Watershed as Management Area 2, which is managed for “Special Areas and Designations.”
- ◆ The HCWMP includes recreation special uses as allowable uses within the SMA, specifying that ski area uses are to be managed under the SUP and annual operating plans.
- ◆ Given the direction included in the HCWMP to implement previously authorized activities, including Purgatory’s SUP, the proposed action is in compliance with the Forest Plan.

Consistency with other relevant direction from the HCWMP is further detailed in the Congressionally Designated Special Management Areas section of this EA.

PUBLIC INVOLVEMENT AND IDENTIFICATION OF ISSUES

The SJNF published a legal notice in a newspaper of record, the *Durango Herald*, on June 5, 2020. The legal notice announced the opportunity to comment on the proposed action and initiated a scoping comment period for the project. A NOPA was mailed to 87 community residents, interested individuals, public agencies, tribal governments, and other organizations. This notice was specifically designed to summarize the proposed action and elicit comments, concerns, and issues pertaining to the proposed action. Preliminary direct and indirect environmental consequences were presented in the NOPA based on resource information from the 2008 Durango Mountain Resort Improvement Plan Final Environmental Impact Statement (2008 FEIS). The scoping comment period closed on July 6, 2020, and 153 letters were received.

From these letters, 34 substantive comments were extracted and categorized by resource area. The SJNF identified specific areas of concern and classified them as either *issues* or *non-issues*. The Forest Service considered the information gathered through public scoping along with the input of the Forest Service Interdisciplinary Team (ID Team) in identifying specific resources that require in-depth analysis in the Affected Environment and Environmental Consequences section of this EA. Specific written comments on this EA will be accepted for 30 calendar days following publication of a legal notice in the *Durango Herald*.

***Issues* may warrant the generation of an alternative, can be addressed by project design criteria or mitigation, or generally require in-depth analysis and disclosure.**

***Non-issues* are beyond the scope of the project, are already decided by law, regulation, or policy, or are not relevant to the decision.**

Resources and issues that are analyzed in detail in this EA are included in Table 1.

Table 1. Resources and Issues Analyzed in Detail

RESOURCE AREA	ISSUE
Wildlife	Tree clearing associated with the proposed action would displace diurnal security Canada lynx habitat within the project area, reducing lynx movement across the SUP area.
Fish	Direct and indirect effects of implementing the proposed action may reduce habitat quality and increase annual mortality rates of Colorado River cutthroat trout (CRCT) in occupied habitat in East Fork Hermosa Creek.
Watershed	Implementation of the proposed action, including vegetation removal and ground disturbance would result in impacts to streamflow, erosion, channel stability, and stream health.
Recreation	Implementation of the proposed action would improve the winter recreation experience at Purgatory by balancing ski terrain deficiencies and reducing user conflicts.
Wetland	Implementation of the proposed action would result in negligible impacts to identified wetlands and riparian zones in the project area due to type-conversion.
Cultural	Construction of the proposed trail 76 could potentially impact the Rico-Rockwood Wagon Road, a site eligible for the National Register of Historic Places (NRHP).
Congressionally Designated Special Management Areas	Implementation of the proposed action may impact characteristics of the congressionally designated Hermosa Creek Watershed SMA.

In accordance with [Forest Service Handbook 1909.15](#), Chapter 40, Section 41.22 and [36 CFR § 220.7\(b\)\(2\)\(ii\)](#), this EA will not include an analysis of the no action alternative. Refer to the Issues, Resources, and Alternatives Considered but Not Carried Forward in Detailed Analysis document included in the project file for further discussion on this decision.

RELEVANT CHANGES TO THE PROPOSED ACTION SINCE THE NOPA PUBLICATION

Subsequent to the scoping comment period, the proposed action was modified to respond to resource concerns raised internally by the SJNF and externally by the public, as well as additional planning that occurred based on new resource information obtained since the release of the [NOPA](#). Collectively, changes to the proposed action that occurred between

the [NOPA](#) and the EA reduced grading by approximately 0.5 acre, reduced tree clearing by approximately 1 acre within the proposed ski terrain, and increased areas with grading and tree clearing by approximately 6 acres on the existing snowmobile bypass. The increase in areas with grading and tree clearing is primarily due to the updated snowmobile access reroute portion of the project.

The following modifications have been incorporated into the proposed action:

- 1) The alignment proposed for the Ice Creek lift in the [NOPA](#) was altered and disturbance around the lift as well as a portion of proposed trail 76 were adjusted to avoid sensitive cultural and watershed resources. The modified alignment, as currently proposed, includes a shifted bottom terminal

located approximately 75 feet northeast from the location proposed in the NOPA to avoid impacts to dendroglyphs located along the culturally significant Rico-Rockwood Wagon Road (5LP1871.4), and to minimize tree clearing for the lift line in the water influence zone (WIZ). The revised alignment would reduce the amount of disturbance by approximately 1 acre. This difference in disturbance acreage has been incorporated into the project description in the Description of Alternatives and the Watershed sections of the EA. The realignment occurred following the completion of technical reports that are summarized in the analyses presented in the Affected Environment and Environmental Consequences section of the EA. The difference in disturbance acreage did not warrant updates to the technical reports or the impact analyses/determinations as presented in the Affected Environment and Environmental Consequences section of the EA for the following resources: wildlife, fish, recreation, wetlands, cultural, and congressionally designated special management areas.

- 2) The proposed snowmobile access route realignment was improved and expanded to provide more suitable conditions for users of lower ability levels. These improvements include spot grading along steep segments of the existing trail to provide more consistent grades with greater snow retention and limited tree removal along trail edges to provide more consistent trail widths. The disturbance associated with the proposed snowmobile access improvements was designed with to provide adequate grade to accommodate a 62-inch tread width for off-highway vehicle (OHV) use in the summer; however, OHV use was

ultimately dismissed from the proposed action as described in the Issues, Resources, and Alternatives Considered but Not Carried Forward in Detailed Analysis document located on the project webpage. The disturbance associated with the proposed snowmobile access improvements has not been updated to reflect this change and therefore over-reports the actual impacts associated with this project.

- 3) The existing gate located on FSR 772 to the south of the proposed bottom terminal would be relocated to the intersection with Hermosa Park Road (FSR 578), and additional gates would be implemented at the start of the new access road to the top terminal, and at the intersection of Hermosa Park Road (FSR 578) and the snowmobile bypass route (refer to Figure 1). The proposed gates would restrict public access to the lift terminals during the summer and winter and OHV travel on the snowmobile bypass trail during non-winter months. Additional information about the proposed gates is included in the Ice Creek Lift project description in the Description of Alternatives and Recreation sections of the EA.

Purgatory would remove and realign the existing cattle fence that spans the project area from above the proposed top lift terminal and into Hermosa Park. The fence would be realigned north of Hermosa Park Road (FSR 578) to reduce recreational use conflicts. Additional information about the relocated cattle fence is included in Table 2. The relocated cattle fence is also depicted in Figure 1.

OTHER NECESSARY PERMITS, LICENSES, AND/OR CONSULTATION

Decisions by other jurisdictions to issue or not issue approvals related to this proposal may be aided by the analyses presented in this EA (per 40 CFR § 1502.25[b]). While the Forest Service assumes no responsibility for enforcing laws, regulations, or ordinances under the jurisdiction of other governmental agencies, Forest Service regulations require permittees to abide by applicable laws and conditions imposed by other jurisdictions. In addition to requisite Forest Service approvals, the following permits or approvals may be required to implement an action alternative:

- ◆ U.S. Fish and Wildlife Service,
Endangered Species Act Informal Section 7 Consultation
- ◆ State Historic Preservation Office,
National Historic Preservation Act,
Section 106 Consultation

Description of Alternatives

ALTERNATIVES CONSIDERED IN DETAIL

The range of alternatives that the Forest Service ID Team considered for this analysis was bound by the purpose and need underlying the proposed action, as well as by the issues that arose from internal and external scoping (refer to the Purpose and Need section of the EA).

Proposed Action

Each project component of the proposed action meets the purpose and need described in the Purpose and Need of the Proposed Action section. With the exception of a segment of the snowmobile access reroute and the realigned grazing fence, all components of the proposed action would occur within Purgatory's existing operating boundary and SUP area and are depicted on the attached Figure 1. Pending Forest Service approval, Purgatory anticipates that construction could begin during the spring/summer of 2022. The proposed action would result in approximately 36 acres of disturbance in total. Each component is described in detail in the following paragraphs. Purgatory proposes to implement all Ice Creek projects analyzed in the 2008 FEIS with a comprehensive package of mitigation measures.

Ice Creek Lift

A fixed grip three-person chairlift would be installed to access proposed low-intermediate terrain in the Ice Creek area at the north-central edge of the SUP boundary (refer to Figure 1). The approximately 3,400-foot-long Ice Creek lift would also improve egress from the Hermosa Park area. The Ice Creek lift would require approximately 2.5

acres of over-story vegetation removal and 0.5 acre of grading.

Construction and maintenance access would be provided to the top and bottom terminals via permanent access roads stemming from existing roads (refer to Figure 1). The combined length of the access roads would be approximately 1,070 feet. The existing gate located on FSR 772 to the south of the proposed bottom terminal would be relocated to the intersection with Hermosa Park Road (FSR 578), and an additional gate would be implemented at the start of the new access road to the top terminal. The proposed gates would restrict public access to the lift terminals during the entire year.

In addition, new buried powerlines would supply electricity to the top and bottom terminals of Ice Creek lift. The proposed powerlines would be trenched into the proposed construction access roads and existing roads and would be sourced from Purgatory's existing network of powerlines. Construction of the proposed access roads and powerlines would result in approximately 2.5 acres of ground disturbance.

Ice Creek Terrain

Four ski trails would be constructed (proposed trails 75, 76, 77, and 78) for low-intermediate ability levels, totaling approximately 45 acres of developed skiing terrain (with additional tree skiing between developed trails, which would not include any tree removal). Trails in this area would incorporate natural stands of vegetation where possible, and each trail would terminate in the eastern end of Hermosa Park (refer to Figure 1). Approximately 22 acres of over-story vegetation removal would occur.

As stated in Table 2, a combination of over-snow and over-ground skidding shall be used for timber removal along the proposed lift and ski trails. Over-snow skidding would be the preferred timber removal method followed by over-ground skidding. All skidding shall occur over existing roads or proposed ski trails to defined logging deck areas. Defined logging deck areas, skid paths, and protocol for timber removal shall be included in the construction implementation plan.

Snowmobile Access Improvements

At the junction of Hermosa Park Road (FSR 578) and the snowmobile bypass trail, an approximately 250-foot-long segment of the existing snowmobile bypass trail would be rerouted with a reduced grade to address safety concerns for beginner snowmobilers (refer to Figure 1). The proposed reroute would result in less than 0.25-acre of grading. This segment of trail is located on private lands owned by Purgatory and would require an easement to be granted by Purgatory to the Forest Service. A gate would be implemented at the junction of Hermosa Park Road (FSR 578) and the snowmobile bypass trail to preclude OHV use during the non-winter months.

After crossing onto NFS lands, an approximately 4,450-foot-long segment of the existing snowmobile bypass route would be improved (refer to Figure 1), resulting in approximately 4 acres of grading and incidental tree removal. Snowmobilers would then be rerouted north and east on a new, approximately 2,900-foot-long segment connecting to Cascade Divide Road (FSR 579). This rerouted trail segment would require approximately 1 acre of limited vegetation clearing and approximately 1.5 acres of vegetation clearing and grading. The trail would follow an old roadbed for about half its length. Approximately 950 feet of the original snowmobile bypass trail would be decommissioned and revegetated.

At the junction of the snowmobile bypass and Cascade Divide Road (FSR 579), snowmobilers would take an existing snowmobile trail known as the "Hermosa Shortcut" (refer to Figure 1). Snowmobilers would follow the Hermosa Shortcut for approximately 2,080 feet, momentarily exiting the Purgatory SUP permit area until reentering and connecting with Hermosa Park Road (FSR 578). Using the Hermosa Shortcut would reduce skier/snowmobile encounters in the Ice Creek and make proposed trail 78 skier-only terrain. The Hermosa Shortcut would require approximately 2 acres of vegetation clearing. Following construction, this trail segment would be groomed by a guided snowmobile outfitter with a Forest Service-issued SUP that currently operates out of the Purgatory Village base area.

A combination of over-ground skidding, over-snow skidding, lop and scatter, and piling and burning shall be used for timber removal along the snowmobile bypass trail. All burning shall occur at identified burn sites. Defined burn sites and pile burning protocol shall be included in the construction implementation plan. Purgatory would implement the snowmobile access improvement projects prior to or concurrent with the proposed Ice Creek lift and ski terrain.

Project Design Criteria

Project design criteria (PDC) would be applied to avoid and minimize potential resource impacts from construction and operation of the proposed action. Some PDC for the proposed action reincorporate criteria specified for the Ice Creek project in the 2008 FEIS but not approved in the Record of Decision for the 2008 Durango Mountain Resort Improvement Plan (2008 ROD), as applicable. PDC incorporated from the 2008 FEIS have been modified to better address existing conditions in the project area.

Table 2 presents the PDC that would be required with implementation of the proposed action. This list supplements the list of best management practices (BMPs) that Purgatory would be required to prepare for the Forest Service prior to the start of construction and implementation.

PDC are site- and project-specific design criteria developed through the analysis of the project.

