



State of Washington
Department of Fish and Wildlife

Mailing Address: 1550 Alder St. NW, Ephrata, WA 98823
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia, WA

March 25, 2020

Wenatchee River Ranger District
Forest Supervisor Kristin Bail – Responsible Official
c/o Mason Schuur – Project Lead
600 Sherbourne St.
Leavenworth, WA 98826

Re: Washington Department of Fish and Wildlife Comments on the Mission Ridge Expansion
Project: Draft Environmental Analysis

Dear Ms. Bail:

On February 27, 2020, the Washington Department of Fish and Wildlife (WDFW) received notice from Mason Schuur, Wenatchee River Ranger District Developed Recreation/Winter Sports Program Manager, regarding the release of the draft Environment Assessment (EA) on a proposal by the Mission Ridge Ski and Board Resort to amend the Mission Ridge special use permit, allowing for the expansion of ski area operations within the Mission Ridge Expansion Project on the Wenatchee Ranger District of the Okanogan-Wenatchee National Forest (OWNF). Mr. Schuur further notified WDFW that the Wenatchee River Ranger District is accepting comments on the draft EA until March 26, 2020. WDFW appreciates the opportunity to offer comments on the proposal at this time.

WDFW's mission mandates that WDFW, "preserve, protect and perpetuate fish, wildlife and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities." The Mission Ridge Expansion Project EA was reviewed by WDFW with that mission in mind.

Comments on Effects Analysis by Resource

Aquatics and Hydrology

WDFW appreciates the analysis that the Mission Ridge EA put into the aquatics and hydrology resource section for US Forest Service (USFS) and WDFW owned property, including the analysis of each of the selected resource indicators: Stream Flow, Storage and Water Quality, Erosion and Sediment Supply, Riparian Reserves, and Fish Species and Habitat. The Mission Ridge Expansion EA acknowledges that, "Implementation of the Proposed Action would result in temporary, short-term effects to Aquatic Resources such as increased sediment delivery, erosion, and flow, decrease in water quality and loss of riparian vegetation and habitat during the time of construction and from 1 to 5 years after construction.

Permanent, long-term effects over five years would result from operations and infrastructure that remains in place, reducing Riparian Reserve acreages in some isolated areas as a result of the Proposed Action. Short-term construction and long-term operations and infrastructure impacts from increased erosion and sediment supply would be ameliorated with the use of BMPs, design criteria and mitigation measures including, but not limited to: developing and implementing a project-specific stormwater prevention plan, including a spill prevention and response plan (SWPPP), use of silt fences, and compliance with construction timing restrictions to work in low precipitation dry months. Additionally, all stream crossings would be designed with hydraulic capacity to pass the 100-year flood event and associated debris flow. Work conducted below the ordinary highwater mark in these streams would be conducted during approved in-water work windows and during the dry season. Recreational use of Nordic trails during wet periods could increase flows and erosion. Applying seasonal closures on Nordic trails would prevent or limit increase in flows, erosion and sediments, and reduction in water quality in streams.” Additionally, the EA states that “Long-term effects, such as permanent removal of riparian vegetation and habitat, would be mitigated by the restoration of degraded Riparian Reserve acreages (2:1 ratio) designed to help off-set direct impacts to Riparian Reserves from the Proposed Action. Mitigation of permanently disturbed riparian habitat on private land would be mitigated per Chelan County code.”

WDFW supports and agrees with the EA’s proposed short term and long term mitigation measures to protect the Aquatics and Hydrology resources on-site by specifically requiring a project stormwater prevention plan, building and designing roads to Chelan County road standards, and providing specific BMPs, design criteria, monitoring, and mitigation as identified in Appendix B. WDFW appreciates the reference to the Washington State Department of Ecology’s (DOE) Stormwater Management Manual for Eastern Washington (Stormwater Management Manual 2019) as one of several required manuals on which to base the design of the planned new road access (pg. 22, Stormwater Management Manual). For clarification, WDFW recommends the Stormwater Management Manual also be referenced in Appendix B specifically, and elsewhere in the EA as appropriate. In addition, WDFW recommends that during the first dormant season (late fall through late winter), after project ground disturbance or vegetation disturbance/removal activities, in areas that will not be permanently impacted (e.g. housing areas, commercial business areas, lift tower locations, terminals, etc.) revegetation efforts with native species should occur. As indicated in Appendix B (pg. 182 of the EA), monitoring should follow annually for five years. WDFW recommends a monitoring plan be required to include at a minimum, success targets to ensure that at least eighty percent of the plantings survive, as well as monitoring, contingency, and reporting requirements.

