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December 29, 2011

Cache County
Planning and Zoning Commission
179 North Main St.
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RE: Cherry Creek Ski Area Master Plan

Dear Commissioners:

I am a wildlife biologist employed by Wild Utah Project, which is a non-profit conservation science research group. One of our chief purposes is to provide needed scientific research and analysis for other non-profit conservation organizations that do not have their own scientists on staff. After completing my graduate studies in conservation science, community ecology and mammalogy at the University of Nevada in 1996, I have been steadily employed as a wildlife biologist by two different environmental consulting firms in Colorado and Utah, and then Wild Utah Project.

Wild Utah Project strongly believes that the Cache County Planning and Zoning Commission should deny a permit for the proposed Cherry Peak ski resort on the grounds that the resort would fundamentally impair functional wildlife habitat in and adjacent to the Richmond Wildlife Management Area (WMA), most specifically for deer, elk and sharp-tailed grouse. Moreover, after careful review of the Wildlife Study for the Proposed Cherry Peak Ski Area, prepared by Stantec Consulting Services, I have concluded that this is not a strong document on which to base a decision to grant a permit for the proposed ski area. If the permit is granted based on this study, the Commissioners will be acting with too little information and uncertainty in the face of the proposed ski area's impacts on wildlife.

Quoting FR40: 17.08.030: "PURPOSE OF ESTABLISHED DISTRICTS: D. Forest Recreation Zoning District (FR-40)", to grant this permit means that the Commission can ensure that the permit holder will exhibit "proper use of the forest areas of Cache County for grazing, forestry, mining, recreation, and other activities **to the extent compatible with the protection of the natural and scenic resources of the forests for the benefit of present and future generations** (emphasis added)." Based on my analysis of Stantec's wildlife study and concomitant comments submitted on the proposed development by the Utah Division of Wildlife Resources and the Logan Ranger District of the Uinta-Wasatch-Cache National Forest, I feel that it is plainly evident that this endeavor is not compatible with the protection of the wildlife

resources of this area, which constitute one important aspect of the natural resources of this area. As I shall expand on below, numerous studies have shown that the various activities associated with a ski resort – e.g., the noises, lights, and increased travel by vehicles on the road – all have negative impacts on many species of native wildlife, and undoubtedly also will on the game animals and sharp-tailed grouse in and adjacent to the Richmond WMA.

Issues specific to deer and elk:

The Richmond WMA is nearly 2000 acres in size and surrounds the private property where the ski resort would be built (on two sides in their entirety). The expressed purpose of this WMA is to provide crucial winter range for deer and elk. Winter range is the limiting factor on how large a herd of deer or elk can grow. Even if the summer range of a herd can support a herd of N number, if the winter range can only support a herd of N -x number, the herd size will be limited to N -x. This is one reason why winter range is, by its very nature, crucial. Unfortunately, huge swaths of winter range have been lost to development in Utah. Practically all of Cache Valley was deer and elk winter range before pioneer settlement, and now it is almost completely developed, altered and degraded (as far as wildlife habitat is concerned). This circumstance makes any remaining winter range, such as the Richmond WMA and immediately surrounding lands, all the more crucial.

A number of studies have looked at the impacts of various kinds of development on big game winter ranges. Disturbance during winter time can be particularly costly to individual animals, since the metabolic costs of locomotion are up to five times as great when snows are deep (Parker et al.1984). The mere increase in human presence in crucial winter ranges during the most sensitive time periods tend to displace elk from their preferred habitats into marginal ranges, where habitat conditions may be poor or where they may be forced to compete with resident animals already at or near their carrying capacity (USDI 1987). For example, several studies have shown that elk abandon calving and winter ranges in response to oilfield development (e.g. Johnson and Lockman 1979, Johnson and Wollrab 1987, Van Dyke and Klein 1996). For mule deer, Sawyer et al. (2005) found that oil field development in Wyoming caused abandonment of mule deer crucial winter ranges for years at a time, and ultimately resulted in a 46% decline in mule deer populations, while herds in undeveloped areas showed a much smaller decline over the same period. Other researchers have posited that overcrowding of species such as mule deer in sub-optimal winter ranges after they have been pushed out of optimal ranges could cause density-dependent effects, such as increased fawn mortality (Sawyer et al. 2006).

