December 21, 2023

Tyler Abbott, Wyoming Field Supervisor
U.S. Fish and Wildlife Service
Wyoming Ecological Services Field Office
334 Parsley Boulevard
Cheyenne, WY 82007-4178

Mr. Abbott:

Please find the attached Biological Assessment (BA) for the proposed *Jackson Hole Mountain Resort Recreation Enhancements Project – 2023* (proposed action), scheduled for implementation in spring 2024. The proposed action also includes a separate project, installation of a buried utility line for the new Corbet's Cabin, that was authorized in 2022 by the Bridger-Teton National Forest (Bridger-Teton) prior to the listing of the whitebark pine (*Pinus albicaulus*). This project is also scheduled for implementation in 2024 and would affect whitebark pine.

This BA was prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973 (ESA, as amended), codified in 50 CFR 402.02 and 402.14 to initiate formal consultation on the proposed action.

Cirrus Ecological Solutions, LC, of Logan, UT, is assisting the Bridger-Teton as a third-party contractor in completing an environmental review of the project, including this consultation. All analyses have been prepared under the supervision and oversight of appropriate Forest Service personnel.

The Service's Information for Planning and Conservation website identified the five species considered in this consultation, three mammals, one bird, and one plant. Table 1 notes the determinations for these five species indicated by our analysis. The whitebark pine is the only species likely to be adversely affected by the proposed project, and it is the subject of the BA. Species for which we reached "no effect" or "not likely to adversely affect" determinations are addressed briefly in this cover letter.

Table 1. Effect determinations for federally listed threatened, endangered, or proposed species.

SPECIES	DETERMINATION
Mammals	
Canada lynx (Threatened)	May affect, not likely to adversely affect.
Grizzly bear (Threatened)	May affect, not likely to adversely affect.
North American wolverine (Threatened)	May affect, not likely to adversely affect.

Table 1. Effect determinations for federally listed threatened, endangered, or proposed species.	
SPECIES	**DETERMINATION**
Birds	
Yellow-billed cuckoo (Threatened)	No effect.
Plants	
Whitebark pine (Threatened)	May affect, likely to adversely affect.

Canada Lynx (*Lynx canadensis*)

The "May affect, not likely to adversely affect" determination is based on these considerations:

- The project area is within the Fall Creek North LAU and, according to modeling being developed by the BTNF, may include up to 47 acres of potential lynx habitat. However, the BTNF model resolution is coarse, and much of the potential habitat affected by the project was previously cleared for roads or other infrastructure, and includes alpine meadow or rock.
- A 2004 BA addressing JHMR's full master development plan concluded that there was no suitable lynx habitat within the special use permit boundary, as potential habitat was highly fragmented and subject to high levels of year-round human activity. That BA's determination was that resort operations and projects included in the master plan "are not likely to adversely affect lynx or their habitat."
- BAs prepared for subsequent master plan amendments in 2015, 2016, and 2023 reached the same determinations regarding lynx. These previous wide-scope BAs noted no non-compliance with Northern Rockies Lynx Management Direction objectives, standards, and guidelines. The Service concurred with these determinations.
- The Wyoming Natural Diversity Database (WYNDD) indicates no lynx observations in or around the resort area.

Grizzly Bear (*Ursus arctos horribillis*)

The "May affect, not likely to adversely affect" determination is based on these considerations:

- The project area occurs in occupied grizzly bear range and in biologically suitable habitat. However, the project area is not in the Yellowstone Ecosystem Grizzly Bear Recovery Zone. The area falls under Management Situation #5 where grizzly bears are expected to be uncommon and federal land management is unlikely to affect the species' recovery.
- Grizzlies tend to avoid human activity. Bear displacement during project activities would be short-term and would not measurably affect the fitness of individuals.
- Only minimal grizzly bear habitat would be affected.
- BAs prepared for master plan amendments in 2015, 2016, and 2023 reached the same determination regarding grizzly bear, and the Service concurred.

North American Wolverine (*Gulo gulo luscus*)

The "May affect, not likely to adversely affect" determination is based on these considerations:

- Higher elevations at the resort could provide marginal quality habitat for wolverines. However, the proposed projects would not affect the quality of habitat at the resort due to the high variability of habitat that wolverines use.
- Should any wolverines be in the area during construction, they would likely be displaced, but abundant habitat is present on adjacent National Forest and National Park (Grand Teton) land. This displacement would be short-term and would not likely impact the fitness of any individuals.
- The high level of year-round recreation activity at the resort likely deters wolverines.
- According to the WYNDD, there have been no recent, confirmed sightings of wolverines at the resort.
- BAs prepared for master plan amendments in 2015, 2016, and 2023 reached a "Not likely to jeopardize the continued existence of the species" determination regarding wolverine, and the Service concurred.

Yellow-billed Cuckoo (*Coccyzus americanus*)

The "No effect" determination is based on these considerations:

- No large stands of riparian woodlands required by the species occur in the project area.
- The project area is above the elevation range of the species.
- BAs prepared for master plan amendments in 2015, 2016, and 2023 reached the same determination regarding the yellow-billed cuckoo, and the Service concurred.

As indicated above, our determination regarding whitebark pine is "May affect, likely to adversely affect." However, adverse effects would be localized, and the proposed action is not anticipated to jeopardize the continued existence of the species in the wild. The attached BA documents our analysis leading to this determination.

The gray wolf is not addressed in this consultation as it was delisted in Wyoming in 2017.

We appreciate your review of this letter and BA. Please do not hesitate to contact us with any questions or comments or if there is anything else we can do to facilitate this consultation.

Sincerely,

Adam Clifford, Wildlife Biologist
Cirrus Ecological Solutions, LC

Cc: Todd Stiles, Ranger, Jackson Ranger District, BTNF.

Mariah Radue, Environmental Coordinator, BTNF.