Botany

WDFW finds the review and analysis of the botany resource section’s resource indicators, including Rare Species, Unique Habitats, Large Trees and Traditional Plants of Concern, on USFS and WDFW property to be informative and complete. Specific to the Botany section, WDFW agrees with the determination in the EA that adverse impacts to whitebark pine, a designated rare species, will be long-term but minor given Mission Ridge’s commitment to

avoid and minimize impacts and conduct, “compensatory planting to mitigate for impacts to existing whitebark pine.” Furthermore, WDFW understands, “The effects of (the proposed expansion) on this population, including cutting up to 28% of the documented stems, loss of 40% of potential ridge habitat, and mitigation outplanting of up to 1305 seedlings, would likely result in a minor loss of genetic variation but have a negligible effect on the long-term viability of the population as a whole. (Note that it is difficult to predict population-level outcomes without more detailed genetic or demographic data.) Using local parent trees for outplanted seedlings would help mitigate the loss of genetic variation due to the cutting of trees. The variable planting ratio, coupled with following planting guidelines to maximize survival, would likely maintain the number of trees needed for sufficient local genetic diversity, though it would take 20-30 years for seedlings to begin producing cones and 60-100 years to reach full cone production (Fryer 2002). The only un-mitigated loss would be a portion of the ridge habitat where the trees currently grow, as disturbances there would not permit outplanting.” WDFW recommends consideration of outplanting whitebark pine seedlings to off-site ridge habitat that is in close proximity to compensate for the loss of whitebark pine ridge habitat as a result of Mission Ridge expansion activities.

For the Unique Habitat resource indicators on the proposed project site, those that are designated as Washington State priority habitats include wetland areas and riparian areas. The EA states that, “The wetland area on National Forest would not be impacted by ski run construction or glading, but it would be subject to off-run skiing. While design features would require signage to discourage use of this sensitive area, it is possible some off-run skiing would occur through this open area.” The EA further states that, “Unless signage protections are highly effective, it is possible that wetland diversity would be reduced.” WDFW recommends that Mission Ridge develop a monitoring plan to direct monitoring of the wetland on USFS land to determine whether off-run skiing is impacting the wetland. The monitoring report should identify monitoring actions, reporting requirements, and restoration obligations should impacts be identified. It is stated in the EA that, “Riparian areas would also be detrimentally affected by proposed activities. While efforts would be made to maintain no-impact buffers around streams, it is inevitable that some alpine ski runs, Nordic ski runs, and roads would need to cross riparian zones in the Project Area. Impacts would occur to 17.2 acres of Riparian Reserves (7.2 on National Forest, 10 on private).” The EA points out and WDFW agrees that, “Design features such as re-planting of riparian areas with native species (as noted earlier at a 2:1 replacement ratio) and minimizing crossings by heavy equipment would mitigate adverse effects.” Mitigation of permanently disturbed riparian habitat on private lands would be mitigated per Chelan County code (pg. 57 of the EA).