There are many different aspects of the impact the proposed ski area will have on local game herds. The ski resort will involve machinery and noise in its construction, maintenance and operation, all of which we know from numerous studies deter wildlife from using the area (e.g. NWCC 2002, Fox et al. 2006). Studies of the construction of developed sites have found that increased traffic, noise, night lighting, and other human activities can temporarily discourage wildlife from using areas around, for example, energy facilities while these projects are being constructed (NWCC 2002). In particular, construction noise can affect "communication distance"

(the distance animals need to be from each other to hear each other's vocalizations), and an animal's ability to detect calls or danger or biologically relevant sounds, or ability to effectively forage (USFWS 2011).

If night skiing is allowed at the proposed ski area as the developers wish, the artificial lighting at night will also have a negative effect on the functionality of the WMA for deer and elk and other wildlife (e.g . Longcore and Rich, 2004). The potential effects include disorientation from and attraction to artificial light, structural-related mortality due to disorientation, and effects on the light-sensitive cycles of many species. For example, a variety of nocturnal mammals, including deer and elk, avoid open areas in moonlit conditions, because in these more well-lit conditions they are more likely to be seen by predators in open areas (Laundre 2010). This avoidance restricts foraging activity and movements, reduces total duration of activity, or concentrates foraging and longer movements during the darkest periods of night (Longland and Price 1991). Given that the ski resort developer plans to include a night skiing venue, and given that the lights from the ski hill must unavoidably illuminate the south-facing slope of the WMA to some extent, and given further that this hillside is not forested but does offer cover for stalking predators, it can be expected that deer and elk will be reluctant to use it to the extent that they otherwise would, and thus they could be pushed into sub-optimal habitat.

The proposed ski area will lead to a significant increase in daily traffic up the canyon road, from perhaps a few vehicles per day to many dozens or even hundreds of vehicles on a given day. Note that this road already **bisects** the WMA. The negative impacts of roads on deer and elk is one of the more studied areas of disturbance ecology. For example many studies have found that increased motorized access results in decreased elk habitat and security, and increased elk mortality from hunter harvest both legal and illegal (Hershey and Leege 1982, Lyon 1983, Hayes et al. 2002, McCorquodale et al. 2003, see Rowland et al. 2005 for review). Elk have been found to readily avoid and be displaced from roaded areas (Irwin and Peek 1979, Rost and Bailey 1979, Hershey and Leege 1982, Livezey 1991, Millspaugh 1995, Weber 1996). Additional concomitant effects can thus occur, such as major declines in survival of elk calves due to repeated displacement of elk during the calving season (Phillips 1998).

The converse of the studies cited above are those that show that closing roads or limiting access on roads leads to decreased disturbance and positive responses from game animals (e.g. Cole et al. 1997, Millspaugh et al. 2000, Rowland et al. 2005). Closing or decommissioning roads has been found to decrease hunter induced mortality of elk (Leptich and Zager 1991), increase elk survivorship (Cole et al. 1997), increase the number of bulls (Leptich and Zager 1991), extend the age structure (Leptich and Zager 1991), increase hunter success (Gratson and Whitman 2000), allow elk to remain in preferred habitat longer (Irwin and Peek 1979), and lead to decreased movement of elk herds (Cole et al. 1997) which the authors postulated would lead to less energy used per individual, thus potentially increasing fat reserves, survival rates, and productivity of individuals.

In summary, for the reasons above the proposed ski resort would inevitably reduce the usability of the WMA by such game species as mule deer and elk, and would thus fundamentally impair functional wildlife habitat in and adjacent to the Richmond Wildlife Management Area. As such, the proposed ski area would therefore be incompatible with the very purpose for which the WMA was established.