Biological Assessment:

Jackson Hole Mountain Resort

Recreation Enhancements Project – 2023

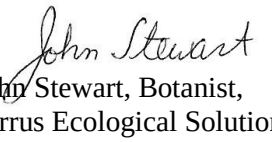
Jackson Ranger District,

Bridger-Teton National Forest

USDA-Forest Service

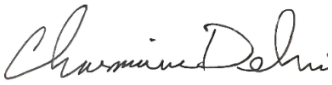
Prepared by:

Adam Clifford, Wildlife Biologist, 12/21/2023
Cirrus Ecological Solutions, LC Date



John Stewart, Botanist, 12/21/2023
Cirrus Ecological Solutions, LC Date

Reviewed by:



Charmaine Delmatier, 12/12/2023
Delmatier, Inc. Date

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1. INTRODUCTION

The Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. *et seq*., 87 FR 76882) is administrated by the U.S. Fish and Wildlife Service (Service) and the National Marine Fisheries Service. It requires federal agencies to ensure that any activities they authorize, fund, or carry out do not jeopardize the continued existence of any threatened or endangered species, or species proposed for listing (Section 7). The biological assessment (BA) is the vehicle for evaluating and documenting the effects of a proposed project on listed species.

This BA addresses the effects of a proposal by Jackson Hole Mountain Resort (JHMR) to undertake the *Jackson Hole Mountain Resort Recreation Enhancements Project – 2023* within their existing special use permit area on the Bridger-Teton National Forest (Bridger-Teton), as detailed below. The Bridger-Teton is completing environmental review of the JHMR proposal as required by the National Environmental Policy Act of 1969, as amended. An Environmental Assessment has been prepared to document that review. JHMR's proposal includes 33 projects, three of which would affect whitebark pine. Implementation is scheduled to begin in spring 2024.

The Bridger-Teton identified another previously approved but not yet implemented project that would impact whitebark pine that is also scheduled for implementation in 2024. It is installation of a buried utility line for the new Corbet's Cabin, authorized in 2022 by the Bridger-Teton prior to the listing of the whitebark pine.

The proposed action for purposes of this BA comprises the three projects from JHMR's current proposal plus the Corbet's Cabin utility line project.

The Service's Information for Planning and Conservation website identified five species that should be considered in this consultation, including whitebark pine, Canada lynx, grizzly bear, North American wolverine, and yellow-billed cuckoo. As discussed in the cover letter for this BA, we reached "no effect" or "not likely to adversely affect" determinations for Canada lynx, grizzly bear, North American wolverine, and yellow-billed cuckoo, and they are not discussed further in this BA. The threatened whitebark pine is the only listed species determined to be adversely affected by the proposed action, and it is the focus of this BA.

1.1 SUMMARY OF FINDINGS

This BA assesses the impact of the proposed action on whitebark pine, federally listed as threatened on December 15, 2022. The proposed action comprises the following four projects slated for implementation over a 6-year period beginning in spring of 2024:

- Replacement of Sublette chairlift.
- Realignment of Upper Sundance ski run.
- Upgrading Gros Ventre ski run.
- Installation of buried utilities for the new Corbet's Cabin facility.

These four projects would result in lethal or nonlethal adverse effects on up to 392 whitebark pines, including seedling, saplings, and cone-bearing trees. Based on that effect, our determination is that the proposed action **may affect, and is likely to adversely affect the whitebark pine.**

As discussed below in section 4.1, the primary stressors of whitebark pine are white pine blister rust, mountain pine beetle, fire regime change, and climate change. Numerous other factors operate on whitebark pine at smaller scales, affecting individuals or local areas, but they do not drive population dynamics at the

range-wide or species-level (87 FR 76882, Federal Register December 15, 2022). The proposed action is one such small-scale factor.

2. CONSULTATION HISTORY

This BA initiates formal consultation on whitebark pine for the proposed action.

3. DESCRIPTION OF THE PROPOSED ACTION

3.1 PROPOSED ACTION AREA

The proposed action would take place at JHMR, which lies on the Bridger-Teton just south of Grand Teton National Park, approximately 8 miles northwest of Jackson, Wyoming (Figure 1). The resort's permit boundary includes 2,412 acres. Elevations at the resort range from approximately 6,300 feet to over 10,400 feet. The improvements comprised by the proposed action occupy roughly the upper third of this elevation range. This coincides with the elevation zone where whitebark pine occur.

JHMR was established in 1965, when the Tram and other ski area infrastructure were completed. Long-term resort development and operation has altered the permit area's natural setting. Lift terminals and alignments, cleared and graded ski trails, access roads, skier traverses, mountain bike and hiking trails, visitor service buildings, and high levels of year-round human presence and activity have influenced the habitats and species present.

3.2 PURPOSE AND NEED

Facility maintenance and upgrades are a routine aspect of successful resort management. The resort needs to address aging and normal wear and tear of operational and visitor-service infrastructure and upgrade runs to increase skier utilization. The detailed descriptions in section 3.3 indicate how each of these four projects helps resolve these needs.

