

BIOLOGICAL ASSESSMENT (BA)

Taos Ski Valley's Master Development Plan Phase 1 Projects

Questa Ranger District, Carson National Forest Taos County, New Mexico

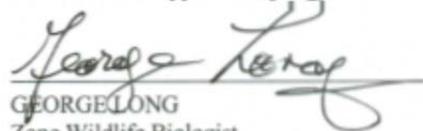


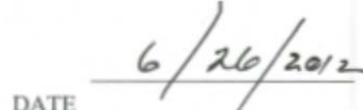
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I. PURPOSE

The purpose of this biological assessment (BA) is to analyze Taos Ski Valley's 2010 Master Development Plan (MDP) Phase 1 proposed projects to determine the effects upon federally threatened and endangered species and whether formal consultation or conferencing with the U.S. Fish and Wildlife Service (FWS) is required. This BA conforms to the legal requirements set forth in Section 7 of the Endangered Species Act (19 U.S.C. 1536 (c), 50 CFR 402.12 (F), and 402.14 (c)) and the requirements in Forest Service Manual Direction (FSM 2672.42).

The BA is based on the preferred alternative or alternative 2 identified in the Draft Environmental Impact Statement for Taos Ski Valley's 2010 Master Development Plan—Phase 1 Projects.

II. SPECIES EVALUATED

The analysis area is within the Taos County. The US Fish and Wildlife Service (FWS) website was used to determine which threatened, endangered, and proposed species are found in this county. This list was reviewed on April 10, 2012 at: http://www.fws.gov/southwest/es/NewMexico/SBC_view.cfm?spcnty=Taos. A Federal species list is requested to fulfill the requirement under Section 7(c) of the Act and the review of this website meets this requirement. ADD LIST

III. DESCRIPTION OF THE ANALYSIS AREA

Taos Ski Valley (TSV) operates under a Forest Service-issued special use permit (SUP) authorizing the use of NFS lands for the purposes of constructing, operating, and maintaining a winter sports resort, including food services, rentals, retail sales, and other ancillary facilities. The SUP covers 1,268 acres on the Questa Ranger District of the Carson National Forest. An additional 200 acres of private land encompass the remainder of the resort and related operations.

The ski area is approximately 20 miles outside of the Town of Taos and is accessed via NM-150/Ski Valley Rd, 15 miles from the intersection with US-64.

This analysis is based on best available scientific data.

IV. DESCRIPTION OF THE PREFERRED ALTERNATIVE

Alternative 2 is the preferred alternative. Implementation would take place over the course of 5 to 10 years, during the summer after snowmelt. All proposed projects and activities are located within TSV's existing 1,268-acre SUP area, administered by the Carson National Forest (NF) and/or on private lands currently owned by TSV. A detailed description of alternative 2 follows. Maps of alternative 2 are found in the EIS, published on the Carson National Forest's website at <http://www.fs.usda.gov/carson>.

A. New Lifts

Main Street Lift

The proposed Main Street Lift would not be operated during the summer. The proposal for lift service to Kachina Peak would:

- Construct a 2,560-foot long fixed-grip, triple chairlift, with a capacity of approximately 1,200 people-per-hour (pph). The lower terminal would be located on a raised rock outcrop (11,340 feet in elevation), just below the base of the hill that leads into Hunziker Bowl. The upper terminal would be on a natural bench, below the ridgeline of Kachina Peak (at approximately 12,450 feet in elevation). Depending on the final engineering design for the lift, approximately ten 40- to 60-foot towers would be needed (each tower would have temporary and permanent ground disturbance. By design, this would be a low capacity lift, in accordance with the type and amount of terrain that it would serve.
- Remove 1.6 acres of trees for the Main Street Lift lower terminal and lift alignment. Merchantable timber would be removed from the site. Non-merchantable timber may be piled and burned (refer to Table 1 for mitigation measures).
- Construct a small (roughly 250 square feet) ski patrol facility into the top terminal infrastructure in order to provide room for staff, medical equipment, and other gear. This facility would not be any taller than the top terminal of the lift.
- Bury a power line within an existing maintenance road (Easy Trip) from the top terminal of Lift 4 to the bottom terminal of the Main Street Lift, using a vibrating plow to minimize soil disturbance.

Ridge Lift

The proposed Main Street Lift would not be operated during the summer. The proposal for lift service to West Basin Ridge would:

- Construct an 800-foot long fixed grip, triple chairlift with a capacity of approximately 1,200 pph. The lower terminal would be located in West Basin, below the top of Lift 8 (11,160 feet in elevation). The upper terminal would be on West Basin Ridge (11,700 feet in elevation).
- Remove 0.7 acre of trees for the Ridge Lift lower and upper terminals and lift alignment. Merchantable timber would be removed from the site and non-merchantable timber may be piled and burned (refer to Table 1 for mitigation measures).
- Bury a power line within an existing maintenance road from the top terminal of Lift 8 to the bottom terminal of the Ridge Lift, using a vibrating plow to minimize soil disturbance.