Stantec's treatment of the game issues

Stantec's analysis is almost entirely a "desk-top" analysis. The chief impact by far of the proposed ski area will be impacts to the surrounding deer and elk winter range, yet Stantec apparently did not even visit the proposed project site during winter. Stantec reports that it completed a **one-day survey,** in late March. In their wildlife report on page 8 Stantec states, "…signs of wintering big game were not detected in the Project Area…" Perhaps this is because Stantec only visited the site one time, according to their report, and this day was technically not during winter. That same sentence on page 8 goes on to say, "implementation of the proposed Project **may affect** habitat for mule deer, moose, and Rocky Mountain elk in those areas identified as crucial for wintering big game." Stantec goes on to use the word, "may" four more times in that paragraph to summarize possible effects of the ski resort development on big game. Given the circumstances of this development occurring adjacent to the WMA, and the fact that substantial amounts of crucial winter habitat for all three game species (elk, mule deer and moose) occurs squarely within the project area, I think the more responsible terms here would be along the lines of "likely to affect…" instead of "may affect." This paragraph ends with the statement, "Additionally, the total area of permanent habitat loss may not represent a significant proportion of wildlife habitat loss in the region." This is one of the more troubling statements of the report, since it implies that as long as the total area of permanent habitat loss due to the ski area is small compared to all of the rest of the other habitat loss in the region (meaning there is much more habitat loss out there), then this development is OK. On the contrary, precisely because so much winter game habitat loss has occurred and is occurring in northern Utah, and because mule deer numbers are below objective for this herd unit, that makes it all the more important that we do all we can to minimize additional habitat loss….anywhere.

Overall, Stantec's treatment of the many issues, and almost certain negative effects, that this proposal poses for elk, deer and moose is not all that impressive. Among other things there is a scarcity of cited relevant scientific literature. Stantec makes an odd statement in the executive summary on page i : "Implementation of the proposed Project may affect habitat for mule deer, moose, and Rocky Mountain elk in those areas identified as crucial for wintering big game; however, ***preferred winter habitat may not exist*** in the Project Area." Stantec surveyed the project area….if they are qualified to do so and write a wildlife report, can't they tell us whether preferred winter ungulate habitat exists on the project site? Table 1 of the report certainly seems to indicate that there indeed is winter habitat for big game within the project boundaries. It is probably because Stantec did not bother to visit during the winter that they cannot tell us whether ***preferred*** winter habitat exists at the project site.

On page (ii) of the Executive Summary and again on page 9 of the wildlife report, there is another statement that caused me pause: "While development may impede some wildlife movement it will not prevent movement of wildlife into adjacent lands such as the RWMA or USFS Wilderness Areas." How does Stantec know this? What about movement from the WMA through the proposed ski area (which is sandwiched directly between the WMA and Mt. Naomi wilderness) to the wilderness area? Seems like a fairly strong statement to make with very little evidence it will hold true.

The Stantec report closes with a weak list of recommendations to help avoid and minimize impacts of the proposed ski area to wildlife. One of the recommended measures is to "not allow noxious weeds to populate or spread in the Project Area." How exactly does one do that? Another measure is to "develop off-road vehicle policies (i.e., snowmobile, dirt bikes) that consider the protection of wildlife and wildlife habitats." Why doesn't the recommended measure simply state that the new ski area, if built, should **not allow** vehicles to travel off of roads and designated OHV trails? This would be a far stronger tool with which to manage for wildlife needs.

Both the Utah Division of Wildlife (UDWR) resources and the U.S. Forest Service have expressed concerns with the proposed development because of its certain impacts to deer and elk. The UDWR comments point out that the Cache valley mule deer herd, which would be impacted by the proposed ski area, is currently under its population objective. The comments go on to point out that the proposed increase in vehicle use through the project area would be likely to displace a number of animals from the crucial winter range and further reduce the mule deer herd. The UDWR also points out that night skiing activities and overnight grooming activities will have an impact to local ungulate herds and that these impacts were not adequately assessed in the first draft of Stantec's wildlife report.

Issues relating to sharp-tailed grouse

The Utah Division of Wildlife Resources reports that the Richmond WMA provides habitat for the Columbian sharp-tailed grouse, a state species of concern. There is at least one grouse lek (mating ground) in the WMA. Because this species is very rare in Utah and growing rarer, extra measures must be taken to ensure that the remaining populations are not inadvertently harmed. Rather than restate some of the evidence outlined above in the game section regarding the impacts of construction, increased human use and the concomitant noise associated with both on wildlife, I will simply state that many of the same impacts will also apply to avifauna and sharp-tailed grouse if the Cherry Creek ski area is permitted.