Table 2. Project-Specific Design Criteria

PROJECT PHASE	PROJECT-SPECIFIC DESIGN CRITERIA
General	<ol style="list-style-type: none"> 1) All proposed activities and facilities shall be consistent with the Forest Plan and all applicable agency management direction (e.g., Forest Service Handbook and Manual) for all affected resource areas. 2) A drainage management plan (DMP) shall be created by Purgatory and approved by the Forest Service to address the potential degradation of stream health in the Purgatory Creek and Ice Creek watersheds that would be likely to result from ground disturbance and altered water yields associated with the proposed action. DMP projects incorporated into the proposed action and required for project approval shall include improvement of existing drainage infrastructure such as road-side ditches and culverts, construction of new drainage features, and implementation of re-vegetation projects. The DMP shall be prepared and approved prior to implementation to ensure compliance with the Region 2 Watershed Conservation Practices Handbook (WCPH). 3) Prior to starting construction activities on NFS lands, Purgatory shall develop a Construction Implementation Plan for Forest Service review and authorization by the authorized official or their designee. The Construction Implementation Plan shall include standard BMPs and additional project-specific measures. All proposed construction methodologies and practices shall be reviewed for compliance with the decision and resource management direction. This plan shall include the following information: <ul style="list-style-type: none"> • Construction Management: Project timelines, project contracts, disturbance boundaries, grading and site plans, staging and parking areas, construction access, and any required survey information. • Timber Management: A combination of over-snow and over-ground skidding shall be used for timber removal along the proposed lift and ski trails. Over-snow skidding shall be the preferred timber removal method followed by over-ground skidding. Over-snow skidding shall only occur when the ground is protected by at least 12 inches of packed snow or 2 inches of frozen soil. All skidding shall occur over existing roads or proposed ski trails to defined logging deck areas. Defined logging deck areas, skid paths, and protocol for timber removal shall be included in the construction implementation plan. Logging decks and skid paths shall be located outside the WIZ, adjacent to existing roads, in open areas requiring incidental tree removal. Qualifying pieces of down trees shall be scattered into the WIZ in close coordination with Forest Service personnel to improve the large woody debris metric in the project area streams. In addition, a combination of over-ground skidding, over-snow skidding, lop and scatter, and piling and burning shall be used for timber removal along the snowmobile bypass trail. All burning shall occur at identified burn sites. Defined burn sites and pile burning protocol shall be included in the construction implementation plan. • Erosion Control Plan: Detail control methods and methodology including silt fences, straw bales, straw wattles, and other standard erosion control BMPs shall be employed to contain sediment onsite. • Post-Construction Revegetation and Restoration: Methodology, locations, vegetative mixes, and soil amendments. Where appropriate, revegetate disturbed terrain (including staging areas) immediately after completion of construction using Forest Service-approved, certified weed-free native seeds. Install temporary BMPs for sediment and erosion control until planted vegetation provides erosion control. Monitor and manage these areas for weeds. • Noxious Weed Management: Weed control methodologies including equipment cleaning, pretreatment, and post-construction monitoring and treatment. • BMPs: Resort BMP list to be employed and adhered to during project implementation. 4) Purgatory shall obtain all required county, town, and state permits prior to the start of construction. 5) A FSR Permit is required prior to construction-related activities to ensure proper utilization of roads by construction vehicles.

Table 2. Project-Specific Design Criteria (cont.)

PROJECT PHASE	PROJECT-SPECIFIC DESIGN CRITERIA
Pre-Construction	<ol style="list-style-type: none"> 1) Choose structure design, scale, and color of materials, location, and orientation to meet the Scenic Integrity Objectives of the project area. 2) Finishes on constructed facilities should be treated by available methods to reduce glare and reflectivity from smooth surfaces on structures. Finishes should be consistent with the neutral value 4.5 as measured on the Munsell scale. 3) Ensure all colors and finishes on new facilities are included in design plan review submittal for review and approval by Forest Service designated representative. 4) Wetlands proximate to areas of disturbance shall be flagged prior to implementation to ensure equipment does not travel within wetlands. 5) Final design of the access road and bottom terminal of the Ice Creek lift shall avoid the WIZ to the degree practicable. 6) Design and construct road segments to avoid down-road flow and ponding by cross sloping road surface 2 to 4 percent. Out-slope or in-slope road surface according to Forest Service guidelines for the alignment gradient and type of use. Submit road grading and drainage plans for review and approval by the Forest Service. 7) Submit road grading and drainage plans for review and approval by the Forest Service. 8) Prior to construction, clearly flag tree removal and grading limits. 9) Prior to construction, a 100-foot buffer along the segment of the Rico-Rockwood Wagon Road shall be flagged to ensure the route can be identified and avoided during construction activities.
During Construction	<ol style="list-style-type: none"> 1) If undocumented historic and/or prehistoric properties are located during ground disturbing activities or planning activities associated with proposed construction activities, all construction in the immediate vicinity shall cease and they shall be treated as specified in <u>36 CFR § 800.13</u> concerning post-review discoveries. 2) Avoid impacts to the Rico-Rockwood Wagon Road (site segment) by allowing no ground disturbance or contour alterations within the site segment and by thinning trees and removing vegetation only by hand throughout the site segment. Use of heavy mechanized equipment in this area shall only occur when the ground is protected by at least 12 inches of packed snow or 2 inches of frozen soil. Thinning shall occur within a 100-foot buffer of the site segment where it intersects proposed trail 76. A prescription shall be developed in collaboration with a certified Forest Service Silviculturist and Forest Service Archaeologist and shall have the goal of retaining as many large, mature trees as possible, while also providing adequate separation for skiers and groomer use. Furthermore, Purgatory shall coordinate with the Forest Archaeologist regarding the installation of an interpretive panel where the proposed lift line crosses the site segment as well as two interpretive signs either on proposed trail 76 where skiers could see them in the winter or on Hermosa Park Road (FSR 578) north of the project area where visitors could see them in the summer. 3) Where possible, utilize existing roads, or roads approved along with the proposed action, to reduce impacts to vegetation and soils. Where machinery must leave roads, identify and utilize the most direct and least invasive path feasible to reduce impacts to vegetation. Within the SUP, construction access roads (e.g., FSR 772) shall be maintained before and after use to reduce impacts to the road, reduce erosion, and improve drainage and safety. 4) Avoid trampling of native plant communities through designation of formal paths in heavy use areas and other appropriate means. 5) Stockpile topsoil to maintain organic matter and re-spread over dozed areas where feasible and warranted. 6) Avoid sensitive areas, such as riparian areas, wetlands, stream crossings, and unstable areas to the extent practicable. Tree clearing within wetlands shall occur by hand or over-the-snow to prevent vehicular entry into wetlands and riparian areas. Tree removal techniques must be specified in the Construction Implementation Plan. 7) Install and maintain suitable drainage measures to collect and disperse runoff, avoid or minimize erosion of trail surface and adjacent areas, and avoid pollutant spills, as prescribed by the Construction Implementation Plan.

Table 2. Project-Specific Design Criteria (cont.)

PROJECT PHASE	PROJECT-SPECIFIC DESIGN CRITERIA
<p>During Construction (cont.)</p>	<ol style="list-style-type: none"> 8) Ensure proper drainage, rip compacted areas, and apply a Forest Service-approved seed mix and organic soil amendments, if necessary, to facilitate revegetation in disturbed areas. 9) Maintain vegetative buffers adjacent to intermittent or perennial drainages and wetlands to the extent possible. Where avoidance of the vegetative buffer is not possible, disturbance shall be minimized, and a Forest Service representative shall approve site specific plans to operate in and reduce impacts to these areas. 10) Ski lift and trail tree clearing shall minimize straight lines of clearing and feather edges where possible to reduce scenery impacts. 11) Any non-authorized summer use trails crossing any project components shall be closed and rehabilitated, as directed by the Authorized Officer. 12) Clearing for proposed trail 78 shall maintain a vegetative or other physical barrier (e.g., native boulders found on-site) along Hermosa Park Road (FSR 578) to discourage off-road motorized and mechanized use in the summer. 13) Where ski trails and the reroute of the existing snowmobile bypass trail intersect the WIZ, construction methods shall utilize flush-cutting. Stumps may be ground down to the ground surface; however, no “popping” of stumps or removal of tree roots may occur. Within the WIZ, trees shall be removed by hand and over the snow when possible. The use of heavy machinery within the WIZ shall be minimized and a Forest Service representative shall approve site-specific plans to operate in and reduce impacts to these areas. 14) Purgatory shall construct the snowmobile access reroute prior to or concurrent with the proposed Ice Creek lift and ski terrain. 15) Purgatory shall have a qualified biologist conduct callback surveys to determine if nesting boreal owls are present in tree removal areas, and/or avoid tree removal during the nesting periods when eggs or young may be present (May 1 to July 15). 16) Purgatory shall not engage in construction in open areas that overlap the designated elk calving/calf-rearing area between May 15 and July 1. 17) Disturbance associated with the construction of the proposed bottom terminal access road and buried powerline shall be contained to the existing roadbed to avoid impacts to adjacent Palustrine emergent wetlands. 18) Ground disturbance adjacent to streams/wetlands shall occur during baseflow conditions to protect water quality and minimize impacts to wetland soils/vegetation and with sufficient time to revegetate before the winter season. 19) For ground-disturbing activities near perennial and intermittent streams and ephemeral draws, connected disturbed areas (CDAs) shall be minimized by draining roads, road ditches, and other disturbed areas to undisturbed soils rather than directly to streams and ephemeral draws, where feasible. Drainage from disturbed areas shall be modified as necessary using natural topography, rolling dips, waterbars, ditch relief culverts, etc., to disconnect disturbed areas from streams. 20) Excavated material shall not be stored in the WIZ. 21) Keep construction equipment out of streams, except if specifically authorized by the Forest Service or when the ground is protected by at least 12 inches of packed snow or 2 inches of frozen soil. If construction equipment is required to access the stream channel, Purgatory shall obtain all necessary local, state, and federal permits. 22) Construction practices and operations should not introduce soils, debris, or other pollutants into streams, channels, swales, or wetlands. BMPs adequate for erosion and sediment control shall be installed before ground-disturbing activities begin. All non-natural and non-biodegradable materials shall be removed at the end of construction; natural or biodegradable materials may be left onsite unless otherwise directed by the Forest Service. 23) Make cuts, fills, road surfaces, strongly resistant to erosion. This applies to all graded areas, including lift terminals.

Table 2. Project-Specific Design Criteria (cont.)

PROJECT PHASE	PROJECT-SPECIFIC DESIGN CRITERIA
Post Construction	<ol style="list-style-type: none"> 1) Noxious weed surveys shall be conducted in areas of disturbance and construction access annually until noxious weed treatment is deemed successful by the Forest Service. 2) A qualified hydrologist funded by Purgatory and working at the direction of the Forest Service representative shall perform post-construction stream health surveys for three years over a six-year time period from established monitoring locations or until a time determined by the Forest Service representative that the stream health is maintained. <ul style="list-style-type: none"> • Monitoring shall include fish population as well as stream health. • Should surveys reveal stream health and/or fish populations are not being maintained due to implementation of projects, a restoration plan shall be developed by the Forest Service and Purgatory. If restoration is necessary as a result of the project, Purgatory shall fund the restoration. 3) To the extent possible, maintenance activities (i.e., grooming) in the Ice Creek area shall be performed outside the hours of 6:00 p.m. to 6:00 a.m. 4) During the summer months, Purgatory shall install fences around proposed lift towers to prevent cattle from grazing on salt used to melt ice on lift infrastructure. 5) Purgatory shall implement cattleguards at the beginning and end of the proposed access roads to prevent cattle from using them to enter the project area and East Hermosa Park. 6) Purgatory shall remove and realign the existing cattle fence that spans the project area from above the proposed top lift terminal and into Hermosa Park. The fence shall be realigned north of Hermosa Park Road (FSR 578) to reduce recreational use conflicts. Purgatory shall work with grazing allotment permit holders and the Forest Service to address grazing issues related to the realigned fence. Purgatory shall be responsible for funding the fence realignment and the grazing allotment permit holder shall be responsible for fence maintenance. 7) Purgatory shall work with grazing allotment permit holders and the Forest Service to prevent cattle from grazing in recently revegetated areas. Grazing shall resume in these areas once the Forest Service determines that they have adequately reestablished. 8) Reseed all disturbed areas with a Forest Service approved native seed mix. All seed, straw, and other construction materials brought on-site are required to be weed-free. All heavy equipment used shall be pressure washed to ensure it is free of soil and all plant matter before entering NFS lands. 9) Proposed snowmobile trails within the Purgatory SUP area shall be maintained by Purgatory under the guidance of the Forest Service. 10) Purgatory shall install/update educational signage on snowmobile trails proposed for improvement, where appropriate, to inform users of site-specific trail designations for vehicle usage and seasonal closure dates and to educate users about Share-the-Trail, Leave No Trace, Tread Lightly, and similar behaviors/ethics. 11) All over-ground motorized and mechanized travel in project area shall comply with relevant seasonal closures to protect resources. 12) Purgatory shall fund and implement a gate at the junction of Hermosa Park Road (FSR 578) and the snowmobile bypass trail to preclude OHV use during the summer.

Affected Environment and Environmental Consequences

WILDLIFE

The following wildlife resource analysis was prepared using the Biological Assessment and Biological Evaluation (BA/BE), which is available for review on the [project webpage](#). Analyses include evaluations of potential project effects on federally listed threatened, endangered, proposed, or candidate wildlife species and Forest Service Region 2 sensitive wildlife species.

Affected Environment

Threatened and Endangered Species

Canada lynx is the only federally threatened, endangered, or proposed wildlife species with potential to occur in the project area. Other listed and proposed species known to occur elsewhere on the SJNF or in the State of Colorado were considered but dropped from detailed analysis because their habitats do not occur on the Columbine Ranger District, they have no affinities to project area habitats, and/or the project area is outside of the species' range. No further analysis is needed for species that are not known or suspected to occur in the project area, and for which no suitable habitat is present. The reader is referred to the BA for a discussion of these species and the rationale for dismissing them from detailed analysis in the EA. The effects of the proposed projects on Canada lynx will be analyzed in detail as the species contains suitable habitat within the project area.

Canada lynx are listed by the U.S. Fish and Wildlife Service (USFWS) as a threatened species. The project area is located within two Lynx Analysis Units (LAUs), the Engineer LAU and the Upper Hermosa LAU (refer to BA, Figure 5). The Engineer LAU contains 90,379 total acres, of which 43,072 acres is

considered non-habitat. The Upper Hermosa LAU contains 37,611 total acres, of which 7,493 acres is considered non-habitat. Additionally, the Lower Hermosa and Missionary-Florida LAUs fall within the southern portions of the Purgatory SUP; however, no activities are planned within those LAUs. No lynx linkage areas occur in the project area; however, the Molas-Coalbank Pass linkage area is located immediately adjacent to Purgatory.

Lynx habitat is characterized by high-elevation spruce fir, aspen, and lodgepole pine forests, or riparian areas. Habitat in the project area is high-quality but ski trails and roads (especially motorized routes) lessen its overall quality. Multiple lifts, runs, and associated facilities occur throughout Purgatory. On-mountain restaurants are present at two locations, in addition to numerous backcountry winter and summer trails. The area experiences high use by the public in both winter and summer. Furthermore, Hermosa Park Road (FSR 578) encompasses the central and northern portion of the Ice Creek project area. This roadway receives consistent use throughout the winter (snowmobiling) and summer (OHV) by the general public. According to Jed Botsford, Columbine Ranger District Recreation Supervisor, the area receives



approximately 382 snowmobile visits per week from approximately mid-December to early April (Botsford 2020). This human use pattern, which increases annually, currently affects habitat quality of the area due to human presence, snow compaction during winter, and noise.