B. Glades

The preferred alternative includes two new gladed areas discussed in detail below. Thinning activities would occur gradually over a 5-year period, with small diameter dead and dying trees being removed first, and additional trees removed over time to create skiable terrain. Within the gladed areas, thinning would not occur evenly; trees and clumps of trees would be thinned to an average spacing of 20 to 60 feet, to create a skiable terrain between standing trees extending down the fall-line of the slope. Most of the trees to be removed would be smaller than 10 inches in diameter-at-breast-height (dbh). For safety, all existing hazard trees would be removed from the gladed areas. Trees that have high potential to fall due to lean angle, exposed roots, or broken crowns are considered hazard trees.¹ It is likely some hazard trees could occur adjacent to the

¹ Broken crown trees can be a safety hazard attributed to an increased susceptibility to fall during high wind events. These trees have major portions of the crown missing due to disease, rotting, or physical damage caused by heavy snow, lightning strike or wind

proposed gladed ski runs and may need to be removed, if they have the potential to fall into the gladed ski run. Tree felling in both areas would be performed by hand, using chainsaws. No heavy equipment would be used. Trees would be lopped and scattered throughout the gladed area; some felled trees may be piled and burned (refer to Table 1 for mitigation measures). Note: In conjunction with implementation of the proposed glades, TSV would work with the Carson NF to assemble a glading plan that is responsive to both the resort's operational/ recreational needs, as well as the Carson NF's forest health objectives. The glading plan, which would resemble the plan assembled for the North American Glade, would address elements such as, but not limited to, species and size selection, tree mortality (i.e., targeting dead/dying trees), percent removal, and habitat characteristics.

Wild West Glades

The proposal for the Wild West Glades (which are hike-to accessible from the top of Lift 2 and lift-served accessible from the proposed Ridge Lift, if installed) would:

- Thin approximately 31.6 acres of spruce-fir trees from the top of West Basin Ridge to Lower Stauffenberg. Thinning would create navigable openings among the trees (averaging 20 to 60 feet), to form skiable lines running down the slope.

Minnesotas Glades

The proposal for Minnesotas Glades (accessible from the bottom of Lift 7 area) would:

- Thin approximately 40.3 acres of spruce-fir trees, with varying percentages of tree removal (between 10 and 50 percent of existing trees). Spaces between tree clumps left in place would range from 20 to 60 feet, forming skiable lines running down the slope.

C. Lift Replacements

The proposal to replace three of TSV's existing lifts is designed to upgrade the existing lift network, thereby improving operational efficiencies and use of existing and proposed terrain. The only lift that would operate during the summer is Lift 5 out of the base area to the top of Al's Run.

Lift 4 (Kachina Lift)

- Replace the existing Lift 4 (a fixed-grip quad installed in 1991) with a detachable quad chairlift.
- Grade 0.7 acre at the top and bottom terminal locations to accommodate larger terminals. Lift 4 would remain in the same alignment and the same top and bottom terminal locations would be used. Taos Ski Valley would attempt to reuse tower footers.

Lift 5 (High Five Lift)

- Replace Lift 5 (a fixed-grip double installed in 1973) with a high-speed detachable quad chairlift.

events. Loss of a portion of the crown creates an unbalanced weight distribution for the tree. During high wind events these trees may split, lose the rest of the crown or may cause the tree to fall entirely.

- Grade 1.2 acres at the top and bottom terminal locations to accommodate larger terminals. Lift 5 would remain in the same alignment and the top and bottom terminal locations would be used. Taos Ski Valley would attempt to reuse tower footers.

Lift 7 (Maxie's Lift)

- Replace Lift 7 (a fixed-grip triple installed in 1984) with a fixed-grip quad chairlift.
- Grade 0.9 acre at the top and bottom terminal locations to accommodate larger terminals. Lift 7 would remain in the same alignment and the top and bottom terminal locations would be used. Taos Ski Valley would attempt to reuse tower footers.

D. Snowtubing Center

The Snowtubing Center is proposed so TSV could offer snowtubing throughout the day and evening without interrupting skiers and riders on Strawberry Hill during winter operations. The proposal for the Snowtubing Center would:

- Develop a dedicated snowtubing facility near Lift 3—partially on private lands (0.8 acre) and partially on NFS lands (0.7 acre), within TSV's existing SUP area. The Snowtubing Center would include four distinct lanes, varying from 250 to 280 feet long, separated by snow berms. A roughly 250-foot long carpet conveyor lift would bring tubers from the run-out back to the top.
- Form tubing lanes using machine made snow. Taos Ski Valley proposes to extend (on private land) existing snowmaking lines from Lift 3. Taos Ski Valley holds sufficient water rights to add the Snowtubing Center to its snowmaking system.
- Accommodate approximately 90 guests per hour. The existing Pit House (located between Strawberry Hill and the Children's Center) would continue to function as a warming hut, providing guest services and restrooms to snowtubers, as well as skiers and snowboarders.
- Install a low-level lighting system to allow TSV to offer snowtubing into the evening, which would benefit overnight guests and day skiers/riders who wish to extend their day.
- Remove trees and grade approximately 0.5 acre of NFS lands to create run outs for the snowtubing lanes.
- Use the existing access over the Rio Hondo, between the parking lot and the Pit House, to accommodate pedestrian access, as well as construction and maintenance vehicles accessing the Snowtubing Center.
- Provide parking at existing parking lots for users of the proposed Snowtubing Center. A number of parking spaces in TSV's Armadillo lot would likely be reserved for snowtubers.

E. Adventure Center (Snowshoeing)

The proposed Adventure Center would provide a designated and marked interpretive trail system (one main loop trail with interconnecting segments) for snowshoeing, to further supplement winter activities offered at TSV. Interpretive signage would be installed/removed seasonally to provide TSV with flexibility to modify the trail as needed. A trail would begin near the Little

Maintenance Facility in the northeast portion of the existing SUP area. The entire trail system would be approximately 2 miles long. The proposal for the Adventure Center in would:

- Create trails over the snow once sufficient snow coverage is available. Specific trees measuring less than 4 inches diameter may be removed to lay out the trail. The snowshoe trails will be designed to accommodate up to 75 guests at-one-time. Guest services would be located in the nearby Pit House.
- Provide parking at existing parking lots for users of the proposed Adventure Center. A limited number of parking spaces in TSV's Deer lot would likely be reserved for snowshoers. Visitors who want to snowshoe would walk to the trailhead.