3.3 DETAILED PROPOSED ACTION DESCRIPTION

As outlined in the Introduction, the proposed action addressed in this BA includes four projects that would impact whitebark pine. These projects are listed below, and locations are shown on Figures 2 through 4:

- Sublette Lift Replacement
- Upper Sundance Run Realignment
- Gros Ventre Run Upgrade
- Corbet's Cabin Utility Line

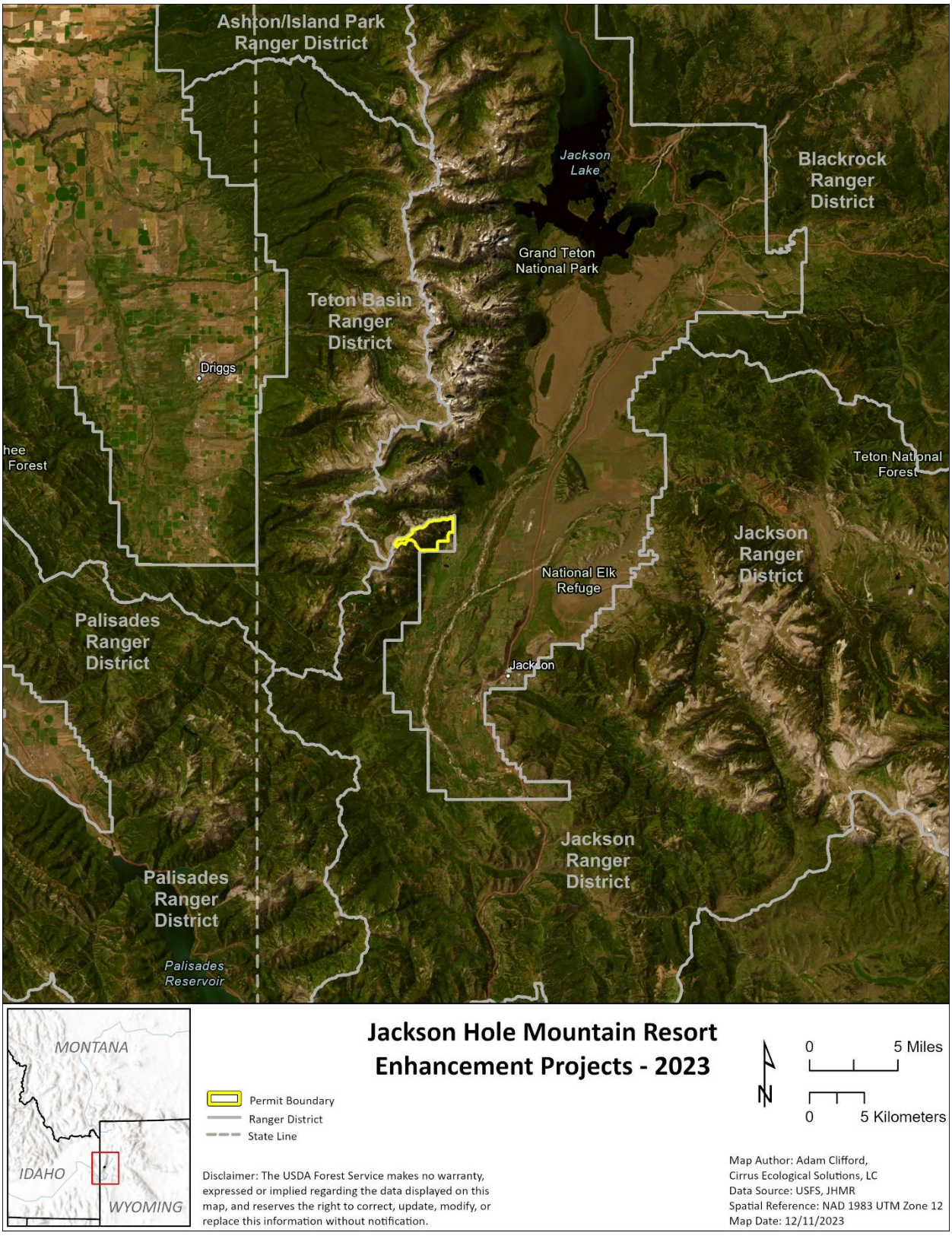

Figure 1. JHMR vicinity map.