2010 Southern Rockies Lynx Amendment

The 2010 Southern Rockies Lynx Amendment (SRLA) provides management direction for Canada lynx on NFS lands in Region 2, including the SJNF (USDA Forest Service 2008c). The SRLA is designed to strike a reasonable balance in providing for the conservation of lynx habitat while also allowing appropriate levels of human uses to occur. The SRLA provides pertinent goals, objectives, standards, and guidelines related to all activities, vegetation management, grazing management, human uses, and linkage areas. The proposed action was reviewed for consistency with the SRLA and relevant management direction was identified. The reader is referred to the BA for a discussion of relevant SRLA management direction.

Consultation History

The 2006 BA for the 2008 FEIS analyzed a similar Ice Creek project and arrived at a “may affect, likely to adversely affect” determination for Canada lynx. During discussions with USFWS staff on November 13 and 20, 2017 (for a separate planning effort), it was stated that the cause for this determination was a projected increase in traffic volume along U.S. Highway 550 that would result from proposed base area and on-mountain developments from the 2008 FEIS, including the Ice Creek Pod and the Gelande lift project, increasing the potential for lynx highway mortality (Broderdorp 2017).

The October 30, 2007 USFWS Biological Opinion (BO) for the 2008 FEIS, which included the Ice Creek project, determined

the proposed action was not likely to jeopardize the continued existence of Canada lynx. However, it was estimated that increased traffic volume on U.S. Highway 550 produced by new and improved facilities included in the 2008 FEIS project would result in take of up to 8 lynx over the 25-year lifespan of the project. This take was unrelated to habitat impacts from on-mountain developments and was attributed to the anticipated traffic volume increases that would be the result of increased recreational opportunities at the ski area.

A discussion of additional consultation documents that addressed activities within Canada lynx habitat that overlap the Purgatory SUP is available for review in the BA.

Region 2 Sensitive Wildlife Species

Region 2 sensitive wildlife species with potential to occur and potential to be impacted by the proposed action include: American marten, Rocky Mountain bighorn sheep, spotted bat, Townsend’s big-eared bat, northern goshawk, boreal owl, olive-sided flycatcher, flammulated owl, monarch butterfly, and western bumble bee. Habitat descriptions for these species are provided in the BE located on the [project webpage](#).

Environmental Consequences of the Proposed Action

Threatened and Endangered Species

Canada Lynx

Vegetation removal associated with implementation of the proposed action would result in a habitat functionality change from primary suitable to non-habitat of up to 29 acres. Given the relatively small scale of the project area, coupled with the availability of adjacent, high-quality and expansive habitat, the proposed action would generally result in minimal impacts to lynx habitat. Vegetation removal associated with implementation of the proposed action would result in a small

loss of potential habitat. Due to the large amount of continuous higher quality habitat within the immediate vicinity of the project area, the removal of trees within the project area is unlikely to affect lynx behavior, lynx habitat, or prey species (snowshoe hare and red squirrel) habitat within the greater vicinity, and therefore, direct loss of habitat would be minimal. At the LAU scale, implementation of the proposed action would convert less than 0.1 percent of suitable lynx habitat to unsuitable habitat within the Engineer LAU and the Upper Hermosa LAU.

It is reasonable to assume that implementation of the proposed action would lead to increases in human presence in lynx habitat within and adjacent to the project area; however, given the existing high levels of continuous human presence adjacent to the project area, coupled with the heavily modified nature of that terrain, any changes to current human use of the project area would not constitute a significant alteration of the existing conditions at Purgatory. Although occasional lynx presence within the project area is likely, lynx occupying the region would be expected to preferentially utilize adjacent higher quality habitat, which is widely available in the greater vicinity.

Implementation of the proposed action is anticipated to result in a minor increase in visitation at Purgatory. This could result in an increased traffic volume along U.S. Highway 550, which could contribute to lynx disturbance in the form of displacement from the U.S. Highway 550 corridor and/or vehicle collisions with lynx. In addition, the project tiers into the suite of projects approved in the 2008 ROD. As previously stated, the 2006 BA and 2007 BO for the 2008 FEIS analyzed a similar Ice Creek project and arrived at a “may affect, likely to adversely affect” determination for the Canada lynx. As the current proposed action is nearly identical to the project analyzed in 2006, the determination stands for the

current analysis. Based on this information, coupled with the anticipated increased impacts along U.S. Highway 550, the proposed action may affect, and is likely to adversely affect Canada lynx and lynx habitat in the project area.

Consistency with the 2010 Southern Rockies Lynx Amendment

The proposed projects would be consistent with all relevant SRLA management direction, except for Objective HU 01 and Guideline HU G11. For an analysis of relevant SRLA management direction, refer to the BA located on the [project webpage](#).

Consistency with Objective HU 01 and Guideline HU G11 is responded to directly in the following paragraphs.

Objective HU 01

The proposed action includes expanding the area of snow-compacting activities at Purgatory through the implementation of additional ski and snowmobile trails. Therefore, the proposed action would not be consistent with Objective HU 01. However, impacts relating to snow compaction are now thought to be less important than they used to be. Further, the expansion involves a relatively small area (less than 50 acres) of new ski runs and snowmobile trails, which is insignificant when compared to the current ski terrain offered in the SUP area. At the LAU scale, when compared to the large amount of uncompacted lynx habitat on three sides of the SUP, the small area of new snow compacting activities would result in an insignificant and discountable reduction in lynx competitive advantage in deep snow areas.

Guideline HU G11

All elements of the proposed action would require vegetation removal in areas that may constitute security habitat for Canada lynx. Therefore, the proposed action would not be consistent with Guideline HU G11. However,

habitat connectivity at Purgatory is generally good for a ski area, due to the close proximity to adjacent large blocks of undeveloped habitat that can serve as diurnal security areas and home range core areas (Thompson 2008). Furthermore, the proposed action would occur adjacent to previously disturbed habitat rather than expand into more suitable and unfragmented habitat.

Region 2 Sensitive Species

Potential impacts to Region 2 sensitive wildlife species or habitat are discussed in Table 3.

Table 3. Region 2 Sensitive Wildlife Species and Determination Summary

SPECIES	SUMMARY OF IMPACTS
<p>American Marten</p>	<p>Removal of trees with the proposed action would remove forest cover that potentially supports prey species, and thus potentially remove less than 29 acres of suitable American marten habitat. However, this loss of habitat is discountable, as the species has 604,228 acres of available habitat on the SJNF, representing a 0.0048 percent loss of habitat on the SJNF. During and after construction, temporary and permanent displacement to martens is reasonably likely to occur; however, this impact is minimal when considering the relatively small footprint of the project when combined with the extensive, undisturbed, and likely higher quality habitat available adjacent to the project area. The proposed action may adversely impact individuals, though is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.</p>
<p>Rocky Mountain Bighorn Sheep</p>	<p>Should bighorn occur in the project area in the summer, construction activities associated with the proposed lift construction may temporarily displace sheep due to noise and presence of equipment and project personnel; however, this impact is unlikely as sheep are not known to occupy the area. Impacts to this species would likely be minimal to none because of the small size of the impacted area and low habitat quality. Disturbance to the area is also temporary in nature and individuals are likely to return after implementation. Thus, the proposed action may adversely impact individuals but is not likely to result in a loss of viability in the planning area nor cause a trend toward federal listing.</p>
<p>Spotted Bat and Townsend’s Big-Eared Bat</p>	<p>Roosting spotted and Townsend’s big-eared bats may be temporarily displaced in the cliff habitat of the project area during construction but would be expected to re-frequent the area after construction. Moreover, work near the cliffs would be short in duration, and occur during the day only. Furthermore, removal of trees would not alter habitat suitability for prey base (insects) within the project area. For both species, the proposed action may adversely impact individuals but is not likely to result in a loss of viability in the planning area nor cause a trend toward federal listing.</p>
<p>Northern Goshawk</p>	<p>Human disturbance associated with management activities near northern goshawk nests could lead to nest failure, especially during incubation. Nest failure has been documented near camping areas (Kennedy 2003). If construction activities should occur during the breeding period, pre-construction surveys would be conducted by a qualified biologist to flag any active nests for avoidance. Although minimal habitat loss would occur from project implementation, expansive, undisturbed, and higher quality habitat is widely available in areas within and adjacent to Purgatory. Surveys were conducted in the project area in 2002 and 2005, and no goshawks were detected (Thompson 2008). Thompson (2008) indicated, “It is unlikely that goshawks nest within or adjacent to the developed ski area or proposed Nordic SUP area because of superior nesting and foraging habitat in the surrounding area.” Rocky Mountain Ecology fieldwork corroborated that statement (Rocky Mountain Ecology 2020b). Up to 29 acres of potential goshawk habitat would be impacted by activities associated with the proposed action; however, suitable, unaffected habitat would remain within Purgatory, in addition to the expansive available habitat adjacent to Purgatory. The proposed action may adversely impact individuals but is not likely to result in a loss of viability in the planning area nor cause a trend toward federal listing.</p>

Table 3. Region 2 Sensitive Wildlife Species and Determination Summary (cont.)

SPECIES	SUMMARY OF IMPACTS
Boreal Owl	Up to 29 acres of vegetation clearing is anticipated from the proposed action. Vegetation clearing along the lift corridor and associated trails could directly impact any nesting boreal owls in the area. Extensive suitable habitat exists adjacent to the project area and the Purgatory SUP and it is expected that owls would preferentially occupy these areas. In the event that boreal owls currently occupy the project area, they could be temporarily or permanently displaced due to activities associated with the proposed action; however, adherence to the PDC detailed in Table 2 would minimize impacts. Based on the commitment to follow the PDC, the proposed action may adversely impact individuals, though is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.
Olive-Sided Flycatcher	Removal of up to 29 acres of trees would result in temporary disturbance to existing edge habitat for olive-sided flycatchers but would eventually increase the available edge habitat. Operation of equipment and increased human presence during construction could displace flycatchers and alter foraging behavior over the short term; however, any disturbed flycatchers would be expected to relocate to adjacent, undisturbed, and suitable habitat within Purgatory and in the greater vicinity. Olive-sided flycatchers would likely avoid the area during the construction period, though would re-frequent the area when work subsides. The proposed action may adversely impact individuals, though is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.
Flammulated Owl	Suitable nesting and foraging habitat are present throughout the project area. The project area has been previously surveyed by multiple entities and none have been located (Thompson 2008). As no flammulated owls have been located in the project area, the proposed action may adversely impact incidental individuals, though is not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.
Monarch Butterfly	Lift construction and trail establishment could impact foraging habitat for monarch butterfly; however, tree removal for lift and trail establishment could result in the eventual creation of additional potential foraging habitat for butterflies through creation of meadows (i.e., ski runs). Further, given the relative abundance of much more suitable habitat adjacent to and in the greater vicinity of Purgatory, the proposed action is unlikely to impact the availability of potential forage habitat for migrating monarchs. Individual monarchs may temporarily vacate the area during construction; however, any displaced individuals would be expected to resume use of the project area following completion of construction. The proposed action may adversely impact individuals but is not likely to result in a loss of viability in the planning area nor cause a trend toward federal listing.
Western Bumblebee	Grading activities across less than 8.75 acres would result in the loss of a minimal amount of foraging habitat for western bumblebee. During construction, bumblebees would likely avoid the area; however, this impact is discountable given the vast availability of more suitable and undisturbed meadow habitat in the surrounding areas which the species could utilize. Following construction, meadow habitat would increase, and therefore, flowering resources would begin to reestablish, occupying larger areas, and bumblebees would be expected to return to the area. Given the availability of suitable and adjacent habitat, the proposed action may adversely impact individuals but is not likely to result in a loss of viability in the planning area nor cause a trend toward federal listing.

Cumulative Effects

The temporal bounds of the cumulative effects analysis extend from the initial development of Purgatory as a winter recreational area through the foreseeable future during which recreation-related activities may affect species. The physical extent of this cumulative effects analysis differs by species but comprises the Purgatory

SUP area and adjacent public and private land to the extent they would be potentially impacted.

The proposed action would have minor cumulative impacts to wildlife and their habitat, given the relatively small disturbance area. The proposed projects would occur in and adjacent to the existing Purgatory SUP area, where habitat has been previously

fragmented as a result of recreational development and management activities. Direct disturbance from construction activities would be temporary and would be due to the presence of personnel and equipment during project implementation. Indirect effects from vegetation treatments would alter habitat conditions. For some species, this could constitute a loss of available suitable habitat, while for others there may be no impact or even benefits (i.e., increase in edge habitat available for olive-sided flycatcher). In the long-term, increased recreational human presence may decrease habitat quality in the project area for certain Region 2 sensitive species.

The 2008 FEIS and 2008 ROD include a variety of ski area development projects requiring potential habitat disturbance within the Purgatory SUP, which if implemented could constitute a cumulative effect to wildlife. Other reasonably foreseeable actions, including small-scale development projects (i.e., infrastructure maintenance and improvement), winter and summer resort development to meet recreational demand, and FSR maintenance activities have the potential to impact threatened and endangered and Region 2 sensitive habitats, including the Engineer, Missionary – Florida, and Upper Hermosa LAUs. These and other activities could constitute cumulative impacts to wildlife when combined with the proposed projects; however, these alterations would be minimal as many actions would likely occur within or immediately adjacent to previously disturbed and/or modified wildlife habitat.

Beyond Purgatory, residential and commercial development has fragmented a naturally patchy distribution of general wildlife habitat in the State of Colorado, including in La Plata County. Development of the Purgatory base area, as well as on-mountain operations, has been ongoing from the 20th century to present, and it is reasonable to believe that these trends will

continue in the future. Valley floor development continually erodes the amount of non-forest habitats adjacent to Canada lynx forested habitat. The expansion of homes and some municipal facilities up mountain slopes, into forests of aspen and spruce/fir, adds to the fragmentation of a naturally fragmented landscape. The cumulative effect of private land development and expansion of recreational facilities (including trails) in and adjacent to wildlife habitat, and lynx habitat in particular, may reduce the ability of lynx and other wildlife to move throughout their home range or interact with other individuals in the larger subpopulation.

The projects would not add substantially to the cumulative effects of snowshoe hare winter habitat loss that has occurred throughout the Engineer and Upper Hermosa LAUs, adjacent LAUs, La Plata County, and the mountainous regions of the State of Colorado.

FISH

The following fish resource analysis was prepared using the BA/BE, which is available for review on the [project webpage](#). Analyses include evaluations of potential project effects on federally listed threatened, endangered, proposed, or candidate fish species, and Forest Service Region 2 sensitive fish species.