Invasive Plants

The two resource indicators selected and reviewed by the project EA for Invasive Plants include Establishment of Infestations and Pathways for Invasive Species Spread. For the Establishment of Infestations indicator, the EA acknowledged that, “The Proposed Action would likely increase the number of invasive plant infestations in the Project Area. Road construction, alpine and Nordic ski run re-contouring, chairlift construction, and installation of underground water piping and electrical conduit would disturb 182 acres of forest (66 acres

on National Forest, 6 acres on WDFW, and 109 acres on private), displacing native plants and creating habitat for disturbance-adapted invasive species..”, but it also states that, “.. design features of this project would require that the seeding on National Forest (and WDFW property) be locally-sourced, genetically-appropriate native species (see Appendix B, Botany, Design Features, pp. 18-31). Presumably, re-vegetated areas would then be dominated by native species. Additional design measures, such as reinstating topsoil and cleaning equipment, would also aid in reducing new infestations in disturbed areas.” In addition, “The new Special Use Permit would require on-going monitoring and treatment of invasive plants on National Forest, and design features of this project would require expanding the current Mission Ridge Vegetation Management Program (Appendix C) to cover all new facilities and ground disturbance, including those on National Forest and WDFW lands” WDFW concurs with the evaluation of this Invasive Plants resource indicator in the EA and with the requirements indicated for the new Special Use Permit.

Pathways for Invasive Species Spread was similarly evaluated by the expansion project EA. Accordingly, it was noted that, “There would be a considerable increase in the quantity and frequency of use of invasive pathways with the expansion of the ski area. First, roads would provide new, year-round access to all parts of the Project Area.” In addition, “... new trails would provide access to little-used areas of the Project Area. There would be 1.1 miles (1.8 kilometers) of designated trails on the National Forest and 5.4 miles (8.7 kilometers) on private land. These trails would likely have heavy year-round use and would increase use in nearby backcountry areas.” According to the EA, “Invasive species spread and establishment via use of these new pathways would be minimized by consistent monitoring and control by Mission Ridge, as per the expanded Mission Ridge Vegetation Management Program, and with educational signage at the new trailhead.” WDFW similarly concurs with the proposed expansion project EA’s analysis and proposed mitigation activities regarding this resource indicator for Invasive Plants.

Recreation

The Mission Ridge Expansion Project proposal EA recognizes that dispersed recreation activity currently occurs in several areas adjacent to the ski area boundaries. The EA acknowledges that access to lands adjacent to the Project Area is made by hikers traveling cross-country with no set trail and by motorized vehicles by way of off-road travel and by use of closed roads. WDFW has expressed concerns that the proposed Mission Ridge Expansion Project will very likely increase this use of closed roads and unauthorized trails (personal communication, WDFW Colockum Wildlife Area Manager, Pete Lopushinsky). WDFW recommends Mission Ridge develop a dispersed recreation monitoring and rehabilitation plan that commits Mission Ridge to monitor for construction of unauthorized hiking trails on non-Project area lands adjacent to the Project boundaries. The plan could include the use of signs to inform users that they are exiting the Mission Ridge Ski and Board Resort and to please help protect the landscape, encouraging users to not travel cross-country and to stay on existing trails and roadways. The plan should also include requirements to close and rehabilitate unauthorized paths and roads.

Soils

The proposed resource indicators selected and evaluated for the soils analysis section in the Mission Ridge Expansion Project's EA were Soil Erosion Hazards and Soil Productivity. These indicators are of interest to WDFW because increased erosion of soils can lead to increased sedimentation in streams and can reduce soil productivity which influences the productivity and diversity of the entire forest biome.

For the resource indicator, Soil Erosion Hazards, the EA identified that clearing of vegetation (whether for ski run construction or to clear for ski runs, lift lines and gladed skiing lines), soil contouring (when required for construction of ski runs), and clearing of coarse woody debris on ski runs, tower areas, and gladed lines, would result in a loss of habitat functions and an increase in surface erosion. The EA acknowledges that while BMPs greatly improve erosion outcomes, some surface erosion, particularly during construction and before revegetation is re-established, would be expected. However, it is noted that the input of this sediment into streams would be largely mitigated by BMPs as sediment catchment systems are highly effective (full list in Appendix B). Finally, the EA recognizes that, "New roads in the Project Area would impact both surface erosion and the potential for mass wasting. Regarding surface erosion, the permanent, unsurfaced mountain access road to the top of Chairs 6 and 7 would be highly compacted, increasing sediment runoff and altering local hydrology." The EA goes on to state that, "Mitigation of this risk would be accomplished by following the geotechnical analysis and guidance" and implementing recommendations based on assessment of "site-specific slope stability", scaling precarious areas, delineating an appropriate setback, and using erosion measures to ensure long-term stability of the soil surface. These are included in the design features for this project in Appendix B, features 16a-f in Soil Resources." WDFW agrees that though the site's soil erosion hazard will increase, the input of sediment into streams would be largely mitigated by BMPs.