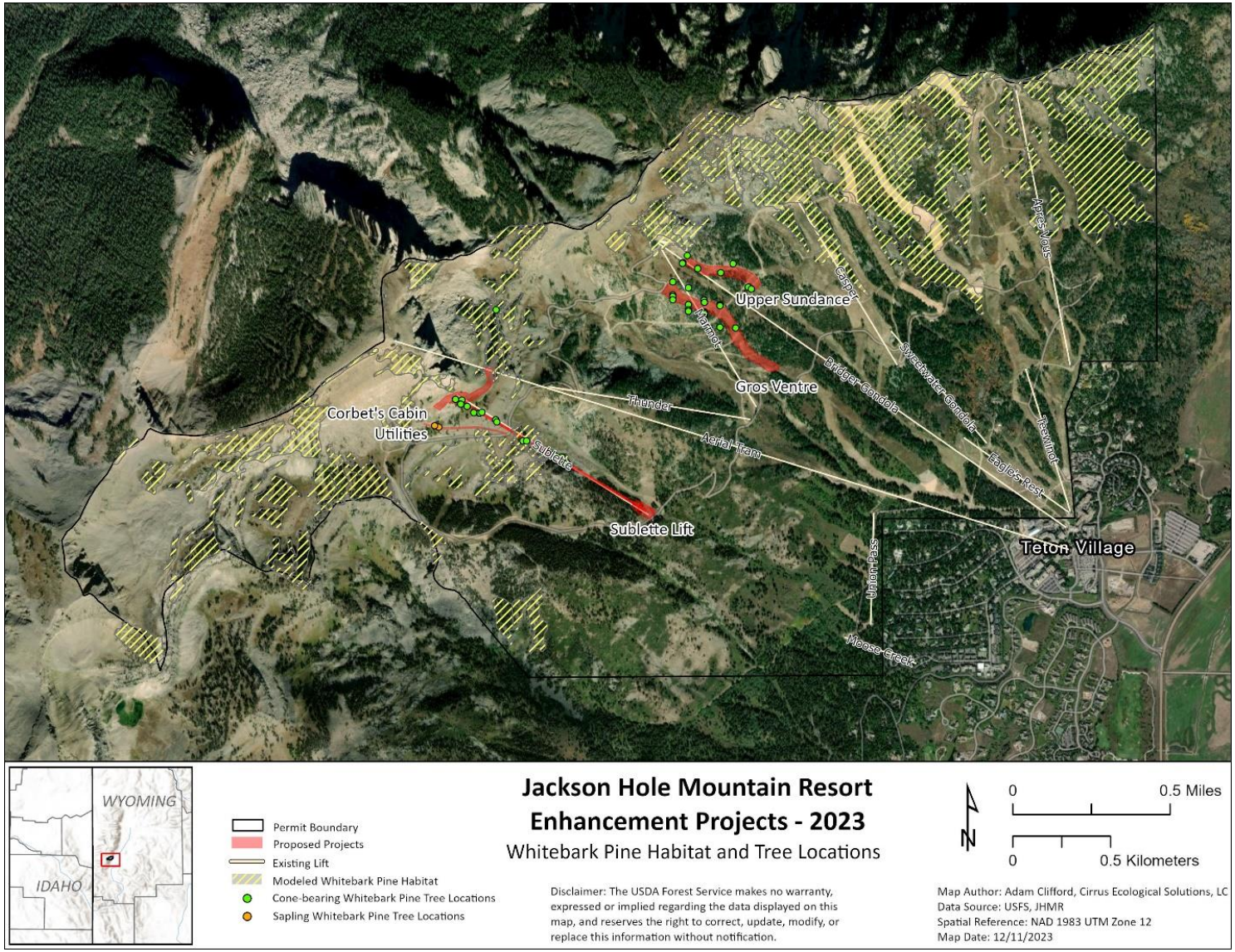

Figure 2. The four proposed action projects overlaid with modeled whitebark pine distribution and recorded locations of cone-bearing trees and the two impacted trees from the Corbet's Cabin utility line project.

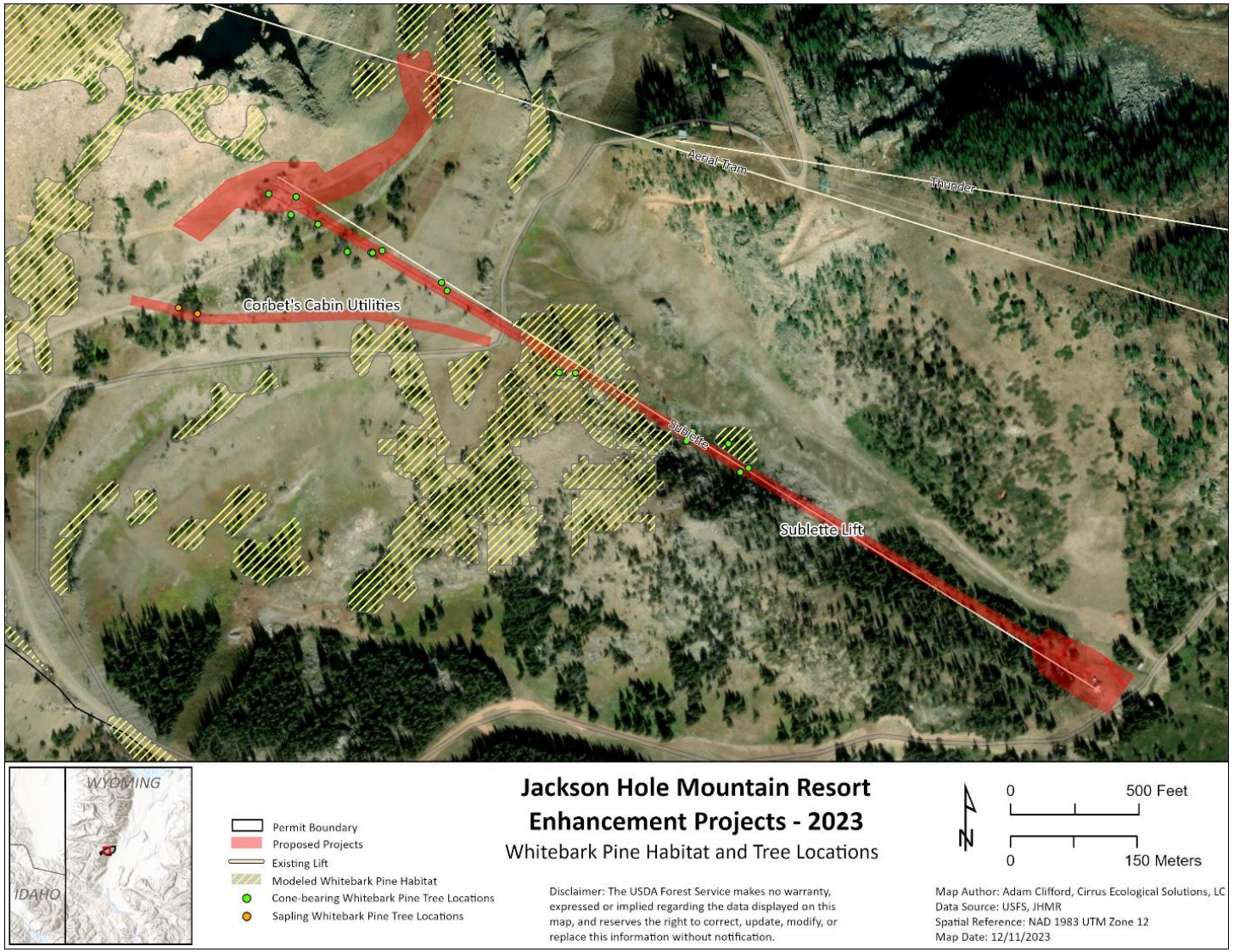

Figure 3. The proposed Sublette lift replacement and the Corbet's Cabin utility line project overlaid with modeled whitebark pine distribution and recorded locations of cone-bearing trees and the two impacted trees from the Corbet's Cabin utility line project.