Affected Environment

Threatened and Endangered Species

Federally threatened, endangered, and proposed fish species with potential to occur on the SJNF include Colorado pikeminnow and razorback sucker. Habitat for these species does not occur within the hydrologic influences of the project area and therefore would not be impacted by the proposed action. In addition, the proposed action would not result in any water depletions; therefore, no impacts to downstream habitat

would occur. As these species would be unaffected by potential project-related effects, they do not warrant further analysis.

Region 2 Sensitive Species

Colorado River cutthroat trout (CRCT) is the only Region 2 sensitive fish species with potential to occur within the hydrologic influences of the project area. Other sensitive fish species were considered but dismissed from detailed analysis as they occur relatively far downstream of the project area and would not be impacted by the proposed action. No further analysis is needed for these fish species. The reader is referred to the BE for a discussion of these species and additional rationale for dismissing them from detailed analysis in the EA. The effects of the proposed projects on CRCT will be analyzed in detail as the species is present within the hydrologic influences of the project area.

CRCT habitat is present downstream of the project area in East Hermosa Creek, which is hydrologically connected to areas proposed for disturbance. There are two distinct populations of CRCT in East Hermosa Creek that are located above and below Sig Creek Falls. The population above Sig Creek Falls was reintroduced in 1992 and is considered one of the “core populations” of the species on the SJNF (CRCT Task Force 2001). See Thompson (2008) for a detailed explanation. The population below Sig Creek Falls extends to the East Fork Hermosa Barrier and was established in 2016.



Environmental Consequences of the Proposed Action

Region 2 Sensitive Species

Colorado River Cutthroat Trout

Additional trail development and associated construction and surface disturbance activities under the proposed action could increase erosion and sedimentation, incrementally contributing to downstream channel instability and adverse effects to CRCT and macroinvertebrate habitats in Hermosa Park. As discussed in the Purgatory Resort Ice Creek Project Hydrology Report, implementation of the proposed action without adequate mitigation could lead to further impacts to Ice Creek stream channels (LRE Water 2020). However, by implementing the PDC included in Table 2, the health of the project area streams would be maintained. Collectively, the effects of the proposed action are unlikely to jeopardize the viability of the East Hermosa Creek core conservation population above Sig Creek Falls nor the recently reintroduced population below Sig Creek Falls. The effects of the proposed action are unlikely to measurably affect the Forest-wide metapopulation, its trend, nor the distribution and trend of occupied aquatic habitat of this species across the SJNF (Rocky Mountain Ecology 2020b; Thompson 2008). Specifically, the proposed action may adversely impact individuals but is not likely to result in a loss of viability in the planning area nor cause a trend toward federal listing. This determination is consistent with the findings of the Biological Evaluation, Management Indicator Species, and Specialist Report for Durango Mountain Resort’s 2008 Improvement Plan EIS.

Cumulative Effects

The temporal bounds of the cumulative effects analysis extend from the initial development of Purgatory as a winter recreational area through the foreseeable future during which recreation-related activities may affect CRCT. The physical extent of this cumulative effects analysis is the East Fork Hermosa watershed.

The proposed action would have minor cumulative impacts to CRCT habitat, given its proximity to East Hermosa Creek. However, by implementing the PDC included in Table 2, the health of the project area streams would be improved. The proposed projects would occur in and adjacent to the Purgatory SUP area, where CRCT habitat has been directly and indirectly impacted as a result of recreational development and management activities. Stream channels within the Ice Creek project area have experienced a marked decline in health over the past fifteen years due to historic logging, open roads, and active livestock grazing (USDA Forest Service 2020).

In the long-term, increased development and recreational human presence may decrease CRCT habitat quality in the project area. The 2008 FEIS and 2008 ROD include a variety of ski area development projects requiring potential disturbance within the Purgatory SUP, which if implemented could reduce the quality of CRCT habitat in East Hermosa Creek. Other reasonably foreseeable actions, including small-scale development projects (i.e., infrastructure maintenance and improvement), winter and summer resort development to meet recreational demand, and FSR maintenance activities, have the potential to impact CRCT.

The project area would continue to be managed to protect CRCT habitat. The [Forest Plan](#) and the [HCWMP](#) include mechanisms for the management of fish resources Forest-wide. The application of [Forest Plan](#)

standards and guidelines would ensure that stream health and CRCT habitat is improved.

WATERSHED

The following watershed resource analysis was prepared using the Purgatory Resort Ice Creek Project Hydrology Report, which is available for review on the [project webpage](#).

Affected Environment

Project Area Description

The Ice Creek project area is located within slopes tributary to the Ice Creek drainage and the Purgatory Creek drainage. All project components are located in the Ice Creek drainage with the exception of the upper portion of the snowmobile access reroute, which is located within the Purgatory Creek drainage. Therefore, two study watersheds are analyzed in this analysis: the Ice Creek watershed, tributary to East Fork Hermosa Creek, and the Purgatory Creek watershed, tributary to Lower Cascade Creek (refer to Figure 2 and Purgatory Resort Ice Creek Project Hydrology Report, Figure A-1). The study watersheds are situated at elevations ranging from 9,400 to approximately 10,000 feet above sea level and receive a significant portion of their annual precipitation as snow during the winter months. Annual precipitation in the project area averages 34 inches, with approximately 19 inches occurring between November and April. The intermittent streams and ephemeral channels draining the project area generally flow through mixed-conifer forests in an east-to-west direction in the Ice Creek watershed and a west to east direction in the Purgatory Creek watershed.

Past and current activities in the project area include grazing, timber harvest, and ski area development. Examples of existing developments in and adjacent to the project area include ski lifts, ski trails, mountain roads, and snowmaking. Construction of

these projects required tree removal and grading and resulted in watershed impacts.

Water Influence Zone and Connected Disturbed Areas

Past logging activities, road construction, and ski area projects have resulted in removal of trees from the WIZ. As defined in the WCPH, the WIZ is the land next to water bodies where vegetation plays a major role in sustaining long-term integrity of aquatic systems (USDA Forest Service 2005). In the Rocky Mountains, it is typically delineated as a 100-foot buffer around lakes and stream channels. Historically, trees have been removed from approximately 8.7 acres within the WIZ of the Ice Creek drainage area and approximately 23.3 acres within the WIZ of the Purgatory Creek drainage area.

Road construction near stream channels in the Ice Creek project area resulted in creation of approximately 4 acres of CDAs (2.1 acres in the Ice Creek drainage area and 1.9 acres in the Purgatory Creek drainage area). Removal of vegetation and/or grading often produce conditions for runoff to directly flow into a stream or lake, discharging sediment or other pollutants into the stream network. Examples of CDAs are roads, motorized trails, ditches, and compacted and bare soils that provide a direct path for runoff into a stream. The WCPH states that ground disturbances within the WIZ should be considered connected unless site-specific measures are implemented to disconnect them from the streams.

Table 4 summarizes the extent of the WIZ for pre-development, or baseline conditions against the current status, along with calculated acreage of existing CDAs.

Stream Health

The WCPH defines stream health as the condition of a stream relative to its natural potential condition attainable for a given channel type, climate, and geology. Stream health classes are determined by comparing various metrics surveyed on study and reference reaches. Three classes are recognized in the Rocky Mountain Region: robust, at-risk, and diminished. “Robust” stream health suggests that beneficial uses are supported; “at-risk” suggests that uses are threatened; and “diminished” suggests that uses may not be supported (USDA Forest Service 2005). These classes can be used for assessing long-term stream health and impacts from management activities. Several Forest Plan standards and WCPH management measures make reference to stream health. For example, the WCPH specifically states that “only those actions that maintain or improve long-term stream health and riparian ecosystem condition” would be allowed in the WIZ (USDA Forest Service 2005). Furthermore, desired condition 3.28.18 from the HCWMP states that the “East Fork of the Hermosa and the reach of Hermosa Creek just above the East Fork confluence, and their riparian corridors, are in a ‘Robust’ stream health category, as defined in the Watershed Conservation Practices Handbook” (USDA Forest Service 2018).

Table 4. WIZ and CDAs in the Ice Creek Project Area

WATERSHED	DRAINAGE AREA ^A (ACRES)	BASELINE WIZ (ACRES)	EXISTING IMPACTS TO WIZ (ACRES)
Ice Creek	1,360 ^a	149.8	8.7
Purgatory Creek	698	36.6	23.3

The SJNF completed stream health surveys for two project area stream channels located within the Ice Creek watershed, as well as one reference reach of similar geology and channel type. Stream surveys were not conducted in project area streams located within the Purgatory Creek watershed, as there is only minor ground disturbance proposed in this area and potential impacts are anticipated to be minimal due to the proximity of existing streams. The surveys’ methodology, stream reach locations, and results are discussed in detail in the Stream Health Assessment – Ice Creek Pod Project Area Report located on the [project webpage](#) (USDA Forest Service 2020a). The report concluded that stream health of the surveyed project area reaches has generally declined over the past fifteen years. The report states that “the current condition of Response Reaches 2 and 7 are primarily a result of historic logging, open roads, and active livestock grazing. Ski area development has not influenced the condition of these two headwaters streams. (USDA Forest Service 2020a, 9)” Table 5 summarizes the findings of the report.

Environmental Consequences of the Proposed Action

Water Yield

Without mitigation, the proposed tree removal and grading would result in increases of water yield and peak streamflows in the project area streams. Hydrologic analyses completed for the 2008 FEIS included running a water balance

simulation model to provide estimates of expected changes in the volume and distribution of water that would result from the proposed projects. The water balance model followed the techniques outlined in two publications: An Approach to Water Resources Evaluation of Non-Point Silvicultural Sources (WRENSS) and the Water Management Research Project Handbook (Troendle and Leaf,1980; Colorado Ski Country USA and Wright Water Engineers 1986). A detailed discussion of data and assumptions utilized to develop the WRENSS model is included in Chapter 3C of the 2008 FEIS. In summary, the WRENSS model generates a water balance using seasonal precipitation and vegetation type and density (distributed by watershed aspect) and then computes the amount of water potentially available for runoff. The water balance of the WRENSS model is coupled with a snowmaking hydrology computation process developed through a study conducted by Colorado Ski Country USA and Wright Water Engineers (Colorado Ski Country USA and Wright Water Engineers 1986). Together, these calculations produce estimates of water yield typical of subalpine mountain watersheds. The WRENSS model distributes the calculated annual yield using simulated hydrographs based on data recorded at various streamflow gauging stations. The simulated hydrographs represent the normalized distributions of the annual yield in six-day intervals throughout the year. It is important to note that the computations do not include routing of runoff water through the watershed to the stream system.

Table 5. Current Stream Health Ratings for the Project Area Streams

ICE CREEK STREAM	FINE SEDIMENT	UNSTABLE BANKS	LARGE WOODY DEBRIS	BANKFULL WIDTH TO DEPTH RATIO
Reach 2	Diminished	Diminished	At Risk	Diminished
Reach 7	At Risk - Diminished	Robust	Diminished	Diminished

Thus, water yield hydrographs do not represent actual streamflow, but rather a time distribution of basin-wide water yield available to the receiving waters. The WRENSS hydrologic model was developed to simulate expected changes in streamflow as the result of silvicultural activities, not streamflow itself.

In general, snowmelt hydrographs influenced by vegetation clearing have higher-intensity peak flows that occur earlier in the runoff season as compared to pre-development conditions. This is a direct consequence of the higher volume and rate of snowmelt due to decreased canopy interception and evapotranspiration, increased solar radiation in cleared areas, and also due to snowmaking water input, where applicable.

The WRENSS computations completed for the 2008 FEIS included the effects of proposed tree removal and the implementation of snowmaking projects. Hydrologic computations completed for the 2008 FEIS show that water yields and six-day average peak flow rates originating from the Ice Creek project area would increase relative to existing conditions (USDA Forest Service 2008a). The estimated increase in yield for the Ice Creek watershed would be approximately 1.5 percent and the yield in the Purgatory Creek watershed would increase by approximately 11 percent. The larger increase in yield for the Purgatory Creek watershed is primarily due to snowmaking projects analyzed in the 2008 FEIS. These computed increases in watershed

yield are within the variability of yield and peak flows due to climatic variations from year to year. Table 6 displays the changes in water yield and peak flow rate computed by the WRENSS model.

Water Influence Zone and Connected Disturbed Areas

Construction of the proposed projects would require approximately 0.4 acre of grading in the WIZ of project area streams located within the Ice Creek watershed (refer to Figure 2). This includes grading for the proposed bottom terminal and bottom terminal access road and grading and tree clearing for the proposed snowmobile access trail improvements. This proposed grading represents approximately 0.3 percent of the existing forested WIZ. Construction of the proposed projects would also require approximately 6.6 acres of tree removal in the WIZ of the Ice Creek project area, as required for construction of the proposed ski trails, the proposed Ice Creek lift line, and the proposed snowmobile access trail improvements. This proposed tree removal represents 5 percent of the existing forested WIZ and includes 1 acre of incidental tree removal. Grading and tree removal within the WIZ can directly affect the large woody debris stream health metric. To avoid and minimize impacts to the WIZ during timber removal for the proposed lift and ski trails, logging decks and skid paths would be located outside the WIZ adjacent to existing roads, in open areas requiring incidental tree removal.

Table 6. Computed Changes in Yield and Peak Flows

WATERSHED	YIELD (ACRE-FEET)			PEAK FLOW (CUBIC FEET PER SECOND [CFS])		
	Existing	Proposed	% Change	Existing	Proposed	% Change
Ice Creek	2,328	2,364	1.5	21.2	21.4	0.9
Purgatory Creek	1,805	2,003	11	18.0	18.5	2.8

Note: Number have been updated from those presented in the 2008 FEIS to reflect slight changes in proposed action.
 Source: LRE Water 2020; 2008 FEIS

Refer to Table 2 for timber removal PDC to be included in the construction implementation plan.

Construction of the proposed projects would not require any disturbance within or adjacent to the WIZ of project area streams located in the Purgatory Creek watershed.

Furthermore, the grading required for construction of the proposed action could also result in additional CDAs; however, PDC detailed in Table 2 would be implemented to modify drainages as necessary in order to minimize and reduce CDAs. Importantly, development and implementation of a DMP would minimize the extent of CDAs by improving existing drainage conditions. DMP projects incorporated into the proposed action and required for project approval would include:

- ◆ Improvement of existing drainage infrastructure, such as road-side ditches and culverts;
- ◆ Construction of new drainage features;
- ◆ Designing the bottom lift terminal to minimize impacts to the WIZ;
- ◆ Implementation of revegetation projects;
- ◆ Erosion control measures;
- ◆ Disconnecting CDAs.