F. Mountain Bike Trail

A lift-served Mountain Bike Trail (approximately 3.6 miles) is proposed between the top of Lift 1 and the base area. Cyclists would be able to ride Lift 1 and descend this trail during TSV's summer operation period. With an average grade of 8.5 percent, this trail is designed to minimize the need for pedaling and braking to provide a fun experience for riders of intermediate ability levels. The proposal for the Mountain Bike Trail would:

- Require minimal tree removal and approximately 1.7 acres of ground disturbance, by strategically locating switchbacks on naturally occurring benches and placing trail segments in areas currently cleared for ski trails. Trees would be lopped and scatted or removed from the site.
- Avoid conflicts with mountain operations vehicles by locating the trail away from the existing maintenance roads to the degree possible.

G. Resort Access

The preferred alternative includes projects that are designed to address issues related to vehicular and pedestrian circulation between day parking lots and Lift 1/Lift 5. The eastern day parking lots (Armadillo, Bear, Bison, and Coyote) are proposed to be reconfigured to better accommodate traffic circulation and pedestrian access to the base area.

East Guest Drop-Off Area

The proposal to improve pedestrian access to the resort would:

- Create a new guest drop-off area on Thunderbird Road (East Guest Drop-Off Area).
- Realign the existing footbridge to provide better access from the proposed East Guest Drop-Off Area to Alpine Village.

Parking Lot Reconfiguration

The proposal to improve the parking efficiency and traffic flow would:

- Reconfigure the eastern portion of TSV's day parking lots (i.e., Armadillo, Bison, and Bear) to allow Bison to become a thoroughfare primarily for residents of Taos Ski Valley driving to Twining Road, and access to the East Guest Drop-Off Area.

- Construct an extra parking area north of Armadillo to alleviate the loss of parking on Bison.
- Remove 1.4 acres of trees and grade 3.0 acres to accommodate additional parking and improvements to the entry road (i.e., where Highway 150 meets the parking lots).
- Re-grade 9.9 acres of the existing parking lot to improve vehicular access to the new East Guest Drop-Off Area and circulation through the parking lots.

H. Mitigation Measures

Descriptions of the preferred alternative also include relevant mitigation measures that could reduce the impacts of the proposed project. Examples include: forest plan requirements; best management practices (BMPS); scientific research; statutory and regulatory requirements related to Federal, State, and local laws and regulations; and from experience in designing similar projects. Mitigation measures are devised in the pre-analysis and analysis phases. The bulk of the mitigation measures are considered common management practices historically used by ski area managers in alpine and sub-alpine environments, to prevent or decrease potential resource impacts. They are highly effective methods that can be planned in advance and adapted to site conditions, as needed. Mitigation measures were designed by the Forest Service and specialists involved in this analysis. The potential effects of implementing the preferred alternative are analyzed with mitigation measures applied. Table 1 describes the mitigation measures to be applied to proposed activities in the preferred alternative, with reasons why they are required.

Table 1. Mitigation measures applied to the preferred alternative, related to wildlife habitat

Mitigation Measures	Why
Wildlife	
Prior to glading, survey the area for red squirrel activity and identify red squirrel middens. Do not remove or trim the lower branches of trees within a 25-foot radius of a midden and retain large, downed logs within a 50-foot radius, unless there is a potential hazard to skiers.	To minimize impacts to red squirrel, a prey species for the northern goshawk and American marten (FS sensitive species). Keeping lower branches will provide habitat security for Canada lynx, snowshoe hare, and American marten.
Within gladed runs, try to retain 3 snags per acre greater than 10 to 12" dbh, unless there is a potential hazard to skiers.	To provide habitat for cavity nesting birds, such as hairy woodpecker, and other wildlife species that depend on snags.
Where there are clumps of aspen in the gladed runs, try to retain aspen snags greater than 10 inches dbh, unless there is a potential hazard to skiers.	To minimize effects to aspen dependent wildlife species, such as the grouse.
Within gladed runs, try to retain standing dead and down trees greater than 8 inches in diameter, within a 30-foot radius of a spring or seep, unless there potential hazard to skiers.	To avoid disturbing a valuable habitat feature within gladed areas.
Retain downed logs in the gladed runs, unless there is a potential hazard to skiers.	To minimize effects on habitat (foraging and nesting) for northern goshawk, American marten, and boreal owl, Forest Service sensitive species and the hairy