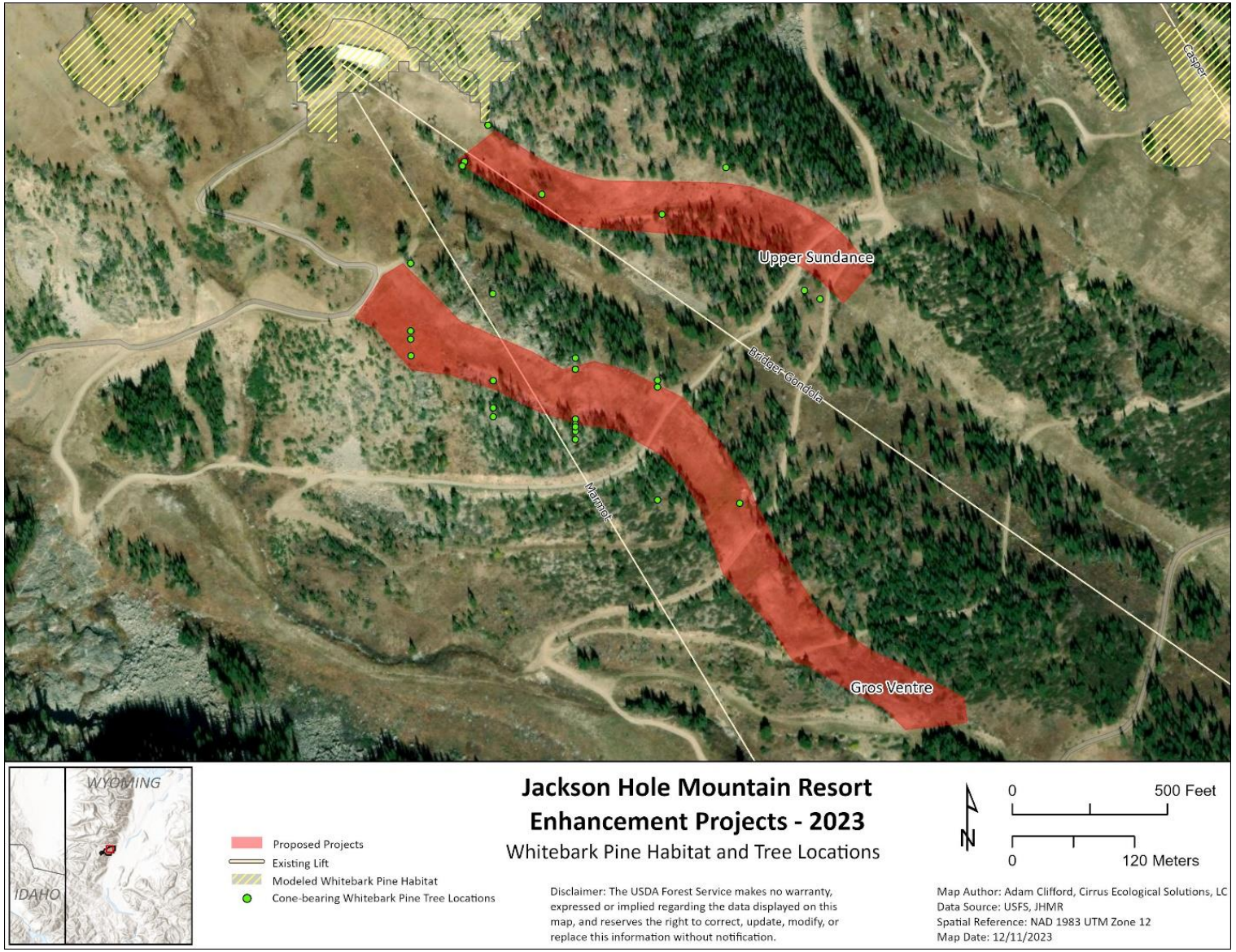

Figure 4. The proposed Upper Sundance run realignment and Gros Ventre run upgrade projects overlaid with modeled whitebark pine distribution and recorded locations of cone-bearing trees.

The project disturbance types and acreages are summarized in Table 1 and discussed in detail below. The four projects would result in 24.3 acres of ground disturbance and an additional 2.7 acres of clearing.

Table 1. Disturbance types and acres disturbed for the three projects analyzed.

	Disturbance Category and Acres Disturbed[1]			
Proposed Action Project Name	**Clearing**	**Grading**	**Excavation**	**Disturbance[2] (Ground/Total)**
Chair Replacement				
Sublette Chair Replacement	2.7	5.1	0.5	5.6 / 8.3
Ski Run, Traverse, and Terrain Park				
Upper Sundance Run Realignment		5.0	<0.1	5.0 / 5.0
Gros Ventre Run Upgrade		9.3	0.1	9.4 / 9.4
Utilities Infrastructure				
Corbet's Cabin Utility Line			4.3	4.3/4.3
Total				24.3 / 27.0

[1]Acreages include a disturbance buffer; the amount of actual ground disturbance may be less than the buffered distance. Areas of overlap, such as where the disturbance buffers for two different projects coincide, have only been counted once. Disturbance acres have been rounded to the nearest tenth acre.

[2] Ground disturbance includes grading and excavation only. Total disturbance includes thinning, clearing, grading, and excavation.

3.3.1 SUBLETTE LIFT REPLACEMENT

This project would upgrade and maintain aging infrastructure and better balance skier use across the mountain. JHMR would replace the existing Sublette fixed-grip chair with a new high-speed detachable four-place chair in a slightly modified alignment. Capacity would be up to 2,200 persons per hour. Key features of the project:

1. Shift the top terminal south approximately 30 feet and lower it up to 30 feet in elevation.
2. Move the base terminal uphill approximately 70 feet and north approximately 20 feet to accommodate reconfiguration of the lift maze.
3. Create and clear a 40-foot-wide alignment about 3,700 feet long to accommodate the wider lift and the terminal shifts.
4. Realign Hanging Rock run to accommodate the new unload area elevation.
5. Place excess material from the excavation of the new unload area below the lift and on Hanging Rock run to widen the trail and reduce its grade.
6. Construct a new 16-foot-wide skier traverse to access Tensleep Bowl, also using material excavated from the new unload area.
7. Construct a new summer access road within the limits of Hanging Rock run.