Table 7 summarizes the proposed tree removal and grading that would occur in the WIZ of the Ice Creek and Purgatory Creek watersheds under the proposed action.

Stream Health

Although the computed increases in water yield and peak rates of runoff in streams in the Ice Creek watershed would be relatively small, the proposed grading, tree removal, and construction activities within and in close proximity to the WIZ of project area streams located within the Ice Creek watershed have the potential to negatively affect stream health metrics such as large woody debris, bank stability, and fine sediments. To mitigate these impacts and maintain stream health in the Ice Creek watershed, a comprehensive set of PDC have been included in the proposed action and are detailed in Table 2. Through the use of PDC, the proposed action would mitigate the potential impacts to stream health parameters such as fine sediment, unstable banks, and bankfull width to depth ratio, which would maintain their current condition classes (refer to Table 5). In addition, PDC included in the proposed action would improve the stream health parameters for large woody debris. Therefore, the proposed action is anticipated to result in negligible impacts to the stream health parameters of project area streams within the Ice Creek watershed.

Table 7. Disturbance within the Ice Creek Project Area WIZ

WATERSHED (ACRES)	DRAINAGE AREA (ACRES)	BASELINE WIZ (ACRES)	EXISTING IMPACTS TO WIZ (ACRES)	PROPOSED GRADING (ACRES)	PROPOSED TREE REMOVAL (ACRES)
Ice Creek	1,360	149.8	8.7	0.4	6.6
Purgatory Creek	698	36.6	23.3	0.0	0.0

Note: Drainage area computed at a point on Ice Creek just upstream from the confluence with Pasture Creek.
Source: LRE Water 2020

Although the computed increases in water yield and peak rates of runoff within the Purgatory Creek watershed would be relatively small and the construction of the proposed projects would not require any disturbance within or adjacent to the WIZ of project area streams located in the Purgatory Creek watershed, grading and tree clearing associated with the proposed snowmobile access improvements could potentially negatively affect the fine sediment stream health metric. To mitigate these potential impacts and maintain stream health in the Purgatory Creek watershed, a comprehensive set of PDC have been included in the proposed action and are detailed in Table 2. DMP projects incorporated into the proposed action and required for project approval would include improvement of existing drainage infrastructure such as road-side ditches and culverts; construction of new drainage features; and implementation of re-vegetation projects. This would ensure that sediment flows from the proposed snowmobile access improvements are dispersed along Hermosa Park Road (FSR 578), preventing them from entering project area streams located within the Purgatory Creek watershed. Therefore, the proposed action is anticipated to result in negligible impacts to the stream health parameters of project area streams within the Purgatory Creek watershed.

Cumulative Effects

The temporal extent of the analysis commences with conditions before the development of Purgatory as a ski area, extending through the history of the resort to the present, and includes the lifespan of current proposed projects as well as those that are reasonably foreseeable future actions, ten to twenty years into the future from the date of this analysis. The spatial scope of the analysis is the East Hermosa Creek watershed, which includes the Ice Creek watershed.

The Lower Cascade Creek watershed, which includes the Purgatory Creek watershed, was dismissed from the cumulative effects analysis, as the proposed action and associated PDC would result in negligible impacts to water yield, no impacts to the WIZ of project area streams or CDAs, and negligible impacts to stream health. As the proposed action would result in negligible impacts to the Purgatory Creek watershed, it would not result in any cumulative impacts to the Purgatory Creek watershed or the Lower Cascade Creek watershed.

Past, Present, and Reasonably Foreseeable Future Actions

Past ski area projects have been incorporated and analyzed in this document as part of the Affected Environment. The following past, current, and upcoming projects could have cumulative impacts on watershed resources:

- ◆ 2008 Durango Mountain Resort Final Environmental Impact Statement and Record of Decision
- ◆ 2013 San Juan National Forest Land and Resources Management Plan
- ◆ 2018 Hermosa Creek Watershed Management Plan
- ◆ 2009 Hermosa Landscape Grazing Analysis Environmental Impact Statement and Record of Decision

The watershed section analyzes the direct and indirect effects of the proposed action on water yield, the WIZ of project area streams and CDAs, and stream health in the Ice Creek watershed. The analysis determined that tree clearing associated with the proposed action would increase yield and peak flows by less than 2 percent, which would be within the natural range of variability due to climatic variations from year to year. The analysis determined that tree clearing and grading associated with the proposed action would remove less than 6 percent of vegetation in the existing WIZ and

would include PDC to modify drainages as necessary in order to minimize and reduce CDAs. Collectively, the increase in yield and peak flows and the disturbance within and adjacent to the WIZ were determined to have potentially negative effects on stream health metrics such as bank stability, fine sediments, and large woody debris. However, PDC were incorporated into the proposed action to mitigate impacts to stream health parameters such as fine sediment, unstable banks, and bankfull width to depth ratio, which would maintain their current condition classes (refer to Table 5). Lastly, PDC were incorporated into the proposed action to mitigate the potential effects on large woody debris and ultimately improve this stream health metric. As stream health parameters in the Ice Creek drainage would be either maintained or, in the case of large woody debris, improved through the use of PDC, implementation of the proposed action would have a negligible effect on watershed resources, and therefore would not result in cumulative impacts. While there are no cumulative effects associated with the proposed action, this cumulative effects analysis has been prepared to respond to public and internal concerns about the East Fork Hermosa watershed that were raised during the combined scoping and opportunity to comment period.

The proposed projects would occur in and adjacent to the Purgatory SUP area, where stream health has been directly and indirectly impacted as a result of recreational development and management activities. Past and present actions have led to a mix of stream health conditions in the East Fork Hermosa watershed. As recounted in the 2020 Stream Health Assessment – Ice Creek Pod Project Area Report, “in 2005, the Stream Health Assessment completed for the Durango Mountain Resort documented the history of grazing, fire, road building, ski area development and timber harvest that have occurred in the East Fork Hermosa Creek and the cumulative effects of those

activities on the watershed and stream resources. Since 2005, a Watershed Restoration Action Plan (WRAP) was developed for the East Fork Hermosa Creek to move the watershed and aquatic resources to a better condition. Most of the WRAP projects have been completed. Additionally, a block of private land within the watershed was acquired in 2011. A river protection workgroup labored for nearly two years to coalesce around legislation for the Hermosa Special Management Area including the Hermosa Wilderness, and the Forest Service established a land use plan for the SMA in 2017. Cattle grazing has also been re-introduced to the East Fork since the 2005 Stream Health Assessment. The 416 fire of 2018 did not burn the East Fork of the Hermosa, but fire suppression activities did occur along the channel and within the watershed (USDA Forest Service 2020a).” The 2020 Stream Health Assessment – Ice Creek Pod Project Area Report found that conditions in stream channels within the Ice Creek project area have generally declined over the past fifteen years. The report states that the current conditions of stream reaches in the project area “are primarily a result of historic logging, open roads, and active livestock grazing. Ski area development has not influenced the condition of these two headwaters streams” (USDA Forest Service 2020a, 9). The reader is referred to Table 5 for current stream health ratings for project area streams from the report.

Bank stability along East Hermosa Creek has been affected by grazing and trampling from livestock. Grazing-related historic conversion of riparian vegetation has reduced the resistance of streambanks to erosion. However, adaptive management efforts and the Hermosa Park cattle fence implemented as part of the 2009 Hermosa Landscape Grazing Analysis Record of Decision are intended to maintain or improve stream health in the watershed (USDA Forest Service

2009b). Adaptive management measures are ongoing.

Further, the 2008 ROD authorized a variety of ski area development projects requiring potential disturbance within the Purgatory SUP and that, if implemented, could affect stream health metrics such as large woody debris, bank stability, and fine sediments. However, restoration projects approved in the 2008 ROD are intended to maintain or improve stream health in the East Hermosa Creek watershed, including the Ice Creek watershed (USDA Forest Service 2008b). An inventory of the restoration projects approved in the 2008 ROD would be provided as an appendix in the final decision. The inventory would provide the status of each restoration project and the effectiveness of restoration projects that have been completed. Prior to implementation of the proposed action, Purgatory would be required to complete all restoration projects associated with the proposed action, as well as any incomplete restoration projects associated with previously implemented projects from the 2008 ROD.

Other reasonably foreseeable actions, including small-scale development projects (i.e., infrastructure maintenance and improvement), winter and summer resort development to meet recreational demand, and FSR maintenance activities, have the potential to result in additional effects to watershed resources in and adjacent to the Purgatory SUP area.

The project area would continue to be managed to protect watershed resources. The Forest Plan and the HCWMP include mechanisms for the management of watershed resources Forest-wide. The application of Forest Plan desired future conditions, standards, and guidelines would ensure that overall stream health in the project area is maintained. Moreover, the 2020 Stream Health Assessment – Ice Creek

Pod Project Area Report concluded that adopting land management measures supporting long-term stream recovery would benefit the mainstem of East Fork Hermosa Creek (USDA Forest Service 2020a). The PDC included as part of the proposed action would be required to achieve this goal. Therefore, through the implementation of the PDC and DMP included in the proposed action (refer to Table 2), the projects authorized by the 2008 ROD, and combined with other past, present, and reasonably foreseeable future actions, the proposed action is anticipated to maintain stream health in the East Fork Hermosa watershed.

RECREATION

The following recreation resource analysis was prepared using the Recreation Technical Report, which is available for review on the [project webpage](#).

Affected Environment

Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum (ROS) offers a framework that establishes recreational settings based on access, remoteness, naturalness, built environment, social encounters, visitor impacts, and management (USDA Forest Service 1982). The Forest Plan designates ROS desired conditions for the winter and summer seasons on the SJNF.

During the winter, the south and east edges of the project area occur within a *Semi-Primitive Non-Motorized* setting. During the winter and summer, the north and west edges of the project area (primarily the Hermosa Park Road corridor within the SUP area) occur within a *Roaded Natural* setting. Lastly, during the summer the south and east edges of project area occur within a *Semi-Primitive Motorized* setting.

SJNF's current ROS inventory designates these areas of the Purgatory SUP boundary as being consistent with the outlined characteristics of the *Roaded Natural*, *Semi-Primitive Motorized*, and *Semi-Primitive Non-Motorized* ROS settings. These designations, resulting in the recreation activities and human use they allow, have created a more developed setting year-round within and adjacent to the SUP boundary. The reader is referred to the *Recreation Technical Report* for a description of these ROS designations.

Winter Recreation

The following is an inventory of existing conditions specific to winter recreation in that area that are analyzed as part of the proposed action.

Lift Network

The Purgatory Village Express, Needles, and Twilight lifts provide out-of-base access to the backside of the mountain. The backside is serviced by two high-speed four-passenger lifts (Hermosa Park Express and Legends Express lifts), one double chair (Grizzly lift), and two surface lifts (Carpet 11). Three surface lifts (Carpets T1, T2, and T2') and the removal and relocation of the Grizzly lift were approved in the 2008 ROD but have not yet been implemented.

Terrain Network

The existing ski terrain within the Purgatory SUP boundary has a total skiable acreage of approximately 1,635 acres. A network of 105 designated ski trails account for a variety of developed ski trails, non-maintained tree skiing, and terrain parks. The formalized ski trail network offers skiing opportunities for the entire range of skier ability levels from beginner to expert; however, there is currently a deficiency of low-intermediate ability level terrain.

Approximately 18 percent of Purgatory's ski terrain is suited for low-intermediate skiers, compared to a skier market average of 25

percent. These deficiencies inhibit the learning progression for low ability level guests and result in low-intermediate ability level guests skiing too fast on beginner and novice level terrain or skiing uncomfortably above their ability level on intermediate terrain.

Purgatory's low ability ski terrain is focused almost entirely on the front side of the ski area, which is more developed and more crowded. Novice skiers typically progress from Purgatory's learning area (Columbine Beginner Area, located entirely on private land removed from the remainder of the ski area), to the upper slopes of the adjacent Twilight lift pod (novice and low-intermediate terrain), to the low-intermediate and intermediate level terrain served by Engineer and Hermosa Park Express lifts. As skiers move westward to the backside of the mountain, the skiing becomes more challenging and is no longer suitable for low ability level skiers and riders. This prevents low ability level guests from experiencing the less developed and more natural parts of the ski area, which are often less crowded than high trafficked beginner and intermediate trails (e.g., *Upper and Lower Demon*).

Snowmobile Use

Extensive public snowmobile use – guided and unguided – currently occurs within and adjacent to the northeastern portion of the Purgatory SUP area. A segment of snowmobile access through the Purgatory SUP area traverses on the east and north side of the Ice Creek area of the SUP area. As stated previously, this corridor of snowmobile access through the ski area SUP is within the *Roaded Natural* ROS classification, where motorized use and noise are anticipated to occur on a regular basis. On average, it is estimated that approximately 4,000 guided and 2,500 unguided snowmobilers visit the area each season (Botsford 2020). Snowmobilers access and cross a portion of the SUP via

Pinkerton Toll Road ski trail to gain access to the snowmobile bypass trail and Hermosa Park Road (FSR 578), which travels west towards the Town of Rico, Colorado.

Currently, an outfitter and guide permit through the SJNF is issued to a local business, which stages its operations near the beginning of the Hermosa Park Road (FSR 578). The snowmobile program offers one to three-hour guided excursions on over 75 miles of trails. Guided tours run west, against skier traffic on *Pinkerton Toll Road*, and then head north along Hermosa Park Road (FSR 578) to access NFS lands outside the Purgatory SUP area. At the end of the guided tour, the snowmobile route is reversed with snowmobiles travelling down *Pinkerton Toll Road*, generally on-pace with skier flow. These situations can create safety and management concerns, as well as reduce the skier experience for some due to the mechanized use, long linear snowmobile tracks, noise, and exhaust. It can also be intimidating, both for skiers and snowmobilers, to have a mixture of user groups on the same beginner-level ski trail.

Unguided public users drive to the start of the Hermosa Park Road (FSR 578) adjacent to the Purgatory Village base area facilities and park their cars, trucks, and trailers. From this access point, dispersed users snowmobile up Hermosa Park Road (FSR 578) and then take the snowmobile bypass route to access NFS lands outside the Purgatory SUP area. Some dispersed, public users utilize *Pinkerton Toll Road*, not knowing it is a ski trail or that it is closed to public travel; subsequently the potential exists for skier/snowmobile encounters.