The project EA's evaluation of the Soil Productivity as a resource indicator recognizes that, "In areas with intense soil disturbance (roads, contoured alpine and Nordic ski runs, chairlift towers and terminals, underground electrical conduit and water piping), soil productivity would be adversely impacted. While mitigation measures of reinstating topsoil and successfully seeding with herbaceous vegetation has been shown to significantly improve organic content and porosity of the soil (Delgado et al. 2007), plant productivity on graded ski runs is typically still lower than that off of runs, even with re-seeding and 15 years of recovery (Wipf et al. 2005). In addition, "Snow grooming and artificial snow on all alpine ski runs would also reduce soil productivity. Grooming would cause snow compaction on alpine ski runs and Nordic ski trails. Compacted snow is less insulating, which causes the soil beneath to freeze deeper and colder, to thaw more slowly in the spring, and to hold more water in the upper layers (Fahey and Wardle 1998)." At the same time, however, "Artificial snow on 62 acres would further delay snowmelt and also add water to the ski run, effectively irrigating the soil and vegetation (Rixen et al. 2003)." The project EA also states that, "Tree thinning on roughly 18 acres for gladed ski lines would have both positive and negative effects on soil

productivity. The removal of trees and coarse woody debris – in some areas, very high amounts – could have a long-term, negative effect on soil productivity, as input of material is important to the maintenance of soil microorganisms that decompose woody debris into useable nitrogen and other nutrients. On the other hand, thinning the dense forest would stimulate understory vegetation and tree regeneration, increasing nutrient input over time. By encouraging the retention of overstory canopy and restricting the removal of vegetation and woody debris to narrow, gladed lines, adverse effects would be minimized.” In effect, WDFW agrees with the EA’s Soil Productivity analysis of the project area and concurs that, with mitigation, the proposed Mission Ridge Expansion Project will likely only slightly reduce basin wide Soil Productivity.

Wildlife

WDFW understands that the proposed Mission Ridge Expansion Project EA evaluated the potential effects on relevant federally listed wildlife species and those proposed for listing, including Canada lynx, grizzly bear, gray wolf, northern spotted owl, and wolverine. The Resource Indicators used to assess project effects on each species include: 1) Canada lynx – changes to lynx habitat components and changes to areas that would be groomed or designated snow-play areas; 2) grizzly bear – changes to the availability of core areas within the recovery area (but outside any grizzly bear management unit) and the potential for grizzly bears to become habituated to human foods and garbage; 3) gray wolves – potential for disturbance during the pup-rearing period, changes to security habitat and effects to their primary prey; 4) northern spotted owl – potential for disturbance during nesting, changes to the amount of suitable (nesting, roosting, foraging) and dispersal habitat; 5) wolverine – changes to security habitat and potential for disturbance to denning habitat.

The Mission Ridge Expansion Project EA analysis of impacts for Canada lynx revealed that, “In total, approximately 225 acres of Canada lynx habitat across all land ownerships would be converted to a non-habitat condition, affecting about 5% of the lynx habitat in the portion of the Assessment Area that is in a LAU (Lynx Assessment Unit).” In addition, “There are approximately 5.4 miles of Nordic trails that would be groomed during the winter on private lands that would increase the area of snow compaction and could influence access by competitors (e.g., coyote and bobcats) of the Canada lynx.” This led to the determination in the EA that “The direct, indirect and cumulative effects, and interrelated and interdependent actions associated with the proposed Mission Ridge Expansion Project “may affect, but will not likely adversely affect” the Canada lynx and its habitat. This determination is made based on the following: (1) an insignificant and discountable reduction in lynx habitat on state and federal lands, (2) the location of the project occurs in an area designated as “peripheral” to the recovery of lynx, (3) the location of the project make it unlikely that lynx reside in this area as it is a considerable distance to known occupied lynx (core) areas, and (4) the project is consistent with the conservation measure for Canada lynx in “peripheral” areas. WDFW agrees with the analysis completed in the project EA, as well as the ultimate determination made in the EA for Canada lynx.