8. Construct a 500-to-600-square-foot chair-parking and maintenance structure adjacent to the bottom terminal.

Equipment used: heavy excavating, earthmoving, and grading equipment; spider hoes to excavate isolated tower bases; helicopters to fly concrete and towers and to remove cut trees; chainsaws to clear alignment; and some drilling and blasting.

3.3.2 Upper Sundance Run Realignment

This project would correct a severe cross slope that makes grooming difficult and results in low use by intermediate and advanced intermediate skiers. JHMR would realign the run so it follows the natural fall line more closely and widen the run on the skier's right above Amphitheater Traverse. Significant grading, blasting, and tree removal would be required. Snowmaking infrastructure authorized in 2017 would be installed concurrently.

Equipment used: conventional earthmoving equipment (dozer, excavator); pneumatic drills for blasting, and tree removal by hand crews using chainsaws. Cut trees stacked and burned on site or removed by helicopter.

3.3.3 Gros Ventre Run Upgrade

This project would improve snow cover and reduce the steepness and cross slope in the middle section of the existing Gros Ventre run above South Pass Traverse and below Lupine Way to increase skier utilization. JHMR would use extensive grading and rock blasting to recontour run. Snowmaking infrastructure authorized in 2017 would be installed concurrently.

Equipment used: conventional earthmoving equipment (dozer, excavator); pneumatic drills for blasting.

3.3.4 Corbet's Cabin Utility Line

In 2017, JHMR received approval from the Bridger-Teton to replace Corbet's Cabin with a new restaurant and operations facility. Plans at that time were to transport potable water to the new facility in tanks connected to the bottom of the Tram cabins and to construct a new sewer line down the mountain to connect with the existing sewer system serving Rendezvous Lodge.

During the design process for the new facility, it was determined that it was not feasible to transport all the water needed to operate the new facility during peak-use periods and maintain adequate fire protection using the Tram. As a result, JHMR revised the plan to include a new 3-inch-diameter, high-pressure waterline from the existing Gros Ventre/South Pass pressure booster station to the top of the mountain. Portions of the installation have been completed.

Most of the ground disturbance associated with utility installation will be in previously graded and/or disturbed areas. The disturbance width along the corridor will average 20 feet.

Equipment used: spider excavator.

4. WHITEBARK PINE

4.1 SPECIES STATUS AND BIOLOGY

In October 2018, following the proposal to list whitebark pine, the Service completed the *Species Status Assessment for the Whitebark Pine, Pinus albicaulis*, as a basis for their listing decision (Service 2018). That document presents a thorough review and synthesis of information on the species' biology and is incorporated here by reference.

On December 15, 2022, the Service published a final rule to list the whitebark pine as threatened under the ESA (87 FR 76882, Federal Register December 15, 2022). The rule identified four primary threats to whitebark pine: white pine blister rust (*Cronartium ribicola*), mountain pine beetle (*Dendroctonus ponderosae*), altered fire regimes, and climate change. The rule went on to note that, "Numerous other factors operate on whitebark pine at more local scales, affecting individuals or local areas; these include agriculture; energy production and mining; biological resource use (e.g., logging); and recreation. However, these factors are likely not driving population dynamics of whitebark pine on a range-wide scale or at the species level." The rule discusses these stressors in greater detail in the Federal Register listing document.

On January 17, 2023, the Service issued the *Standing Analysis for Whitebark Pine* to expedite the ESA Section 7 consultation process for ongoing maintenance and management actions, new development or construction projects that will damage or kill small numbers of live whitebark pine, and for activities that are beneficial for the restoration or recovery of whitebark pine within Montana and Wyoming. Specifically, activities considered in the framework include maintenance and development of recreation facilities.

4.2 ENVIRONMENTAL BASELINE

Whitebark pine is one of the more common trees at higher elevations at JHMR, occurring in a broad band across the upper third of the mountain, primarily above the South Pass Traverse. Whitebark pine occurs in large stands where it is the dominant tree, in clumps, in stringers, and as individual trees. Comprehensive resort-wide whitebark pine inventories have not been completed, but long-time resort staff have observed trends over the years. Anecdotally, whitebark pine are roughly the fifth most common tree at JHMR, following subalpine fir, Douglas fir, Engelmann spruce, and aspen. On upper-elevation sites, whitebark pine can be the dominant tree.

Mountain pine beetle mortality was observed beginning roughly 20 years ago, with blister rust taking an additional toll starting about 15 years ago. Collectively they have reduced whitebark pine populations by more than half. In the resort's permit area, mortality rates of 70 percent at elevations above 8,670 feet and 50 percent at lower elevations have been observed (Delmatier 2014). A population of mature trees in the Crags area has been especially hard hit. Fire has not been a factor.

Natural regeneration appears to be increasing at the resort. During summer of 2022, 4-to-6-foot-tall whitebark pine were observed in fairly dense stands on forested north-facing aspects.

Rust resistant whitebark pine and stands with high genetic diversity have been found on the Bridger-Teton, and JHMR is located within a Bridger-Teton restoration target area (Service 2023). Four Plus trees, including one Elite tree (#65780) have been located and clearly marked and monitored at the resort, and JHMR cooperates with the Bridger-Teton on conservation and recovery efforts within their permit boundary.