The snowmobile bypass trail is currently unsuitable for low ability level users due to topographical restrictions and poor snow retention in certain locations. Several segments of the bypass trail contain steep grades and sharp corners. Furthermore, the

bypass trail is primarily south-facing, which results in increased sun exposure and reduced snow retention. These hazards create poor and unsafe conditions, negatively impacting the recreational experience for snowmobilers in and adjacent to the Purgatory SUP area. The result of these factors is that most lower ability level guests use *Pinkerton Toll Road* or have a poor recreation experience on the bypass trail. The 2008 ROD included the implementation of snowmaking and grooming on the first 400 feet of the bypass trail as it enters the Purgatory SUP area; however, this project has not yet been implemented. Implementation of the approved snowmaking and grooming would help accommodate low ability level users and improve the recreation experience in the area.

Summer Recreation

Extensive summer use currently occurs within and adjacent to the northeastern portion of the Purgatory SUP area during the summertime. This area is within the *Roaded Natural* ROS classification, where motorized use and noise is anticipated to occur on a regular basis. Visitors access the area for a variety of recreational activities including hiking, mountain biking, hunting, fishing, camping, and horseback riding. The FSR network connects to a variety of trails in the Hermosa Park area and extends west towards the Town of Rico, Colorado.

Due to the popularity of the area and its proximity to a variety of recreational opportunities, the project area is heavily trafficked. The FSR network centralized around Hermosa Park Road (FSR 578) is shared by a variety of user groups before they are dispersed into the greater Hermosa Park trail network. Subsequently, the potential exists for encounters and conflicts between user groups, particularly between users traveling in OHVs and on-highway vehicles.

The bottom terminal of the proposed Ice Creek lift would be located adjacent to FSR 772, which branches off FSR 578 to the southeast for approximately 0.5 mile before reaching a gate. Dispersed camping is permitted within 300 feet of the road. The Traffic Analysis Process (TAP) conducted for the [HCWMP](#) recommended that the 0.5-mile road segment be open to all vehicles seasonally, as is reflected in the 2019 Motor Vehicle Use Map for the Columbine Ranger District (USDA Forest Service 2019). The purpose of the gate is to prohibit public access to the bottom terminals of the Hermosa Park Express, Grizzly lift, and Legends lift.

Environmental Consequences of the Proposed Action

Winter Recreation

Recreation Opportunity Spectrum

Implementation of the proposed action is not anticipated to result in a deviation from *Roaded Natural* and *Semi-Primitive Non-Motorized* ROS designations of the project area in the winter.

During the winter, lower portions of the proposed Ice Creek lift and ski trails, the bottom terminal access road, and the snowmobile access route would occur within a *Roaded Natural* setting. As users of this area should expect the presence of “predominantly natural appearing environments with moderate evidences of the sights and sounds of man,” the projects would be consistent with the *Roaded Natural* classification (USDA Forest Service 1982).

In addition, upper portions of the proposed Ice Creek lift and ski trails and the top terminal access road would occur within a *Semi-Primitive Non-Motorized* setting. As the projects would occur within the developed landscape of the ski area, they would be consistent with the *Semi-Primitive Non-Motorized* classification.

Lift Network

The proposed Ice Creek lift would be a detachable four-person chairlift with an uphill capacity of 2,400 people per hour. The lift would be installed to access proposed low-intermediate terrain in the Ice Creek area on the backside of Purgatory. This would redistribute low-intermediate skiers and riders from terrain served by Twilight and Engineer lifts, reducing congestion on the front side of the ski area. Furthermore, the Ice Creek lift would improve skier circulation on the backside of the ski area by providing an additional egress option from the Hermosa Park area.

Terrain Network

The proposed Ice Creek terrain network would improve the quality, quantity, and distribution of low-intermediate terrain at Purgatory. Implementation of the Ice Creek lift and ski trails would address Purgatory’s existing deficiency of low-intermediate terrain. The area would provide opportunities for effective learning/teaching terrain and would allow low-intermediate skiers and riders to continue their learning progression in a less developed setting. Low-intermediate skiers and riders would have the opportunity to experience a more natural and remote part of the ski area occupied by users of similar ability levels. This would prevent interactions with more advanced users, often traveling at higher speeds, which can be intimidating for less experienced skiers and riders.

The Ice Creek terrain network would complement the previously-approved, but not yet implemented, beginner terrain proximate to the top of the Twilight lift by providing a neighboring opportunity to continue their learning progression. Further, the Ice Creek area is located at a higher elevation than the resort’s Columbine Beginner Area and would offer improved snow conditions to guests throughout the season.

Snowmobile Use

Under proposed conditions, guided and unguided snowmobilers would no longer utilize *Pinkerton Toll Road* ski trail to access the snowmobile trail network adjacent to the Purgatory SUP area, unless the snowmobile outfitter and guide permittee can provide the Forest Service with a written agreement from Purgatory for use of the area. If this is provided, the Forest Service would add a provision to the outfitter and guide permit for administrative access. Snowmobilers entering the project area via Hermosa Park Road (FSR 578) would be rerouted onto the snowmobile bypass trail before Hermosa Park Road (FSR 578) merges with *Pinkerton Toll Road* ski trail. While snowmobilers would still cross a portion of the SUP area, they would no longer have to travel against skier traffic. This would address safety and management concerns by reducing the potential for skier/snowmobile encounters in the area. The project would improve the recreational experience of guided and unguided snowmobilers, as the rerouted trail would provide adequate space and grades for all ability levels. The project would improve the recreational experience for skiers and riders, as they would no longer be impacted by the linear tracks, noise, and exhaust generated by snowmobiles. In addition, both user groups would no longer experience a mixture of user groups on the same beginner-level ski trail. Furthermore, the snowmobile bypass trail would be rerouted around proposed trail 78 to avoid snowmobile/skier encounters in the proposed Ice Creek terrain pod. Collectively, the snowmobile bypass reroute would improve the recreational experience for both user groups on NFS lands in and adjacent to the SUP area.

Other segments of the snowmobile bypass trail would be rerouted and improved to provide more suitable conditions for low ability level users. Spot grading would occur along steep segments of the existing trail to



provide more consistent grades with greater snow retention. Limited tree removal would occur along trail edges to provide more consistent trail widths. Additional improvements would occur on the Hermosa Shortcut, which returns snowmobilers to Hermosa Park Road (FSR 578) after taking the snowmobile bypass trail. Collectively, these improvements would address poor and unsafe trail conditions and would improve the recreational experience for guided and unguided snowmobilers in and adjacent to the Purgatory SUP area.

Summer Recreation

The proposed action does not include the introduction or improvement of any summer activities at Purgatory. Therefore, the Ice Creek project is not anticipated to impact the summer experience of guests at the ski area. The implementation of new ski trails and the improved snowmobile bypass trail may, however, invite unauthorized mechanized use (e.g., mountain bikes) and accompanying enforcement issues for Forest Service and Purgatory staff during the summertime. A gate would be implemented at the junction of Hermosa Park Road (FSR 578) and the snowmobile bypass trail to preclude OHV use during the summer.

The relocation of the existing gate on FSR 772 would prohibit motorized public access to the bottom terminal of the proposed Ice Creek lift during the summer and winter. Vehicle-accessed dispersed camping would

no longer be permitted along FSR 772; however, this is an inconsequential impact because there is a lack of flat topography within one vehicle length of the road, and little dispersed camping currently occurs there. The vehicle use designation of the 0.5-mile segment of FSR 772 from Hermosa Park Road (FSR 578) to the existing gate would be changed from “road open to all vehicles seasonally” to “administrative access only” (Forest Service, ski area permittee, and grazing permittee), as has been done for FSR 772 beyond the gate that provides access to the bottom terminals of the Hermosa Park Express, Grizzly lift, and Legends lift. This change in vehicle use designation would not warrant an additional TAP for the area.

Recreation Opportunity Spectrum

Implementation of the proposed action is not anticipated to result in a deviation from *Roaded Natural* or *Semi-Primitive Motorized* ROS designations of the project area in the summer.

During the summer, lower portions of the proposed Ice Creek lift and ski trails, the bottom terminal access road, and the snowmobile access route would occur within a *Roaded Natural* setting. As users of this area should expect the presence of “predominantly natural appearing environments with moderate evidences of the sights and sounds of man,” the projects would be consistent with the *Roaded Natural* classification (USDA Forest Service 1982).

In addition, upper portions of the proposed Ice Creek lift and ski trails and the top terminal access road would occur within a *Semi-Primitive Motorized* setting. As the projects would occur within the developed landscape of the ski area, they would be consistent with the *Semi-Primitive Motorized* classification.

Cumulative Effects

The following projects are expected to cumulatively have short- and long-term effects on winter and multi-season recreational opportunities in the Purgatory SUP area and on adjacent NFS and private lands, as well as throughout La Plata County, Colorado.

The temporal bounds for this cumulative effects analysis for recreation extend from Purgatory’s inception as a resort in 1965, through the foreseeable future in which Purgatory can be expected to operate. The spatial bounds for this cumulative effects analysis of recreation are limited to public and private lands in the vicinity of the Purgatory SUP area.

Past ski area and county development projects have been incorporated and analyzed in this document as part of the Affected Environment. The following projects could have cumulative impacts on recreation resources:

- ◆ 2008 Durango Mountain Resort Final Environmental Impact Statement and Record of Decision
- ◆ 2018 Hermosa Creek Watershed Management Plan
- ◆ Purgatory Mountain Bike Trails
- ◆ Purgatory Base Area Development
- ◆ Regional Ski Area/Recreational Amenities

Recreation Within the Purgatory SUP Area

Recreation at Purgatory has been prevalent since its inception as a ski resort. Past projects, as previously listed, have affected recreational opportunities at Purgatory, primarily bolstering the winter recreation opportunities available within the SUP area. The 2008 ROD include numerous projects that are not included in the proposed action. As many of these projects were approved but not yet implemented, they are considered

here as reasonably foreseeable future projects. These projects include various lift upgrades, lift replacements, new lift construction, trail improvements, and additions to the developed terrain network, as well as updates to guest services and associated facilities. These projects, if implemented, have the potential to further impact recreation within the Purgatory SUP area.

In combination with previously accepted and approved projects that are reasonably foreseeable and past projects that have been implemented at Purgatory, the proposed projects would supplement existing winter recreation opportunities by providing additional ski terrain and infrastructure that would address existing terrain deficits for low-intermediate ability levels. It is anticipated that when combined with the recreation opportunities provided by past projects, the proposed action would have a combined beneficial impact on the recreation resource.

Recreation Opportunities Beyond the Purgatory SUP Area

Beyond Purgatory and in the broader context of the area surrounding the City of Durango, Colorado, opportunities for recreational activities are abundant on both private and public lands, including NFS, La Plata County, and other municipal lands. Visitors to NFS lands outside of the Purgatory SUP area are also increasing due to population growth, the natural resources present, and the array of dispersed activities that exist in the area. Ongoing projects and visitor management show that this trend is occurring independent of additional recreation being provided at Purgatory. While ongoing projects and visitor management work to mitigate the impacts that fall disproportionately on high-use destinations and balance resource impacts with recreational opportunities, such as those addressed in the HCWMP, it is anticipated that additional visitors to the area could

create future challenges for management and mitigation of impacts to high-use destinations. In some cases, the additional recreation opportunities within and immediately adjacent to the Purgatory SUP area may alleviate pressure on high-use destinations by providing alternative opportunities for recreation in a location that is easier to manage due to its developed nature and existing infrastructure. However, when considered cumulatively with the growing visitation to the greater Purgatory area, it is anticipated that pressure on high-use destinations would increase.

Cumulatively, the proposed projects at Purgatory could lead to an increase in use of recreation opportunities on NFS lands and municipally owned lands within La Plata County. Given the scale of the proposed projects, this increase is expected to be negligible; however, it is likely that the Forest Service and local governments and organizations would continue to allocate resources to expand recreational offerings and address the management of existing recreation opportunities in the foreseeable future.

WETLANDS

The following wetlands resource analysis was prepared using Wetlands Delineation Report, which is available for review on the [project webpage](#).

Affected Environment

Elements of the proposed action including clearing of vegetation, grading, and ground disturbance hold the potential to alter the hydrology, biotic communities, and soil characteristics that underpin wetland function. For the purposes of this analysis, the affected environment is defined as the hydrologic, biotic, and soil characteristics that in tandem constitute a wetland system.

Wetlands occur throughout the meadow and forested portions of the project area. Many wetlands located within meadow portions of the project area are generally associated with natural seeps and springs occurring mid-slope to toe-slope on existing ski trails. Other wetlands occur along the flanks of numerous drainages which transect the project area. The spatial extent of wetlands documented throughout the project area varies substantially and is highly influenced by local topography and hydrology.

A total of 147 wetlands encompassing a total of 114.68 acres have been delineated within the vicinity of Purgatory. Of these, nine individual wetlands intersect the project area. Wetlands within the project area are depicted in Figure 2. No fens, or peat-forming wetlands, are present within the project area. Wetlands occurring within and adjacent to the project area include the following types:

Palustrine Emergent Wetlands

Palustrine emergent wetlands constitute wetlands characterized by a vegetative strata dominated by perennial herbaceous hydrophytes. This wetland class commonly occurs adjacent to seeps and springs in graminoid dominated meadows and ski trails.

Palustrine Scrub/Shrub Wetlands

Palustrine scrub/shrub wetlands constitute wetlands characterized by a vegetative strata dominated by woody shrubs and saplings. This wetland class commonly occurs adjacent to drainages in sunny, open areas.

Palustrine Forested Wetlands

Palustrine forested wetlands (PFO) constitute wetlands occurring beneath the overstory of mature forests. This wetland class occurs along forested drainages within the project area.

Environmental Consequences of the Proposed Action

Up to 0.79 acre of PFO wetlands would be impacted by the proposed action (refer to Figure 2). This impact would consist of wetland type-conversion from a more forested wetland to a scrub-shrub or emergent wetland due to vegetation removal associated with chairlift and ski trail construction. Within wetland areas with overstory vegetation removal, PDC are included to minimize wetland disturbance (refer to Table 2). In addition, understory wetland vegetation would remain within ski trail and lift line alignments.

Impacts that PFO wetlands could sustain include the loss of overstory and tree strata due to tree removal associated with installation of a new lift line and clearing of proposed ski trails. Removal of mature trees within the vicinity of PFO wetlands would result in changes to the vegetative composition of these wetlands. Over time, increased solar radiation in these areas could shift understory composition towards the subalpine-montane grassland community type, altering the composition of shrub and herbaceous wetland strata.