Mitigation Measures	Why
	woodpecker, a Carson management indicator species.
Vegetation	
Survey the top terminal site for Lift 4 replacement and the Main Street Lift alignment for Pecos fleabane and alpine larkspur, prior to ground disturbance. Avoid if technically possible.	To minimize effects to Pecos fleabane and alpine larkspur, two Forest Service sensitive plants.
When determining what trees to retain in gladed runs, retain aspen over conifers; Douglas-fir over Engelmann spruce; and Engelmann spruce over subalpine (corkbark fir),	Aspen and Douglas-fir trees are more wind-firm. Douglas-fir and Engelmann spruce are longer lived trees than subalpine fir.
When determining what trees to retain in gladed runs, choose trees with healthy crowns. Remove spruce budworm or beetle weakened trees and trees with unhealthy crowns.	To improve forest health.
Thin conifers less than 5 inches dbh.	To enhance existing deciduous species.
Adequately mark the edges of the gladed areas, prior to tree cutting.	To minimize mistakes in clearing limits during glading and construction.
Buck Engelmann spruce trees greater than 5 inches dbh to 3-foot lengths, at time of tree felling. Burn or remove within 12 months.	To help prevent the creation of spruce beetle habitat in slash.
Monitor slash density and do not leave more than 40 tons/acre fuels on the ground at one time.	To prevent increasing fuel loads that could support a wildfire.
Noxious Weeds	
Clean construction equipment prior to entering the TSV SUP area. Clean equipment when returning after leaving the area.	To minimize introduction of noxious weed seeds to NFS lands.
Prior to and during project construction, treat for noxious weeds along travel routes accessing the project area on NFS lands. Travel routes include ski area access roads.	To minimize introduction of noxious weed seeds to NFS lands.
Monitor and treat any existing or new infestations of noxious weeds for a minimum of 3 years after project completion.	To minimize introduction of noxious weed seeds to NFS lands.
Soil, Water, Aquatic, and Wetland Resources	
Best management practices will be applied for all ground disturbing activities to avoid sediment migration from ground disturbance into wetlands.	To comply with the Carson forest plan and the Clean Water Act.
A Storm Water Pollution and Prevention Plan will be developed prior to implementation of project activities.	To meet required State and Federal laws and regulations. To contain sediment onsite and out of the Rio Hondo

Mitigation Measures	Why
This plan will be approved by the appropriate Forest Service specialist.	and to protect soils and enhance conditions for vegetation re-establishment.
Store fuel, oil, and other hazardous materials in structures placed on impermeable surfaces with impermeable berms designed to fully contain the hazardous material plus accumulated precipitation for a period at least equal to that required to mitigate a spill.	To protect water quality of the Rio Hondo.
Keep heavy equipment out of the Rio Hondo.	To minimize impacts on the water quality of the Rio Hondo.
Identify and flag any wetlands proximate to areas where disturbance will occur from construction related activities. Construction limits will be clearly defined and any identified wetlands will be avoided where possible.	To minimize impacts to wetlands.
Avoid soil-disturbing activities during periods of heavy rain or wet soils.	To minimize soil compaction and erosion.
Implement any work within or directly adjacent stream channels and wetlands, when hydrologic flows are reduced (late-summer and early fall).	To minimize sedimentation and water quality impacts.
Where possible, use existing maintenance roads for construction and routine maintenance of the proposed project components.	To minimize disturbance to ground cover.
In all areas where grading or soil disturbance will occur, topsoil or other organic amendment will be stockpiled and respread following slope grading and prior to reseeding.	To increase successful and prompt revegetation.
Maintain vegetation buffers adjacent to intermittent or perennial drainages and wetlands, to the extent possible. Where avoidance is not possible, appropriate erosion control practices (i.e., silt fences or straw wattles) will be employed.	To minimize impacts to sensitive areas.
During construction activities, use surface netting, in conjunction with mulching.	To reduce potential for soil erosion and sedimentation to the Rio Hondo and control surface erosion.
Do not create slash piles near the Rio Hondo.	To minimize impacts to riparian vegetation and water quality of the Rio Hondo.
Lay felled trees across the riparian zone at 20-45 degrees to the stream channel.	To minimize impacts to riparian vegetation and water quality of the Rio Hondo.
Design and construct water bars to discharge surface runoff originating from proposed ski trails into well-vegetated areas.	To effectively disconnect disturbed areas from the stream channel.
In gladed areas, maintain existing organic cover during	To protect soils and increase successful revegetation of

Mitigation Measures	Why
thinning and slash treatment. If disturbance to the organic cover occurs, replace the disturbance with slash or material from an adjacent layer.	understory after implementation.
Use mechanical subsoiling or scarification of areas determined to have been compacted by construction activities.	To reduce bulk density and restore porosity of soils.
Re-establish effective ground cover upon completion of ground disturbing activities (mulch, scatter slash) at levels that occurred prior to disturbance.	To minimize soil erosion.
Promptly revegetate all disturbed areas with native plant seed. Seed mixtures and mulches will be noxious weed-free. Non-persistent, non-native perennials or sterile perennials may be used immediately after implementation, while native perennials become established. The Forest Service must approve the seed mixtures prior to implementation.	To minimize soil erosion and the introduction of non-native plant species and noxious weeds.

V. EXISTING ENVIRONMENT AND EFFECTS SUMMARY

The following is a description of the existing condition of habitat and wildlife within the TSV permit area that would most likely be affected by the preferred alternative. No federally listed species are confirmed to occur or have habitat within any of the proposed project areas. However, a number of Forest Service sensitive species, including FWS listed Candidate species, are identified and analyzed in detail in the biological evaluation (BE) and the Wildlife effects analysis in the draft and subsequent final EIS. The EIS includes discussions of the effects on federally listed threatened or endangered species, Forest Service sensitive species, management indicator species (MIS) identified in the Carson forest plan, and migratory birds.

Photographs of the affected environment for most proposed projects are included in the EIS and Biological Evaluation. The summary of effects will identify if habitat for a federally listed species occurs in the area.

Main Street Lift

The proposed Main Street Lift would be accessed from the top of Lift 4 by skiing across Easy Trip to the entrance of Hunziker. The base of the proposed lift would be on a rocky tree covered knoll and would climb southward to a small depression just below the summit of Kachina Peak. The knoll is primarily covered with Engelmann spruce and whortleberry. The top terminal would be above timberline and below the ridgeline in alpine tundra.

The vegetation within the proposed Main Street Lift area is comprised of a variety of very prostrate plants. Grasses and sedges include sheep fescue (*Festuca ovina*), alpine bluegrass (*Poa alpine*), arctic bluegrass (*Poa arctica*), timberline bluegrass (*Poa rupicola*), spike trisetum (*Trisetum spicatum*), and black and white sedge (*Carex albonigra*). Other very low growing plants include a willow that is only 1-2 inches tall called summit or snow willow (*Salix navilis saximontana*) and a very prostrate sedum called king's crown (*Sedum rosea*).