Four projects were surveyed for whitebark pine to estimate the number of whitebark pine trees that could be potentially affected. The surveys included a 10-meter buffer around the area of ground disturbance and tree removal, in accordance with the Service's Standing Analysis (Service 2023). Whitebark pine trees within the disturbance area of the Corbet's Cabin utility line project were identified by Forest Service silviculturists during a timber cruise in November 2023.

These size classes recorded of whitebark pine recorded in the survey were selected on the basis of (1) survey efficiency (i.e., avoiding time consuming measurements in favor of straightforward field observations) and (2) consideration of Service interest in regeneration and cone bearing. Accordingly, the categories were seedlings (< 4 inches tall), saplings (>4 inches tall but not cone bearing), and cone bearing trees. Table 2 shows the number of whitebark pine, by size class, found in each of the four project areas.

Table 2. Whitebark pine occurring in the four buffered disturbance footprints, by size class.				
	Size Classes Impacted			
Project Name	**Seedlings**	**Saplings**	**Cone-Bearing**	**Total**
Sublette Chair Replacement	227	51	19	297
Upper Sundance Run Realignment	12	17	12	41
Gros Ventre Run Upgrade	21	11	20	52
Corbet's Cabin Utility Line	0	2	0	2
Total	**260**	**81**	**51**	**392**

4.2.1 SUBLETTE LIFT REPLACEMENT

Within the Sublette lift replacement footprint and buffer, the survey identified 297 whitebark pine trees, including 227 seedlings, 51 saplings, and 19 cone-bearing trees. See Figure 3 above. Note that 2023 whitebark pine surveys showed that the whitebark pine distribution modeling used in Figures 2-4 was inaccurate; surveyors found whitebark pine seedlings/saplings throughout the proposed Sublette lift replacement project area.

4.2.2 UPPER SUNDANCE RUN REALIGNMENT

Within the Upper Sundance run realignment project footprint and buffer, the survey identified 41 whitebark pine trees, including 12 seedlings, 17 saplings, and 12 cone-bearing trees. See Figure 4 above. Note that 2023 whitebark pine surveys showed that the whitebark pine distribution modeling used in Figures 2-4 was inaccurate; surveyors found whitebark pine seedlings/saplings throughout the proposed Upper Sundance run realignment project area.

4.2.3 GROS VENTRE RUN UPGRADE

Within the Gros Ventre run upgrade project footprint and buffer, the survey identified 52 whitebark pine trees, including 21 seedlings, 11 saplings, and 20 cone-bearing trees. See Figure 4 above. Note that 2023 whitebark pine surveys showed that the whitebark pine distribution modeling used in Figures 2-4 was inaccurate; surveyors found whitebark pine seedlings/saplings throughout the proposed Gros Ventre run upgrade project area.

4.2.4 CORBET'S CABIN UTILITY LINE

Within the Corbet's Cabin utility line disturbance footprint, Forest Service timber cruisers identified two whitebark pine saplings. See Figure 3 above. Note that 2023 whitebark pine surveys showed that the whitebark pine distribution modeling used in Figures 2-4 was inaccurate; the two whitebark pine saplings identified during this survey are outside modeled habitat (see Figure 3). The alignment for this project was chosen in order to avoid larger, cone-bearing whitebark pine trees further downslope.

4.3 DIRECT AND INDIRECT EFFECTS

The proposed action would impact whitebark pine occurring in the development footprints of the Sublette lift replacement, Gros Ventre run upgrade, Upper Sundance run realignment, and Corbet's Cabin utility line projects, as detailed above. Up to 392 whitebark pine seedlings, saplings, and cone-bearing trees would be impacted under a worst-case scenario, assuming all whitebark pine trees in the disturbance footprints and buffers were impacted. Impacts could lethal (e.g., removal or lethal physical damage) or nonlethal (e.g.,

nonlethal physical damage or compaction of soil in the root zone). A detailed discussion of impacts on whitebark pine for each of the four projects follows.

4.3.1 Sublette Lift Replacement

Quantifying the impact of the Sublette lift replacement project on whitebark pine is difficult for several reasons. Taller trees within the 40-foot lift corridor would likely be cut during the initial installation, but smaller trees in the corridor could remain until they grew tall enough to interfere with skiing or lift operation. Some seedlings could also be destroyed during corridor clearing and tower construction. Most trees in the disturbance footprints of the top and bottom terminals would be cut, but those that could be retained would be left in place. Whitebark pines adjacent to areas where heavy equipment operated could be non-lethally impacted. Over a period of years, some trees in the project area would be lost to beetles and blister rust rather than to project related factors.

In light of these complicating factors, this analysis adopts a conservative approach, projecting that all 297 whitebark pines in the project footprint and buffer would be adversely affected, lethally or non-lethally, during project implementation or over time due to lift maintenance and use.

4.3.2 Upper Sundance Run Realignment

Trees within the project footprint would be removed due to clearing and grading. Construction to implement this project would result in the loss of the 41 whitebark pine trees in the project footprint and buffer.

4.3.3 Gros Ventre Run Upgrade

The grading required to implement the Gros Ventre Run Upgrade project would result in the removal of the 52 whitebark pine trees in the project footprint and buffer.

4.3.4 Corbet's Cabin Utility Line

The excavation required to implement this project would result in the loss of the two whitebark pine trees in the project disturbance area.

4.4 CUMULATIVE EFFECTS

The ESA defines cumulative effects (50 CFR 402.2) as the additive effects of state and private activities that are reasonably certain to occur in the watershed where the Federal Action occurs. JHMR abuts National Forest System or National Park System lands on three sides, and private land at the base area is well below the elevation range of whitebark pine. As a result, there is little potential for any non-federal activity to generate cumulative effects on whitebark pine.