Hydrologic indicators including seasonal surface water, high water table, and saturation could be indirectly affected by vegetation clearing and grading through changes to localized hydrology. Potential impacts include but are not limited to increased infiltration and overland flow during precipitation events and reduced evapotranspiration resulting from the removal of mature, overstory tree species. Furthermore, increased solar radiation in cleared areas could affect soil moisture retention seasonally. Specific impacts resulting from implementation of the proposed action would be expected to vary by wetland, as each wetland system would be affected by localized changes to its physical and biotic structure. In some instances,

wetland loss may occur resulting from changes to the vegetative and hydrologic function of its environment. Alternately, changes to upslope watershed structure (i.e., clearing of forest stands) may affect an increase in seasonal groundwater in some locations and a corresponding expansion of wetland boundaries over the long term.

Cumulative Effects

The temporal bounds of the cumulative effects analysis extend from the initial development of Purgatory as a winter recreational area through the foreseeable future during which recreation-related activities may affect wetland resources. The physical extent of this cumulative effects analysis comprises the Purgatory SUP area and adjacent public and private land to the extent they would be potentially impacted.

Specific to the wetlands affected within the immediate project area, no cumulative effects to these wetlands are anticipated. However, past, present, and reasonably foreseeable future effects include the continuation of various human usages of the greater vicinity (i.e., Hermosa Creek watershed), including but not limited to various forms of recreation, four-wheeling, fishing, cattle grazing, and ski resort visitation and operation. Four-wheeling, cattle grazing, and ski resort operation impact wetlands in the vicinity by affecting vegetative habitat and local hydrology throughout this area. Furthermore, downstream water diversions for civic and agricultural purposes put pressures on wetlands in the greater Animas River watershed. Implementation of the proposed action would directly affect 0.79 acre of wetlands due to type-conversion within the project area and may result in increased recreational use of the area, exacerbating existing pressures upon wetlands in the greater vicinity.

CULTURAL

This cultural resource assessment is mandated by the National Historic Preservation Act (NHPA). Section 106 of the NHPA requires that federal agencies take into account the effects of a federal undertaking on any cultural resource that is included in or eligible for inclusion in the National Register of Historic Places (NRHP). NRHP eligibility is evaluated for its integrity of the resource, its significance in the historical context, or its overall value in terms of engineering, artistic, architectural, or informational qualities. The SJNF determines the impact to the cultural resources based on the resource's NRHP eligibility and then requests concurrence by the Colorado State Historic Preservation Officer (SHPO) on that impact.

The following cultural resource analysis was prepared using the Cultural Resource Survey Conducted for Durango Mountain Resort's Master Development Plan Environmental Impact Statement, the Class III Cultural Resource Inventory of Purgatory Resort's Proposed Ice Creek Project, and the Limited-Results Cultural Resource Survey Form for SJNF Project #20-27, which are on file at the Columbine Ranger District.

Affected Environment

The area of potential effect (APE) for the Ice Creek project includes the proposed lift, access roads, and ski trails plus a 50-foot buffer, as well as the proposed snowmobile trails plus a 100-foot buffer. The total area of the APE is approximately 112.23 acres.

In the preparation of the 2008 FEIS, a Class III cultural resources inventory of approximately 93.51 acres of the Ice Creek APE was conducted (Woods Canyon Archaeological Consultants, Inc. 2006). The survey documented eight historic sites, one prehistoric site, nine historic isolated finds, and three prehistoric isolated finds. Of the

nine sites, four were recommended as not eligible, two were determined as not eligible, one was recommended as eligible but would be avoided by project activities, and one site could not be found or assessed but the previously-recorded location would be avoided by project activities. The remaining site, Segment 4 of the Rico-Rockwood Wagon Road (5LP1871.4), including three dendroglyphs located along the road, was evaluated as eligible to the NRHP and avoidance was recommended. The SHPO concurred with these determinations in a letter dated September 8, 2006. Proposed trail 76 would overlap site 5LP1871.4.

In 2017 a Class III cultural resources inventory of approximately 1.72 acres of the Ice Creek APE was conducted (Metcalf 2020). The inventory resulted in the documentation of one newly recorded segment of historic road: 5LP11285.1. The entirety of this linear resource was recommended as eligible for inclusion on the NRHP. However, the segment documented is recommended as not supporting the potential NRHP eligibility of the overall resource, thus avoidance of this resource is not recommended. In August 2020, an additional inventory of the proposed snowmobile trail was conducted due to changes in the proposed action (USDA Forest Service 2020b). The final inventory covered the remaining 17 acres of the APE. A literature review identified one previously documented resource in the area: 5LP362, a needs data historic resource documented in 1978. The 2020 inventory of the project area did not relocate this site, nor did an inventory conducted in 2005. After reviewing the 1978 site documentation, it was discovered that 5LP362 had been mis-plotted. Consultation with the SHPO regarding the location of 5LP362 occurred on September 1, 2020 and SHPO concurred with the determination that the site had been mis-plotted. However, as a precaution, the proposed snowmobile bypass trail was rerouted to avoid the as-plotted location of 5LP362.

No other sites were documented within the project area.

In 2020 Segment 4 of the historic Rico-Rockwood Wagon Road (5LP1871.4) was re-evaluated and documented for changes in condition since the original 2006 recording of the segment. The segment was found to be in similar condition to that of 2006 recording, and the three dendroglyphs were relocated. The 2020 recording of the site maintained the eligibility determination and avoidance recommendations made in 2006.

Environmental Consequences of the Proposed Action

The proposed action includes the construction of the proposed Ice Creek lift, top and bottom terminal access roads, ski trails, and the rerouted snowmobile access route. Proposed trail 76 and the proposed lift would overlap with Segment 4 of the historic Rico-Rockwood Wagon Road (5LP1871.4), which was evaluated as eligible to the NRHP. As discussed in the Relevant Changes to the Proposed Action Since the NOPA Publication section, following the scoping comment period, the proposed lift and portions of proposed trail 76 were realigned to avoid impacting dendroglyphs located along the road. Furthermore, through the use of PDC detailed in Table 2, Purgatory would avoid impacts to the segment of wagon road by allowing no ground disturbance or contour alterations within the site segment and by thinning trees and removing vegetation only by hand throughout the site segment. Use of heavy mechanized equipment in this area would only occur when the ground is protected by at least 12 inches of packed snow or 2 inches of frozen soil. Thinning shall occur within a 100-foot buffer of the site segment where it intersects proposed trail 76. A prescription shall be developed in collaboration with a certified Forest Service Silviculturist and Forest Service Archaeologist and shall have the goal of retaining as many large, mature trees as possible while also

providing adequate separation for skiers and groomer use. Furthermore, Purgatory would coordinate with the Forest Archaeologist regarding the installation of an interpretive panel where the proposed lift line crosses the site segment as well as two interpretive signs, either on proposed trail 76, where skiers could see them in the winter, or on Hermosa Park Road (FSR 578) north of the project area, where visitors could see them in the summer. Provided all disturbance related to proposed trail 76 and the lift line avoids site 5LP1871.4, the proposed action would result in *no adverse effect* and no further cultural resource investigations would be recommended for the project (Metcalf 2020). If avoidance of 5LP1871.4 is not feasible through the use of PDC, proposed impacts to the site would be mitigated by following a treatment plan developed in consultation between Purgatory, the SJNF, and the SHPO.

Cumulative Effects

The proposed action, when combined with other past, present, and reasonably foreseeable future actions at Purgatory, could alter the cultural resources within the project area. However, since disturbance associated with the proposed action would avoid site 5LP1871.4, the only NRHP-eligible cultural resources in the APE, no cumulative effects would occur or require further analysis.

CONGRESSIONALLY DESIGNATED SPECIAL MANAGEMENT AREA

Affected Environment

As previously stated in Forest Service Management Direction, a portion of the Purgatory SUP area is located within the Hermosa Creek watershed, which contains a congressionally designated SMA per Public Law 113-291, Section 3062, Hermosa Creek Watershed Protection.

The Hermosa Creek Watershed SMA is located on NFS lands administered by the SJNF.

The scope for this analysis includes management activities within the 70,600-acre Hermosa Creek Watershed SMA and focuses on those occurring within the approximately 1,380-acre portion that is located within the Purgatory SUP area.

The Hermosa Creek Watershed SMA is subject to management direction provided in the HCWMP, an amendment to the Forest Plan. The purpose of the HCWMP is to provide strategic direction and guidance for future management of the watershed. The plan provides a framework for informed decision making, while guiding resource management, practices, uses, and projects (USDA Forest Service 2018b).

As previously stated in Forest Service Management Direction of this EA, the HCWMP designates the Hermosa Creek Watershed SMA as Management Area 2, which is managed for “Special Areas and Designations.” These areas possess one or more special features or characteristics that makes them, and their management, unique from other areas within the SJNF. They are managed to protect or enhance their unique characteristics; therefore, management intensity and suitability varies by each area (USDA Forest Service 2018b).

Ski Area Direction

As Purgatory has operated in the Hermosa Creek watershed for several decades prior to the area’s designation as a SMA, Statute 3823(6)(B) of Public Law 113-291 states that the administration of the Hermosa Creek Watershed SMA does not alter or limit “a) a permit held by a ski area; b) the implementation of activities governed by a ski area permit; or c) the authority of the Secretary to modify or expand an existing ski area permit (16 U.S.C. § 539).”

The HCWMP includes recreation special uses as allowable uses within the SMA, specifying that ski area uses are to be managed under the SUP and annual operating plans. The HCWMP states that “Previous project-level decisions and subsequent authorizations for a variety of actions and activities have occurred...[including] ski area operation...” The HCWP stipulates that “unless a specific facet of the activity is identified as not being in compliance with the legislation or with wilderness direction, those previously authorized activities will continue to be implemented. Previous authorizations are governed by their respective supporting documents such as NEPA decisions, design criteria, mitigation measures, special use permits, and annual operating plans (USDA Forest Service 2018b).”

Management Direction

The HCWMP provides management direction for a wide range of resources occurring within the SMA. Plan direction is divided into several interrelated components including desired conditions, objectives, suitability, allowable uses, and standards and guidelines (USDA Forest Service 2018b). The proposed action was reviewed for consistency with the HCWMP, and relevant management direction was identified for the following resources: riparian and wetland ecosystems, access and travel management, recreation, and heritage and cultural resources. Full text of the SMA management direction can be found in the HCWMP.

Environmental Consequences of the Proposed Action

Consistency with 2018 Hermosa Creek Watershed Management Plan Direction

The proposed action has been reviewed for consistency with all relevant Forest Plan and HCWMP management direction including direction for riparian and wetland ecosystems, access and travel management,

recreation, and heritage and cultural resources.

The proposed action is consistent with all management direction of the SMA. Overall, the proposed action is anticipated to benefit the SMA by complying with the relevant management direction and bringing the SMA closer to desired conditions for access and travel management, recreation, and heritage and cultural resources. Consistency with each relevant resource direction is responded to directly in the following paragraphs.

Measures associated with the proposed action would be in compliance with the Hermosa Creek Watershed SMA Desired Conditions 3.28.18 and 3.28.19, which are related to riparian areas and stream health. The Ice Creek area streams are tributary to the East Fork Hermosa Creek. Therefore, impacts to the health of these streams would, in turn, affect the condition of the East Fork Hermosa Creek. Currently, the health of the Ice Creek area creeks has been found to be in a degraded condition (refer to Table 5). By implementing the PDC included in Table 2 as well as measures to be included in the DMP, the effects of this project would be mitigated, and the health of the project area streams would remain largely unchanged; however, there would be a net improvement of large woody debris within project area streams. Correct design, installation, and maintenance of BMPs during construction of the proposed project (per the Erosion Control Plan) would protect stream health by minimizing the amount of sediment that enters the project area creeks. Improvement of drainage infrastructure per the required DMP would maintain or reduce the extent of CDAs despite the increase in disturbance within the WIZ and mitigate the effects of the project to the Ice Creek area streams. In areas with overstory vegetation clearing (e.g., ski trails), understory vegetative buffers would be maintained adjacent to intermittent or perennial drainages and wetlands, to the

extent possible, which would maintain shade from native riparian hydrophytic species of shrubs.

The proposed action is consistent with Legislative Requirements 3.28.48 and 3.28.49. Proposed motorized or mechanized over-snow travel in the Purgatory SUP area would be regulated through the ski area permit. Limited motorized use would occur off roads during the construction phase of the proposed action, particularly to construct the proposed lift and ski trails; however, this would be short term. Following implementation, all areas disturbed during construction would be revegetated, and motorized over-snow travel would only occur on roads and trails designated by the Forest Service for use by those vehicles. All motorized over-snow vehicle use would only occur when there is adequate snow coverage.

The proposed action would bring the Hermosa Creek Watershed SMA closer to Desired Condition 3.28.52, as it would concentrate and improve access to motorized trails in the SMA by rerouting and improving the snowmobile access trail.

In addition, the proposed action would bring the Hermosa Creek Watershed SMA closer to Desired Condition 3.28.54, as proposed motorized over-snow travel in the Purgatory SUP area would be regulated through the ski area permit, and proposed snowmobile trails within the Purgatory SUP area would be maintained by Purgatory under Forest Service supervision.

The proposed action is consistent with Objective 3.28.55. The following PDC has been added to Table 2 to support Objective 3.28.55: Purgatory shall install/update educational signage all on snowmobile trails proposed for improvement, where appropriate to inform users of site-specific trail designations for vehicle usage and seasonal closure dates; and to educate users

about Share-the-Trail, Leave No Trace, Tread Lightly, and similar behaviors/ethics.

The proposed action is consistent with Standards 3.28.56, 3.28.57, and 3.28.58, which are related to travel management designations.

Proposed motorized or mechanized over-snow travel in the Purgatory SUP area would be regulated through the ski area permit. Limited motorized use would occur off roads during the construction phase of the proposed action, particularly to construct the proposed lift and ski trails; however, this would be short-term. Following implementation, all areas disturbed during construction would be revegetated and motorized over-snow travel would only occur on roads and trails designated by the Forest Service for use by those vehicles. All over-snow motorized and mechanized travel in the project area would comply with relevant seasonal closures to protect resources.

The proposed action would bring the Hermosa Creek Watershed SMA closer to Desired Condition 3.28.68, as it would respond to a demand for developed recreation by improving existing developed recreation sites. Furthermore, as the proposed action would be constructed by Purgatory, costs associated with the administration of the proposed action are within the means of available Forest Service resources.