The other avian species observed were the typical species most commonly found across the TSV permit area. These include Clark's nutcracker (*Nucifraga columbiana*), gray jay (*Perisoreus canadensis*), dark-eyed junco (*Junco hyemalis*), northern flicker (*Colaptes auratus*), and common raven (*Corvus corax*).

Effects Summary

The project area for the proposed Main Street Lift does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Ridge Lift

The proposed Ridge Lift would be located in West Basin and start a few hundred feet below the top of Lift 8. The base terminal would be just behind the small island of trees at the bottom of the slope and would follow the tree line up to the top of West Basin Ridge. The lift would be approximately 800 feet long, gaining 560 feet of elevation. The proposed Ridge Lift would provide access to new and existing terrain off of West Basin Ridge, including the proposed Wild West Glades.

The overall slope under the proposed Ridge Lift is comprised of a patchwork of trees and boulders in a series of small drainages and ridges. Soils are thin and rocky with little surface vegetation. The drainages are highly susceptible to avalanches, as evidenced by the absence of trees as well as site knowledge. The small ridges do not experience avalanches and exhibit narrow stringers of trees.

The terrain under the proposed Ridge Lift is very steep and is largely made up of granitic rocky outcrops. The area is generally open due to the avalanche prone topography and the habitat below (in elevation) is alpine tundra. The tree component is relatively sparse, with Engelmann spruce (*Picea engelmannii*) being the dominant species. Subalpine fir (*Abies lasiocarpa*) or cork-bark fir also occurs on the slope, but is not as prevalent. There are occasional Rocky Mountain maples (*Acer glabrum*) and common mountain junipers (*Juniperus communis*) or prostrate junipers. Some whortleberry (*Vaccinium myrtillus*) occurs in the understory. Grasses are not common, due to the lack of surface soils; however, there are traces of fringed brome (*Bromus ciliatus*) and alpine bluegrass (*Poa alpina*).

Effects Summary

The project area for the proposed Ridge Lift does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Wild West Glades

Skiers would access the proposed Wild West Glades north of the proposed Ridge Lift top terminal. The proposed gladed area would begin along the narrow ridge, but quickly widen to about 500 feet. The north facing slope extends for over a half a mile before connecting into Lower Stauffenberg. Most of the gladed area would lie about 200 feet inside the western edge of the SUP boundary. To the east, the glades would be contained by the steep ridge running almost its full length. Currently, the area proposed for glading receives some limited skier use. Expert or

“Extreme” skiers can currently drop into numerous access points to ski the steeps along the ridge. The Wild West Glades would be thinned to create a mosaic of more and less thinned areas, with a maximum thinning that would create approximately 30 percent canopy cover.

The habitat is densely forested throughout the length of the proposed glades. The dominant tree species are cork-bark fir and Engelmann spruce. The vast majority of the trees are in smaller structural categories ranging from 4 to 12 inches in diameter. Occasionally, there is a small pocket, with slightly larger diameter trees in the 15 to 18 inch range. These small pockets are noticeably less dense and are spaced such that cutting of these trees would not be necessary. There is some mortality in the smaller cork-bark fir, but is nothing like the mortality in the other proposed Minnesotas glade area.

The proposed glades would be mostly located on moderately steep slopes. The understory is sparse and is generally dominated by whortleberry. The canopy is dense and little sunlight reaches the forest floor. The upper half of the west side of the glade area includes a stand of small, stunted bristlecone pines (*Pinus aristata*). Most of these trees are only 2-6 inches in diameter. The soils are very shallow and exhibit low productivity. About half way down the slope, soils become deeper and more productive and tree size increases, with several pockets of larger trees occurring.

The lower portion of the proposed Wild West Glades is divided by a drainage that has mild slopes, and is not steeply incised. One small seep is located near the top of the drainage. There is sign of both mule deer (*Odocoileus hemionus*) and Rocky mountain elk (*Cervus elaphus*) on a trail leading into the seep. The seep has not been used as an elk wallow and elk sign is not commonly observed within the TSV permit area. The seep has the typical mossy margins, along with some brook saxifrage (*Saxifraga punctata*). The surface water is only present for about 20 feet. The drainage continues to broaden and is dry from that point down the slope.

The bottom of the proposed glade area flattens out to a gentle slope. At the point where it would swing back to the east and connect with Lower Stauffenberg, the vegetation becomes more diverse and lush and more grasses and wildflowers are found in the understory. Richardson's geranium (*Geranium richardsonii*), Rocky mountain columbine (*Aquilegia carerulea*), nodding brome (*Bromus anomalus*), and alpine timothy (*Phleum alpinum*) become more common at the lower end of the proposed Wild West Glades. Aspen trees (*Populus tremuloides*) also occur more commonly in the overstory near the bottom.

Effects Summary

The project area for the proposed Wild West Glade does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Minnesotas Glades

The proposed Minnesotas Glades are located on the east side of the TSV permit area. It is generally located below the base of Lift 7 and above the Rubezahl return trail from Street Car almost down to Longhorn. The most remarkable feature of the existing condition in this area is the massive number of standing dead fir trees.

With a few exceptions, proposed glading could be accomplished by simply thinning out the smaller dead material. The Minnesotas Glades would be thinned to create a mosaic of more and

less thinned areas, with a maximum thinning that would create approximately 30 percent canopy cover. The potential fire hazard from the extensive amount of dead debris in the canopy is a concern. The eastern portion of the proposed glades has less mortality than the rest of the area. The stand immediately adjacent to Street Car has very little mortality and exhibits better stand health. There is also much older dead material on the ground within the proposed glade area than the standing dead that has occurred more recently.