An analysis of the potential cumulative project impacts to grizzly bear and their habitat, evaluated in the EA, determined that the proposed ski area developments would not reduce core habitat on private, state or federal lands and would not be located within a GBMU (Grizzly Bear Management Unit). Only on federal lands would the project occur within the North Cascades Grizzly Bear Recovery Area (recovery area). There would be increased human presence during the construction phase of the project on federal and state lands, but this would occur outside of the core areas. The project would increase human use in the general area as the resort development on private lands would bring more people to the area that are likely to participate in both winter and non-winter recreational activities. This is likely to increase human use of the Nordic trail system by ATVs, motorcycles, and non-motorized trail users and on existing roads and trails down to Squilchuck State Park. Because the EA assumes these activities are occurring on existing roads and trails, it was determined that they “would not reduce core habitat and they would occur outside the recovery zone.” The EA’s analysis of potential impacts to grizzly bear determined that the proposal would be consistent with the interim “no net loss” of core direction (USFS 1997), and the proposed resort development on private lands would include bear resistant structures and facilities to reduce the potential for bears to become habituated to human foods and garbage (Appendix B).” Based on the direct, indirect, and cumulative effects, the proposed Mission Ridge Expansion project “may affect, but is not likely to adversely affect” grizzly bears.” WDFW agrees with the EA’s determination regarding potential project impacts on grizzly bear and their habitat.

The proposed expansion project’s potential impacts to gray wolf, as identified in the EA, showed that, “Cumulatively, the existing security habitat for wolves would be reduced by less than 1% across all land ownerships. This is largely due to the existing high levels of human activities (e.g., existing high road densities, existing motorized trails, existing ski area activities) that preclude security habitat.” Regarding the potential effects on the availability of elk as a food resource for wolves as a result of the proposed expansion, “within the Assessment Area and across all land ownerships, elk habitat quality would change but only to a limited degree” (see info below). “While disturbance from the Mission Ridge Expansion Project may alter elk movement patterns and displace elk within portions of the Project Area, elk are highly mobile, capable of finding alternative routes between summer and winter ranges” and can persist on a landscape, adapting to human presence to the point of becoming a source of human\elk conflict. This analysis resulted in an overall determination that, “The direct, indirect, and cumulative effects associated with the proposed Mission Ridge Expansion Project “may affect, but is not likely to adversely affect” gray wolves and their habitat. This determination is made based on the following: 1) no known denning or rendezvous sites and mitigations to protect sites if discovered, 2) limited effects to security habitat on federal lands and within the Assessment Area, and 3) limited effects to prey species on federal lands and within the Assessment Area, and partial mitigation through timing restrictions during critical time periods if needed.” Based on conclusion resulting from the overall analysis of potential impacts to gray wolf habitat and prey species, WDFW concurs and agrees with the determination.

The EA's analysis of potential impacts to northern spotted owl found that, "There are 1,754 acres of suitable spotted owl habitat within the Assessment Area and approximately 243 acres of this habitat occurs on federal lands, with the remaining habitat on private land (587 acres), WDFW land (435 acres), WDNR land (263 acres) and Chelan County land (226 acres). None of these lands are in a land allocation that would emphasize spotted owl habitat. Based on the direct, indirect, and cumulative effects, the Mission Ridge Expansion Project, a determination was made that the project "may affect, but is not likely to adversely affect" spotted owls and their habitat. The reasons for this determination include: 1) The activities associated with the Mission Ridge Expansion Project do not occur in an area designated to emphasize spotted owl recovery, on either federal or state lands; 2) The project occurs on the eastern edge of the range of the spotted owl; 3) The project would not degrade or downgrade any suitable spotted owl habitat, dispersal habitat, or potential habitat, either within the Project Area or in the Assessment Area; and 4) There is a limited potential for disturbance to occur to nesting habitat, however, this potential is low and, surveys and timing restrictions would be implemented. There is no designated critical habitat for the northern spotted owl in the Project Area or in the Assessment Area. Therefore, a determination of "no effect" to spotted owl critical habitat has been made." The evaluation of northern spotted owl habitat was found to be thorough and complete, with Mission Ridge's proposed mitigation to limit activities during the northern spotted owl nesting season if a breeding pair is discovered, WDFW agrees with the EA determination.