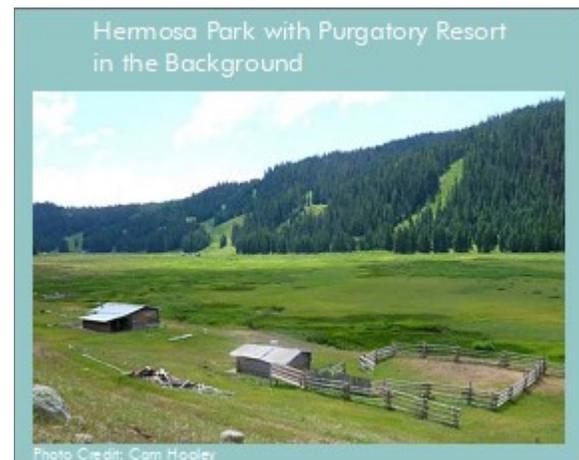
The proposed action is consistent with Guideline 3.28.71, as PDC included in Table 2 would require Purgatory to remove and realign the existing cattle fence that spans the project area from above the proposed top lift terminal and into Hermosa Park (refer to Figure 1). The fence would be realigned north of Hermosa Park Road (FSR 578) to reduce recreational use conflicts. Purgatory would work with grazing allotment permit holders and the Forest Service to address grazing issues related to the realigned fence.

Purgatory would be responsible for funding the fence realignment and grazing allotment permit holders would be responsible for fence maintenance.

The proposed action is consistent with Desired Condition 3.28.72, as it would avoid impacts to Segment 4 of the Rico-Rockwood Wagon Road by allowing no ground disturbance or contour alterations within the site segment and by thinning trees and removing vegetation only by hand throughout the site segment. Use of heavy mechanized equipment in this area would only occur when the ground is protected by at least 12 inches of packed snow or 2 inches of frozen soil. Thinning shall occur within a 100-foot buffer of the site segment where it intersects proposed trail 76. A prescription shall be developed in collaboration with a certified Forest Service Silviculturist and Forest Service Archaeologist and shall have the goal of retaining as many large, mature trees as possible, while also providing adequate separation for skiers and groomer use. Furthermore, Purgatory would coordinate with the Forest Archaeologist regarding the installation of an interpretive panel where the proposed lift line crosses the site segment as well as two interpretive signs either on proposed trail 76, where skiers could see them in the winter, or on Hermosa Park Road (FSR 578) north of the project area, where visitors could see them in the summer.

Cumulative Effects

Cumulative effects to the SMA resources within the spatial bounds of the Ice Creek project area are described within resource analyses in this EA. Because the proposed action is consistent with the direction in the HCWMP and the impacts due to the proposed action are negligible within the context of the SMA, the proposed action is not anticipated to have measurable cumulative effects (positive or negative) to the SMA.



Consultation and Coordination

PREPARERS

Table 8 and Table 9 list those individuals who participated in initial scoping, were members of the ID Team, Consultant Team, and/or provided direction and assistance during the preparation of this EA.

Table 8. Forest Service Interdisciplinary Team

TEAM MEMBER	PROJECT RESPONSIBILITY
Kara Chadwick	Forest Supervisor, Responsible Official
James Simino	Columbine Ranger District, District Ranger
Jed Botsford	SJNF, Ski Area Permit Administrator
Cam Hooley	SJNF, Environmental Coordinator
Kelly Palmer	SJNF, Hydrologist
Clay Kampf	SJNF, Fisheries Biologist
Mark Lambert	SJNF, Public Service Officer
Liz Francisco	SJNF, Archaeologist
Noel Ludwig	Mountain Resorts Team, ID Team Leader, Watershed/Soils Specialist
Bryan West	Mountain Resorts Team, Planner
Isaac Sims and Mike Hill	Mountain Resorts Team, Landscape Architects
Tim Croissant	Mountain Resorts Team, Wildlife Biologist

Table 9. Consultant Team

TEAM MEMBER	ORGANIZATION	PROJECT RESPONSIBILITY
Travis Beck	SE Group	Project Manager
Eric Neumeyer	SE Group	Assistant Project Manager, Environmental Analyst/GIS
Tyler Ford	SE Group	Environmental Analyst/GIS
Paula Samuelson	SE Group	Document Production
Raul Passerini	Resource Engineering	Hydrologist
Shawn Knox	Rocky Mountain Ecology	Wildlife Biologist, Botanist, Ecologist
Anne McKibbin	Metcalf Archaeology	Archaeologist

AGENCIES CONTACTED

Table 10 lists the government agencies that were contacted during the scoping process:

Table 10. Agencies Contacted

GOVERNMENT	AGENCY
Federal	U.S. Fish and Wildlife Service U.S. Army Corps of Engineers U.S. Department of Agriculture Natural Resources Conservation Service
Tribal	Kewa Pueblo Ohkay Owingeh Ute Mountain Ute Tribe of Colorado Northern Ute Indian Tribe (Uintah & Ouray Reservation) Southern Ute Indian Tribe Hopi Tribe Jicarilla Apache Nation Navajo Nation Pueblo of Acoma Pueblo of Cochiti Pueblo of Isleta Pueblo of Jemez Pueblo of Laguna Pueblo of Nambe Pueblo of Picuris Pueblo of Pojoaque Pueblo of San Felipe Pueblo of San Ildefonso Pueblo of Sandia Pueblo of Santa Ana Pueblo of Santa Clara Taos Pueblo Pueblo of Tesuque Pueblo of Zia Zuni Pueblo
State	Colorado Natural Heritage Program Colorado State Forest Service Colorado Parks and Wildlife, Durango Office Colorado Department of Public Health and Environment, Water Quality Control Division Colorado Division of Water Resources Colorado Department of Transportation
Local	La Plata County San Juan County

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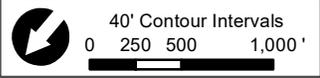
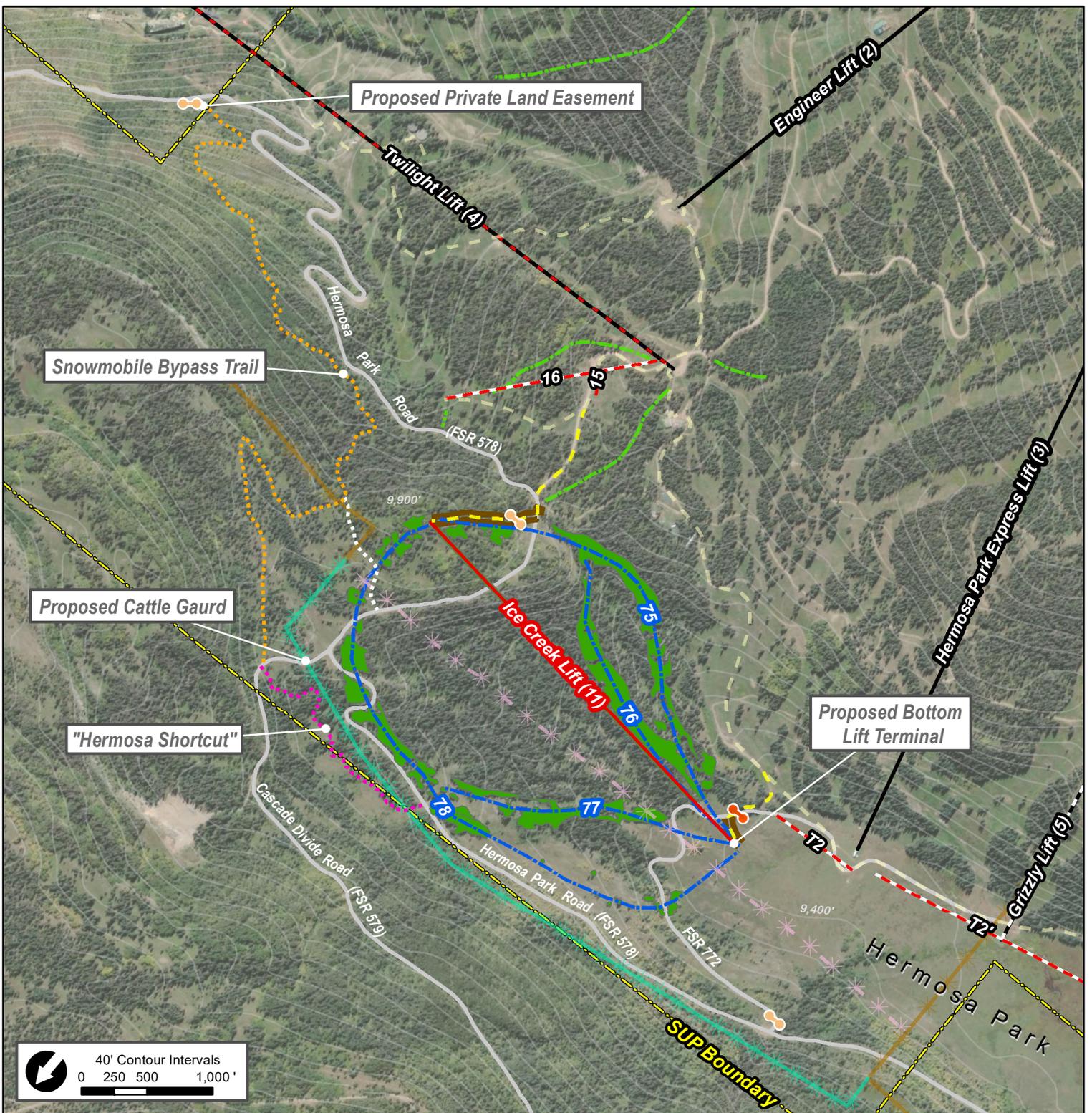
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Figures

Figure 1: Proposed Action

Figure 2: Disturbed Areas and Water Resources



San Juan National Forest
Columbine Ranger District

Purgatory Resort
Ice Creek Project
Environmental Assessment

Figure 1: Proposed Action

Proposed

- Ice Creek Lift
- Intermediate Ski Trails
- Trail Clearing
- Access Road
- Buried Powerlines
- Gate
- Gate to be Removed
- Snowmobile Trail Requiring Improvements
- Snowmobile Trail Segment to be Decommissioned
- Groomed Snowmobile Trail Requiring Improvements
- Fence to be Removed
- Fence

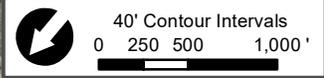
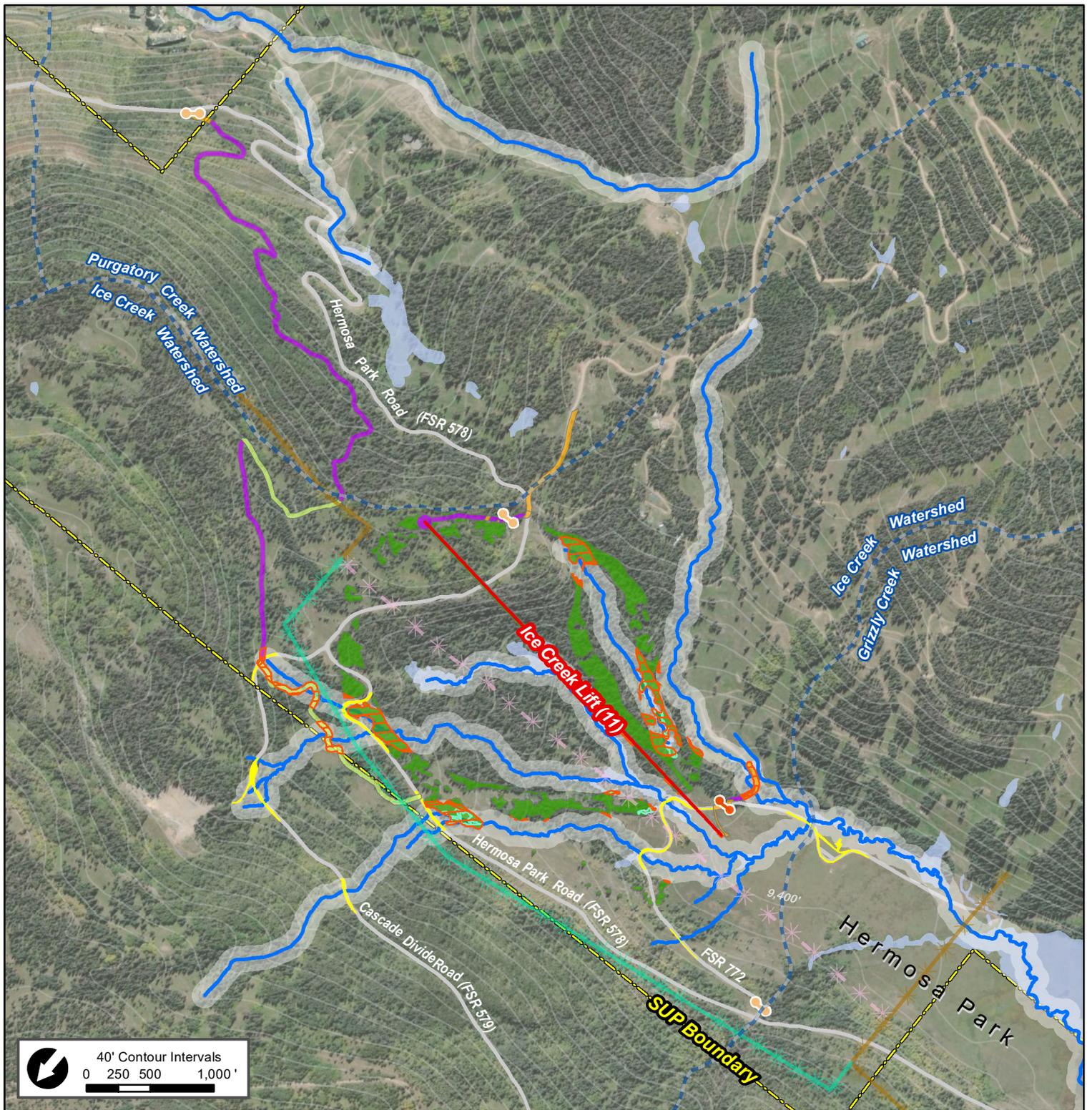
Existing

- Lift
- Access Road
- Fence
- SUP Boundary

Previously-Approved

- Lift
- Lift Removal
- Lift Upgrade
- Beginner Ski Trail
- Guided Snowmobile Trail
- Buried Powerlines

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San Juan National Forest
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*Purgatory Resort
Ice Creek Project
Environmental Assessment*

Figure 2: Disturbed Areas and Water Resources

Proposed

- Ice Creek Lift
- Grading
- Vegetation Clearing/Grading
- Vegetation Clearing
- Limited Vegetation Clearing
- Water Influence Zone (WIZ) Impacts
- Indirect Wetland Impacts
- Fence
- Fence to be Removed
- Gate
- Gate to be Removed

Existing

- Access Road
- Fence
- SUP Boundary

Water Resources

- Streams
- WIZ
- Connected Disturbed Areas
- Wetlands
- Watershed Boundary