The trail opening, along with the thinned areas uphill, have allowed more snowpack and moisture to mitigate the effects of drought and disease along the upper edge of this area. Downhill about 50 yards, the condition is strikingly different. The expanse of dead trees is clearly apparent. Spruce budworm is a common insect that is cyclic across the Carson National Forest. It appears this stand was once densely populated with many small diameter trees in competition with each other. It is likely conditions were optimal for the budworm to thrive, resulting in several years of defoliation. Along with the drought, the infestation was simply more than the trees could withstand. The vast majority of mortality is with cork-bark fir.

There are patches within the proposed glades area that have suffered in excess of 90 percent mortality. Although smaller diameter trees were hardest hit, a significant number of fir trees larger than 12 inches have died also. The Engelmann spruce shows signs of insect damage, but proved to be hardier than cork-bark fir, with a much higher survival rate.

Except for the eastern edge of the proposed Minnesotas Glades, the terrain is generally steeper and more challenging than where the Wild West Glades is proposed. There are more benches and steep drops, as opposed to a consistent grade. The understory is also heavily dominated by whortleberry. Tree mortality has resulted in increased sunlight to the forest floor, resulting in increased understory diversity. Both the wildflowers and the grasses are beginning to respond. Other species of trees and shrubs include scattered aspen, Rocky Mountain maple, Oregon-grape (*Berberis repens*), mountain ash (*Sorbus dumosa*), wild raspberry (*Rubus parviflorus*), snowberry (*Symphoricarpos oreophilus*), and buffaloberry (*Sheperdia canadensis*).

Effects Summary

The project area for the proposed Minnesotas Glade does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Lift Replacements - Lifts 4, 5, and 7

Lifts 4, 5, and 7 are proposed for upgrading to increase efficiency, skier distribution, and capacity. All of these lifts are located where slopes are cleared and revegetated. Lift 4 leads to the Kachina Basin trails, Lift 5 bisects Al's Run, and Lift 7 spans the Terrain Park. The habitat is primarily steep grassy slopes. The ski runs beneath the lift alignments include some wildflowers and pockets of shrubs, but the competition from the dense grasses limits the establishment of other plants. The grasses include both native varieties and those commonly used for watershed restoration and reseeded. Chairs 5 and 7 have less diversity and are most commonly represented by smooth brome, fringed brome, orchardgrass, Texas timothy, alpine timothy, and Kentucky bluegrass. Forbs common to these sites also include western yarrow, pussytoes (*Antennaria* spp.), harebells, strawberry clover (*Trifolium fragiferum*), and dandelion. On some of the extremely

rocky and shallow soils where other plants really struggle, mountain figwort (*Scrophularia lanceolata*) seems to grow fairly well.

Lift 4 runs from the Phoenix to the base of Kachina Basin, and is approximately 4,200 feet long. Some areas are similar to those described above, but this lift does cross over more diverse habitats than the other two chairs. These includes rocky outcrops with wild rose (*Rosa woodsii*), wild raspberry (*Rubus strigosus*), buffaloberry (*Sheperdia canadensis*), rockspirea (*Holodiscus dumosus*), and mountain snowberry (*Symphoricarpos oreophilus*). Lift 4 also crosses over wetter sites that have dense moisture loving shrubs such as willows (*Salix* spp.), shrubby cinquefoil (*Potentilla fruticosa*), and elderberry.

Towers for all three lifts would be reengineered and would likely be in different locations than the current tower bases. The number of towers would be similar for Lifts 4 and 7, while Lift 5 would likely have fewer than the existing lift. Each tower base would require a small footprint, about a 9-10 square foot surface area. The existing vegetation under Lift 4 demonstrates very successful revegetation along a previously disturbed corridor. Since the lift corridors have already been cleared, there would be little disturbance to the vegetation that has reestablished on the slope.

All of the wildlife species within the TSV permit area from black bear and mule deer, down to mice and voles that utilize herbaceous forage will frequent these clearings along with the ski trails. Avian species such as blue grouse (*Dendragapus obscurus*) will consume forbs and grasses for green matter as well as berries and rose hips. Passerine birds will feed on insects and seed heads. The only confirmed ground nesting bird found using the dense grassy areas is the American pipit (*Anthus rubescens*). A nest with eggs was located near the avalauncher site in Kachina Basin a couple of years ago.

Effects Summary

The project area for the proposed Lift Replacements does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Snowtubing Center

After the initial proposal was evaluated, the proposed site for the Snowtubing Center was moved to the base of Lift 3. The proposed tubing runs would use Strawberry Hill on TSV property and cross the Rio Hondo on the existing old "box car bridge". About a half an acre of run-out is proposed on National Forest System (NFS) lands on the north side of the Rio Hondo. This area includes a few spruce trees and alders (*Alnus oblongifolia*) as well as wetland plants, such as skunk cabbage (*Lysichiton americanus*), field horsetail (*Equisetum arvense*), cow parsnip (*Heraleum lanatum*), and various sedges (*Carex* spp.). Currently, this area has little wildlife value, as it is surrounded by developed parking lots, roads, bridges ski trails and buildings.