The investigation and analysis in the EA of potential project impacts on wolverine found, "The proposed expansion activities would reduce security habitat for wolverines by 6 acres on state lands within the Project Area. The increased number of people in the Ski Area Expansion is likely to increase human use of the Nordic trail system by ATVs, motorcycles (where authorized), and non-motorized trail users and on existing roads and trails down to Squilchuck State Park. Because these activities are assumed likely to occur on existing roads and trails, the determination was made that the project would not reduce security habitat. However, the analysis determined that the increase in human presence could lead to an increase in off-trail human activities that could result in displacement of wolverine. The potential denning habitat for wolverines in the Project Area is located on state lands. Existing ski runs and lifts are located in approximately 10 acres of the potential denning habitat and the proposed ski runs, glading, and lifts would impact an additional 5 acres of the potential denning habitat. The disturbance associated with the existing and proposed ski development on federal and state lands would likely limit wolverine use of the area, and preclude wolverine denning. The proposed expansion activities would reduce security habitat for wolverines on private lands by 2.5 acres in the Project Area. Existing activities already results in a lack of security habitat on private lands in the Project Area. No additional potential wolverine denning habitat would be impacted by proposed activities on private lands. Cumulatively, the existing security habitat and potential denning habitat for wolverines in the Assessment Area would be reduced by less than 1% across all landowners. This is largely due to the existing high levels of human activities that precludes security habitat. The direct, indirect, and cumulative effects of the proposed Mission Ridge Expansion Project is "not likely to jeopardize the continued existence of the wolverine". This is due to a

small reduction in the availability of security habitat and potential denning habitat for wolverines.” WDFW believes the EA’s evaluation of proposed project expansion impacts to wolverine habitat to be accurate and agrees with the determination made on the summary of effects.

The EA utilized various key assumptions to analyze the potential effects of the Mission Ridge Expansion Project on other wildlife species that could be in the vicinity as well, including: “1) The use of habitat groups (as opposed to analyzing each individual species) is a credible and scientifically rigorous method to assess ecosystem conditions that contribute to the viability of wildlife species; 2) Available vegetation and habitat data for the Assessment and Project Areas provides a reasonable representation of habitats for wildlife species within habitat groups to adequately assess potential impacts to species habitats and populations; 3) The selected resource indicators for each habitat group are adequate to predict expected impacts to wildlife habitats and populations.”

Security habitat was selected as the resource indicator needing to be evaluated in the EA to determine the potential impacts to the habitat generalist group. For the late-successional habitat in mesic/moist forest group, talus habitat group, snags and logs habitat group, and migratory bird group, the resource indicator evaluated in the EA to determine potential impacts was the amount of available habitat. Disturbance to understory vegetation was the resource indicator looked at in the EA to determine potential impacts to the pollinator group. The analysis found that based on the direct, indirect, and cumulative effects associated with the proposed Mission Ridge Expansion Project, the project would not affect the viability of any of the wildlife species in any of the habitat groups identified above. WDFW believes that although certain individuals of various wildlife species will likely be negatively impacted, the overall impact, as assessed by the project EA, will be minimal.