And the same goes for the impacts of increased traffic, which will result from a new ski resort, on birds and sharp-tailed grouse in particular. Bird vocalizations serve a number of vital

purposes, such as territory establishment, mate attraction, and warning others of predators. The negative effect of traffic noise on birds depends on the temporal and spectral overlap of bird song with these unnatural sounds. Spectral overlap is most dramatic for birds, such as grouse, that vocalize at low frequencies, since traffic noise is typically loudest at lower frequencies and low sounds attenuate less with distance and vegetation density (Halfwerk et al. 2010).

The possible impacts of ski area development on sharp-tailed grouse has not been studied by grouse researchers. However, there has been an impressive body of literature assembled on the impacts of human impacts and industrial development on sage grouse, which is a closely related species to sharp-tailed grouse. Therefore I assume that many of the impacts this species experiences from various forms of development would also hold true for sharp-tailed grouse. Much of what is known about the tolerance of sage-grouse to forms of human development derives from studies on oil, gas, and coalbed methane development. To the extent that both ski area development and energy development also involve increases in vehicle traffic, human activity and noise associated with construction, operation and maintenance, I think this is a reasonable comparison. The impacts to sage grouse from oil and gas development within 2 or 3 miles of a lek include lower lek attendance (Walker et al. 2007), reduced breeding populations (Holloran 2005), lower nesting rates (and hence lower reproduction, Lyon 2000), hens traveling further distances to nest (Lyon 2000), and even the extirpation of breeding populations at active leks (Holloran 2005, Walker et al. 2007). Based on this research on the impacts of oil and gas development on sage grouse, USFWS (2010) in their recent decision document that found the sage grouse warranted for federal ESA listing stated, "based primarily on data documenting reduced fecundity (a combination of nesting, clutch size, nest success, juvenile survival, and other factors) in sage-grouse populations near roads, transmissions lines, and areas of oil and gas development/production…, development within three to five miles (or more) of active sage-grouse leks may have significant adverse impacts on the affected grouse population." Currently, most of what we know about the impacts of oil and gas development on sage-grouse, which could have implications for renewable energy development, is summarized by Naugle et al. (2011), and serves as a useful source to extrapolate to sharp tailed grouse in terms of the impact of various forms of development on sharp-tailed grouse.

Stantec's treatment of sharp-tailed grouse

In the first version of Stantec's report there was a major oversight, which was lack of inclusion of the near certain impacts of the proposed ski area development on the local population (including a lek) of Columbian sharp-tailed grouse on the Richmond WMA. After the UDWR pointed this out in their comments, Stantec pulled together an amendment specific to the sharp-tailed grouse. In this amendment Stantec states, "UDWR suggested in their letter that leks (communal mating grounds) **may** be present within the RWMA." My reading of the Division's comments gives me a different impression, that there is in fact a lek on the WMA.

Conclusions

I would like to close with a word of caution. As stated above, I feel that Stantec's report was generally weak, and I may go as far as saying incompetent, and is setting up the proposed ski area to act with too little information and uncertainty in the face of the proposed project's impacts on wildlife. In the field of conservation science, scientists and conservation planners often invoke the Precautionary Principle. This principle recommends that if there is doubt (such as an absence of adequate scientific study), then the action that would cause the strongest protective measure should be chosen. Stewart (2002) recommends that activities that present an uncertain potential for significant harm should be prohibited unless the proponent of the activity can demonstrate that it presents no appreciable risk of harm. Management that follows the Precautionary Principle accounts for uncertainty by avoiding results that preclude future options. As a biologist who acknowledges the inherently variable nature of the communities and systems I study, I underscore that developers, planners and managers need to make every effort to err on the side of caution.

As argued above, a ski resort in Cherry Canyon would be incompatible with the established uses of surrounding lands – including the Mt Naomi wilderness Area and most certainly the Richmond Wildlife Management Area. There is strong evidence that the construction of a ski area in this place would lead to the inevitable impairment of the WMA. Moreover, this impairment would be significant, and possibly permanent; and I doubt that such impairment could be significantly mitigated by any proposed or viable modification of the development plan. I believe that the application must therefore be rejected. Accordingly, I strongly urge the members of the Cache County Planning and Zoning Commission to reject the developers' application for a conditional use permit to build and operate a ski resort in Cherry Canyon.

Sincerely,

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