Effects Summary

The project area for the proposed Snowtubing Center does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Adventure Center

The proposed Adventure Center (Snowshoe Trails) would be located in the northwest corner of the TSV permit area, just south of the Rio Hondo. This area has mild slopes and deep productive soils. The overstory is comprised of Engelmann spruce, aspen, some cork-bark fir, and occasional occurrences of white fir (*Abies concolor*), and Douglas-fir (*Pseudotsuga menziesii*). Alder is the dominant species along the edge of the Rio Hondo. The canopy is dense and closed, with trees significantly larger and more widely spaced, than in other proposed project areas that were inventoried. Because of the high percentage of deciduous aspen, the canopy would seem much more open during the winter months.

The understory is lush and a diverse mixture of forbs, grasses, and ferns. With the exception of patches of bracken fern (*Pteridium aquilinum*), most of the herbaceous understory is similar to what is found in the proposed gladed areas. The common grasses include orchardgrass, timothy, smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratenses*), fringed brome (*Bromus ciliates*), and bottlebrush squirreltail (*Sitanion hystrix*). The common forbs include Rocky Mountain columbine, western red columbine, heartleaf arnica, bluebell bellflower or harebells, Richardson's geranium, Indian paintbrush (*Castilleja haydenii*), osha (*Ligusticum porter*), and dandelion. Common shrubs include whortleberry, elderberry (*Sambucus racemosa*), and common juniper. The area is also bisected by a seep that has surface flow for several hundred feet. In places it is confined to a single channel and in others it is braded with three or four small meandering channels. It is typified by the normal wetland species such as skunk cabbage, field horsetail, cow parsnip, and sedges.

This area was surveyed for Mexican spotted owl and no occurrences were recorded.

Effects Summary

The project area for the proposed Adventure Center does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Mountain Bike Trail

The upper portion of the proposed Mountain Bike Trail would primarily follow a series of switchbacks on existing disturbed surfaces from old roads and trails. It would start at the top of Lift 1, making several turns down White Feather to an old road that crosses the top of Psycho Path. It would switchback between Porcupine and Al's Run, mostly staying on the old lift line access roads.

For several hundred yards, additional trail would be gained by traversing through the trees and connecting with another roadbed. This portion of the proposed trail is largely on reseeded roadbeds and existing trails used as a travel corridor for hikers and wildlife. Orchardgrass (*Dactylis glomerata*), Texas timothy (*Phleum pretense*), smooth brome (*Bromus inermis*), fringed brome, and Kentucky bluegrass (*Poa pratenses*) are the most common grasses along the proposed trails. Other plants fairly common in the old roadbeds include Rocky Mountain strawberry, western yarrow (*Achillea lanulosa*), and dandelion (*Taraxacum officinale*).

The clearing of ski runs reduces the consumption of ground water that might normally be taken up by trees. This can result in a surface seep, such as the one in Al's Run, where the proposed trail would cross. The seep surfaces in the old road and can be mitigated with a small culvert.

The proposed Mountain Bike Trail would leave the old road on Al's Run and follow the contour of the slope to the east and cross the North American Glade. Deer naturally follow openings and paths such as the old access road. The proposed bike trail follows an existing game trail into the woods. This game trail is about one foot wide and has some encroaching vegetation. For comparison, the bike trail is proposed to be 18 to 24 inches wide and would likely be void of any encroaching vegetation. Herbaceous groundcover in most of the wooded areas where the proposed route traverses is not very diverse and normally dominated by shade tolerant whortleberry.

Once the proposed trail reaches the recently gladed North American Trail, signs of increased understory diversity already exist. The canopy cover in the newly gladed area averages around 40 to 50 percent. Even with the fairly dense canopy, the herbaceous groundcover has responded to increased sunlight, and there is a noticeable abundance of grasses and wildflowers, and lushness to the area.

The most common wildflowers found along the eastern portion of the proposed Mountain Bike Trail include Rocky Mountain columbine, western red columbine (*Aquilegia elegantula*), heartleaf arnica (*Arnica cordifolia*), bluebell bellflower or harebell (*Campanula rotundifolia*), and Richardson's geranium. The most common of the grass species are again the fringed brome, nodding brome, Texas timothy, and alpine timothy.

As the route for the proposed Mountain Bike Trail progresses eastward, it would cross a perennial seep along the east edge of the North American Trail. It is fairly deeply incised and has a small surface flow for about 100 yards. The crossing would require either a log culvert with a surface tread or even a small bridge for mitigation. The trail then would continue on east across Longhorn for several hundred feet, where it turns back and crosses Longhorn again. The vegetation in the area to the east of Longhorn is more thick and shrubby, with much smaller trees. This area has some mountain maple and mountain ash, mostly in a stunted growth form. After crossing Longhorn, the proposed trail would make several switchbacks onto TSV property, near the base of North American Trail. It then would cross and parallel Rubezahl to the base area.

Effects Summary

The project area for the proposed Mountain Bike Trail does not include habitat for any threatened or endangered species; therefore, this proposed project will have no effect on federally listed species.

Parking Lot Reconfiguration and Guest Drop-Off Areas

The existing conditions in the parking areas are paved parking lots and transportation routes with narrow stringers of trees between the parking areas. These narrow strips provide little meaningful wildlife habitat outside of some potential passerine bird nesting. Their greatest value is to provide a filtration zone to collect runoff sediments from the parking areas and prevent their migration into the aquatic system. There are several modifications proposed in the paved parking areas that could result in some removal of trees or previously disturbed and revegetated sites.

Effects Summary

The project area for the proposed Parking Lot Reconfiguration and Guest Drop-Off Areas does not include habitat for any threatened or endangered species.