The amount of riparian and wetlands habitat was the resource indicator analyzed in the EA to determine potential impacts to the riparian/wetlands group. This analysis revealed, “There are no wetland habitats on state or federal lands within the Project Area. There are 7.2 acres of stream-riparian habitat that would be impacted as a result of road construction and ski trail construction on federal lands. Long-term effects, such as permanent removal of riparian vegetation and habitat, would be mitigated by the restoration of degraded Riparian Reserve acreages (2:1 ratio) designed to help off-set direct impacts to Riparian Reserves from the Proposed Action. See Aquatic Resources for additional detail (Section 3.21). Mitigation of permanently disturbed riparian habitat on private land would be mitigated per Chelan County Code. Two previously unmapped wetlands were assessed and delineated within the Project Area by qualified professional wetland biologists on private land. It was determined that the wetlands fit the Class III category. Category III wetlands are wetlands with a moderate level of functions and can often be adequately replaced with a well-planned mitigation project (Hruby 2014). The wetlands are within the Project Site and would be impacted. Based on the direct, indirect, and cumulative effects associated with the proposed Mission Ridge Expansion, the determination in the EA is that the project would not affect the viability of any of the wildlife species in the riparian/wetland habitat group (Table 3-33 of the EA).”

WDFW agrees with this determination of effects and with the expectation that impacts to riparian and wetland habitat on private lands would be mitigated through the application of Chelan County Code Chapters 11.78 and 11.80.070.

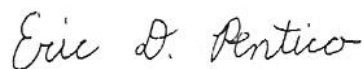
Finally, the project EA evaluated potential impacts of the proposed Mission Ridge Expansion Project on species of management interest, including Rocky Mountain elk and mule deer. The analysis concluded that, “The proposed ski area expansion activities on federal lands within the Project Area would reduce elk (and mule deer) habitat quality on approximately 272 acres while construction activities are occurring. The reduction in elk (and mule deer) habitat quality would be a result of the disturbance (noise, human presence) associated with the construction activities. Once construction activities were completed, habitat quality on 253 acres on federal lands would improve to a moderate level because some maintenance activities (noise, human presence) may disturb elk (and mule deer). However, these activities could be timed to reduce impacts during critical time periods, such as elk calving (mule deer fawning) and during spring and fall migration (Appendix B).” “The proposed expansion activities on State lands within the Project Area would reduce elk (and mule deer) habitat quality on 295 acres as a result of disturbance (noise, human presence) during the construction phase of the project. Post-construction, 110 acres would return to a moderate level of habitat quality because some maintenance activities could occasionally disturb elk (and mule deer) (e.g. noise, human presence). However, these activities could be timed to reduce impacts during critical time periods, such as elk calving (mule deer fawning) and during spring and fall migration.” “The removal of forest canopy in ski runs and gladed areas, and subsequent re-seeding, could enhance foraging area for elk (and mule deer) on about 85 acres of federal lands and 20 acres of state lands” and serve as partial mitigation for the loss in elk and mule deer habitat quality as a result of the expansion. Mitigation of permanently disturbed riparian habitat on private lands would be mitigated per Chelan County code.

The EA states that “the increased number of people in the project area is likely to increase human use of the Nordic trail system by ATVs, motorcycles (where authorized), and non-motorized trail users and on existing roads and trails down to Squilchuck State Park.” The EA states that because these activities would occur on existing roads and trails, they would not reduce the amount of security habitat but could lead to increase off-trail human use that could displace elk (and mule deer). Currently, a Nordic trail system does not exist at the Mission Ridge Board and Ski Resort. The development of a Nordic trail system for use year-round will create a new impact that will decrease elk and mule deer habitat quality as a function of loss of security habitat. The increased use of existing roads and trails down to Squilchuck State Park will be additive to the habitat impact. “The proposed expansion activities on private lands within the Project Area would permanently reduce elk (and mule deer) habitat quality on 524 acres as a result of activities associated with the Village and residential development. While elk (and mule deer) could still continue to use these areas, they would be subject to relatively high levels of human disturbance.” In the summary of effects, the project EA states, “Within the Assessment Area and across all landownerships, elk (and mule deer) habitat quality would change, but only to a limited degree. The amount of area rated as low quality elk (and mule deer) habitat would increase from 50 to 52% of the