4.5 RESTORATION AND PROTECTION MEASURES

The Standing Analysis (Service 2023) identified a number of protective actions for existing whitebark pine, most under the heading of Conservation Measures (CM) or Conservation Recommendations (CR). While the Standing Analysis is not applicable to the proposed action as consultation vehicle, many of the measures to restore and protect whitebark pine listed in that document are included in ongoing, collaborative efforts by the Bridger-Teton and JHMR. Other measures that indirectly protect whitebark pine and associated resources (i.e., vegetation management and erosion control) at JHMR are among the standard design criteria that the Bridger-Teton requires as conditions of approval of specific projects at the resort. Both types of measures are discussed below.

4.5.1 WHITEBARK PINE

The Bridger-Teton is a member of the Greater Yellowstone Coordinating Committee Whitebark Pine Subcommittee, whose mission is to help ensure the long-term viability and function of whitebark pine in the Greater Yellowstone Area. Management and conservation activities are guided by the *Adaptive Action Plan: Whitebark Pine in the Greater Yellowstone Area* (Greater Yellowstone Whitebark Pine Subcommittee 2015). Ongoing, collaborative efforts between the BTNF and JHMR (CR10) at the resort, with corresponding Standing Analysis CMs/CRs cited, include the following:

- Proposed project areas are surveyed for whitebark pine and other special-status species prior to project authorization (CM1).
- Efforts are made in project design to avoid or minimize removal of whitebark pine identified through these surveys, where feasible (CM7, CM12).
- In areas where tree selection is discretionary during project implementation (e.g., hiking and biking trail construction, feathering the edges of cleared runs), whitebark pine trees are not removed (CM7).
- The resort is accelerating efforts to identify more whitebark pine Plus trees. Four Plus trees, including one Elite tree, have been identified, marked, and protected at the resort. None would be disturbed by the proposed action (CM3, CR1).
- The resort is continuing the whitebark pine tree seed collection program, particularly from the Plus trees. Whitebark pinecones have been collected multiple times, most recently in 2022, including cones from Plus trees (CR2).
- The resort is continuing to support planting disease-resistant, genetically appropriate whitebark pine seedlings from seedlots selected by a Forest Service silviculturist, geneticist, or other approved specialist. Tree planting plans are prepared by a Forest Service silviculturist. To date about 1,000 tress have been planted at the resort (CM22, CR2).
- The resort is continuing to protect whitebark pine trees from mountain pine beetle using verbenone patches and carbaryl spraying. About 800 whitebark pine have been protected using these methods (CN21, CR7).
- Pertinent on-mountain personnel at the resort are trained to identify whitebark pine in order to avoid adverse effects (CM10).
- Resort users (e.g., skiers, climbers, hikers) are educated about whitebark pine ecology, importance, protection, and recovery through interpretive programs at the resort (CM11, CR9).

4.5.2 VEGETATION MANAGEMENT

- Soil disturbance is minimized, and existing topsoil is conserved for replacement.
- Where possible, disturbance of native vegetation is avoided.
- Slash created by tree removal is disposed of either through utilization, burning, chipping, mastication, lopping and scattering, or removal from the site within a specified timeframe.
- The resort follows Forest Service policy (FSM 2070) and use genetically appropriate native materials for rehabilitation and restoration when possible. Locally-collected native seed material is used for rehabilitation and restoration to retain genetic viability and fitness. Seedbed preparation in areas to be rehabilitated or restored includes practices such as incorporating recycled woodchips into topsoil or using soil erosion-control mats. A qualified Forest Service botanist or ecologist is involved in development, review, and/or approval of plant materials selected for use in site rehabilitation and restoration.

- Any areas of native vegetation that will be disturbed and have not been previously surveyed for special-status plants are surveyed prior to construction. Results are reported to the Forest Service Permit Administrator, and appropriate measures to mitigate impacts will be implemented.
- All construction equipment and vehicles used are cleaned and certified free of noxious weeds and their seeds prior to entrance onto the Bridger-Teton. This restriction includes equipment and vehicles intended for both on- and off-road use, whether they are owned, leased, or borrowed by either contractors or subcontractors.
- Any fill material proposed for the project, including any imported topsoil, is first inspected by the invasive plant specialist to determine if it is weed-free, from a certified source, and thus safe to bring onto the Bridger-Teton.
- Any straw bales, chips, or other imported mulch used in conjunction with the proposed action comes from a certified weed-free source.
- Disturbed sites are revegetated as soon as possible to reduce the risk of establishment of weeds and exotic plants.
- Disturbed areas are monitored for invasive plant species annually while the site is in a disturbed state. Invasive species should be reported and treated.

4.5.3 EROSION CONTROL

- Disturbed site rehabilitation at the resort is conducted in accordance with the resort's *Storm Water Pollution Prevention Plan* (SWPPP; JHMR 2023), which was prepared and is implemented as a condition of completing development projects at the resort under the Wyoming Pollutant Discharge Elimination System General Permit (see section 3.4). The SWPPP, updated annually to address projects slated for implementation that year, includes: appropriate best management practices (BMPs) for erosion control, sediment control, and site stabilization; operational controls; and provisions for maintenance and inspection.

4.6 DETERMINATION AND RATIONALE

Based on the analyses presented in this document, the proposed Jackson Hole Mountain Resort 2023 Ski Run Improvements Project **may affect, and is likely to adversely affect whitebark pine**. This determination is based on the following rationale:

- Field surveys conducted in August 2023 and November 2023 documented the occurrences of seedlings, saplings, and mature whitebark pine in the Sublette lift replacement, Upper Sundance run realignment, Gros Ventre run upgrade, and Corbet's Cabin utility line project areas.
- The proposed action would lethally or non-lethally affect up to 392 trees within these project footprints and buffers.

In interpreting this determination, it is important to note that the proposed action would not contribute to the primary threats to whitebark pine. As discussed above (section 4.1), this proposed action would fall in the category of other factors that are not driving population dynamics of whitebark pine on a range-wide scale or at the species level.

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