VI. CUMULATIVE EFFECTS

Cumulative effects are considered based on the activities of the past, present and reasonably foreseeable future. Existing habitat conditions are based on the past and present activities. The vast majority of all effects within the TSV permit area are the result of many years of operation as a ski area. The clearing of forested areas to create runs, access roads and construction of facilities are a part of the past activities and have shaped the existing condition of the area. There has been fragmentation of the forested conditions and there has been conversion of one habitat type (spruce-fir forest) to another (montane meadow). Habitats have been lost in those locations where facilities have been constructed and occupy the site.

Considering cumulative effects, most of the changes in habitat have already occurred. The activities in the foreseeable future are likely to be modifications of existing projects or facilities, with some additions of like or similar projects within the existing permitted area. Since the overall project area (TSV Permit Area) for any of the past, present or future projects does not include habitat for any threatened or endangered species there would be no cumulative effects to federally listed species.

VII. DETERMINATION

The analysis area is within the Taos County. The FWS website was used to determine which threatened, endangered, and proposed species are found in this county. This list was reviewed on April 10, 2012 at: http://www.fws.gov/southwest/es/NewMexico/SBC_view.cfm?spcnty=Taos. A Federal species list is requested to fulfill the requirement under Section 7(c) of the Act and the review of this website meets this requirement.

Spruce-fir riparian vegetation occurs in northwest corner of the TSV permit boundary, along the Rio Hondo. It was questionable as to whether this habitat is considered restricted Mexican spotted owl habitat. The biologist responsible for this biological assessment conferred with Eric Hein of the U.S. Fish and Wildlife Service Ecological Services Office in Albuquerque, NM. Mr. Hein concurred that it was not MSO habitat. This area was surveyed in 2010 and 2011 with negative response. In the Preferred Alternative there are no proposed activities that would include the habitat that was surveyed for MSO.

No federally listed, endangered, or proposed species have suitable habitat within the TSV permit area. Affected Candidate species are analyzed under the Biological Evaluation of Forest Service sensitive species.

Table 1. Federally threatened, endangered, and proposed species for Taos County

Species	Legal Status	Habitat Present	Habitat Not Present	Habitat Present, But Not Affected	Comments
Black-footed ferret (<i>Mustela nigripes</i>)	Endangered		X		No suitable or critical habitat for prairie dog towns occurs within the proposed project areas; therefore, there is no potential for black-footed ferret (USDI 2012b). Implementation of the preferred alternative would have no effect on this species or its critical habitat. No further analysis is required.
Southwestern willow flycatcher (SWWF) (<i>Empidonax traillii extimus</i>)	Endangered		X		No suitable or critical SWWF habitat occurs within the proposed project areas. Implementation of alternatives 2 or 3 would have no effect on this species or its critical habitat. No further analysis is required.
Mexican spotted owl (MSO) (<i>Strix occidentalis lucida</i>)	Threatened		X		No MSO habitat (including mixed conifer) occurs within the proposed project areas. Implementation of alternatives 2 or 3 would have no effect on this species or its critical habitat. No further analysis required. BIOLOGIST'S NOTE: Spruce-fir riparian vegetation occurs in northwest corner of the TSV permit boundary, along the Rio Hondo. It was questionable as to whether this habitat is considered restricted MSO habitat. The biologist responsible for this report conferred with Eric Hein of the US Fish and Wildlife Service Ecological Services Office in Albuquerque, NM. Mr. Hein concurred that it was not MSO habitat. This area was surveyed in 2010 and 2011 with negative response.

Species	Legal Status	Habitat Present	Habitat Not Present	Habitat Present, But Not Affected	Comments
Mountain plover (<i>Charadrius montanus</i>)	Proposed		X		The analysis area (TSV permit area) is not within the range of this species. No further analysis required.

Black-footed Ferret

It is my determination the preferred alternative would have No Effect on the black-footed ferret or its critical habitat. This determination is based on the consideration this endangered species and its suitable or critical habitat are not found within the Taos Ski Valley special use permit area or the proposed project areas (USDI 2012b).

Southwestern Willow Flycatcher

It is my determination the preferred alternative would have No Effect on the southwestern willow flycatcher or its critical habitat. This determination is based on the consideration this endangered species and its suitable or critical habitat are not found within the Taos Ski Valley special use permit area or the proposed project areas (USDI 2012d).

Mexican Spotted Owl

It is my determination the preferred alternative would have No Effect on the Mexican spotted owl or its critical habitat. This determination is based on the consideration this threatened species and its critical habitat are not found within the Taos Ski Valley special use permit area or the proposed project areas (USDI 2012c; Kuykendall 2011). Mexican spotted owl surveys must be initiated early in any planning process as a full survey requires two years to complete. I did not consider the spruce-fir riparian vegetation to be potential MSO habitat. However, I felt the wording defining suitable habitat could be questionable, so I initiated surveys in that area. At that time there was a possibility that a proposed action could have been included that would affect that area. However, there are two items that preclude any potential "May Affect" for this species. First, the final proposed action and alternatives did not include any activities in this habitat. And second, concurrence by the U.S. Fish and Wildlife Service Ecological Services Office in Albuquerque, NM (Hein 2011) that they also did not consider the area to be suitable habitat. The completed survey was negative for MSO.

Mountain Plover

It is my determination the preferred alternative would have No Effect on the mountain plover or its critical habitat. This determination is based on the consideration this proposed species and its suitable or critical habitat are not found within the Taos Ski Valley special use permit area or the proposed project areas (USDI 2011).

Summary

No federally listed, endangered, or proposed species have suitable habitat within the proposed project areas or TSV permit area and none were found in the permit area. The preferred alternative (alternative 2) would, therefore, have No Effect on any federally listed species. This means none of the proposed actions will impact, positively or negatively, any listed or proposed species and no listed species will be exposed to any of the proposed actions and their environmental consequences.

VIII. LITERATURE CITED

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