Assessment Area, the amount rated as moderate would be reduced from 44 to 42% of the Assessment Area, and the amount of high quality habitat would remain at 6% of the Assessment Area (Appendix E). While disturbance from Mission Ridge Expansion Project could alter elk (and mule deer) movement patterns and displace elk (and mule deer) within portions of the Project Area, elk (and mule deer) are highly mobile and capable of finding alternative routes between summer and winter ranges. There is not expected to be a population level reduction in the number of elk (or mule deer) that use the Assessment Area and Colockum Elk herd objectives could still be met depending on a variety of other factors not related to the Mission Ridge Expansion proposal (e.g., climate change, wildfires, hunting associated mortality, etc.).”

WDFW agrees with the effects analysis determination that a population level effect on elk or mule deer is not expected; however we anticipate that actions to fully mitigate for adverse impacts to elk and mule deer, both WDFW Priority Species, will occur consistent with Chelan County code, Chapter 11.78. The expansion proposes a considerable increase in the residential population and year-round use of the expansion area, “which could alter elk movement patterns and displace elk”, potentially decreasing the energetic fitness of individuals. The Habitat Management and Mitigation Plan, required by Chapter 11.78, can incorporate mitigation actions provided in the EA and include actions to compensate for unavoidable impacts, such as the permanent reduction in elk habitat quality, and the permanent loss of habitat as a result of the conversion of habitat to infrastructure. Appendix B of the EA identifies actions that can off-set impacts, such as the removal of forest canopy in ski runs and gladed areas, and subsequent re-seeding to enhance foraging area for elk and mule deer and monitoring along with actions to minimize dispersed recreation and unauthorized use of trails and open land. Where additional mitigation is needed, WDFW recommends enhancements be pursued to improve low quality habitat in areas not permanently impacted by the village and residential development, or perhaps the purchase of property that is in danger of future development, preserving the habitat in perpetuity through a conservation easement or other available vehicle.

I am available to discuss our comments and answer questions. I can be contacted by phone (509-754-4624 ext. 215 ofc\509-630-2729 cell), or by email (eric. pentico@dfw.wa.gov).



Eric Pentico
Region 2 Habitat Biologist

cc: Jim Brown, WDFW Region 2 Regional Director
Mike Livingston, WDFW Region 3 Regional Director
Carmen Andonaegui, WDFW Region 2 Habitat Program Manager
Matt Monda, WDFW Region 2 Wildlife Program Manager
Scott McCorquodale, WDFW Region 3 Wildlife Program Manager

Literature Citations

Delgado, R., Sanchez-Maranon, M., Martin-Garcia, J.M., Aranda, V., Serrano-Bernardo, F., and J.L. Rosua. 2007. Impacts of ski pistes on soil properties: a case study from a mountainous area in the Mediterranean region. *Soil Use and Management* 23: 269-277.

Fahey, B. and K. Wardle. 1998. Likely impacts of snow grooming and related activities in the West Otago ski fields. *Science for Conservation* 85. Department of Conservation, Wellington, N.Z.

Fryer, Janet L. 2002. *Pinus albicaulis*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer).

Hruby, T. (2014). Washington State Wetland Rating System for Eastern Washington: 2014 Update. (Publication #14-06-030). Olympia, WA: Washington Department of Ecology.

Rixen, C., Stoeckli, V., and W. Ammann. 2003. Does artificial snow production affect soil and vegetation of ski pistes? A review. *Perspectives in Plant Ecology, Evolution and Systematics* 5/4: 219-230.

U.S. Forest Service (USFS). 1997. Forest direction letter on the management of core areas in the North Cascades Ecosystem. USDA Forest Service, Okanogan-Wenatchee National Forest, Wenatchee, Washington.

Washington State Department of Ecology (Ecology). 2019. Stormwater Management Manual for Eastern Washington. August.

Wipf, S., Rixen, C., Fischer, M., Schmid, B., and V. Stoeckli. 2005. Effects of ski piste preparation on alpine vegetation. *Journal of Applied Ecology* 42: 406-316.