

Dr. Michael Proctor
Birchdale Ecological
PO Box 606
Kaslo, BC, V0G 1M0
July, 2010

Environmental Assessment Office

BC Ministers of Environment: Agriculture and Lands: Tourism, Sports, and the Arts: Forest and Range

Re: New research regarding grizzly bears in the Purcell and Selkirk Mts. and the Jumbo Glacier Resort proposal

Summary

I have recently completed two new ecological analyses on the Purcell grizzly population that are relevant to the proposed Jumbo Glacier Resort (JGR).

First, backcountry road densities associated with the adjacent human populations appear responsible for depressed Purcell grizzly bear populations being close to or below the threatened population threshold. To improve the status of the Purcell grizzly it will likely be necessary to improve the balance of human use and wildlife habitat needs. The JGR would challenge our ability to accomplish that goal.

Second, the larger Purcell - Selkirk region has been fragmented into a meta-population (a group of sub-populations) by human settlement and transportation corridors resulting in several small threatened sub-populations. The bears south of Hwy 1 and north of Hwys 3 (Purcells), 31, and 6 (Selkirks) form a relatively healthy 600 bear sub-population (see Figure 1). That sub-population will be essential to the long-term survival of the regional meta-population by being its future anchor core and source of bears for the surrounding fragmented small threatened sub-populations. We are working to improve this situation and will likely succeed, but for that to work, the 600 bear anchor sub-population needs to remain healthy, intact, and un-fragmented. It is the location of the JGR in the middle of the Central Purcell GBPU, and central to the 600 bear anchor sub-population, that would likely begin and stimulate the detrimental process of fragmentation of that core sub-population.

From the perspective of long-term coexistence with self sustaining grizzly bear populations in the region, a Provincial objective I assume, consider the cumulative effects on the Purcell range. The Purcell Mt. grizzly's numbers are depressed yet they are a part of an important anchor core sub-population in a larger fragmented grizzly bear distribution. To recover the Purcell grizzly so it may in fact act as a regional core and source of bears, and recovery is very possible, it will likely be necessary to strike a better balance between human use and wildlife habitat needs (i.e. improve upon the status quo). Inserting a large all season resort in the centre of the range will increase the challenge of achieving such an improved balance, as well as potentially initiate another fracture across a most important regional core sub-population.

Main letter of submission

I am a biologist that has been studying grizzly bear ecology in the Purcell and Selkirk Mts. of southeast British Columbia for the past 15 years. The Environmental Assessment Office requested that I share any new relevant information with appropriate government agencies charged with making the Jumbo Glacier Resort decision. There are two relevant analyses that I have recently completed that might be of interest. Both have been submitted to the peer reviewed scientific literature.

For context, let me state that my long-term project receives funding support from a wide range of contributors ranging from the BC Habitat Conservation Trust Fund (indirect money from hunters), the Columbia Basin Fish & Wildlife Compensation Program (BC Hydro), the local timber industry, and

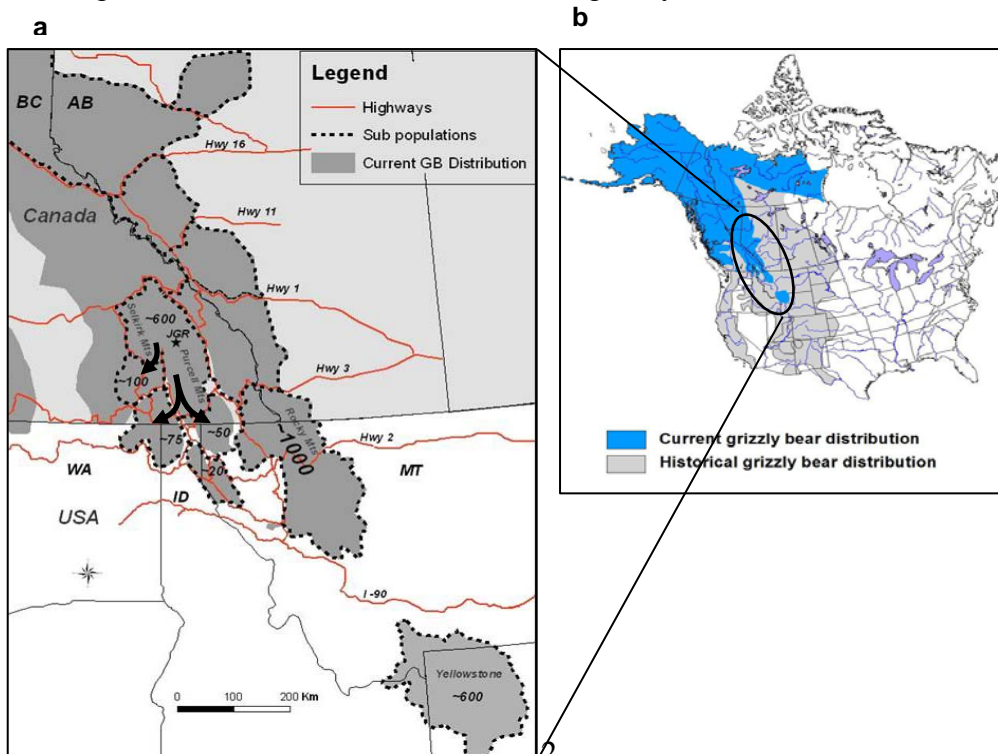
various ENGOs. My goal is to provide reliable independent biological science information as it applies to grizzly bears. Furthermore, it is my opinion that the Province of BC does a pretty good job of managing grizzly bears and I mention this in the many talks I do annually. It is always challenging to manage large carnivores in the southern areas of the Province where human populations are higher.

The first analysis entailed exploring population fragmentation and its causes. We studied ~3700 grizzly bears across western North America, including most of BC, Alberta, and the northern USA. Briefly, grizzly bears north of Hwy 1 in BC are relatively un-fragmented, as you might expect, and grizzlies south of Hwy 1 are extensively fragmented. There are 3 patterns of interest concerning the Purcell Mts. and the proposed Jumbo Glacier Resort.

First, there is extensive fragmentation of what used to be a continuous grizzly bear distribution resulting in several small at-risk sub-populations in the Purcell - Selkirk region (see Figure 1).

Second, the bears south of Hwy 1 and north of Hwys 3 (Purcells), 31, and 6 (Selkirks) form a large relatively healthy sub-population of approximately 600 grizzly bears (Figure 1). Due to the extensive fragmentation in the region this 600 bear sub-population is important in a meta-population (group of sub-populations) context as a regional anchor (core) sub-population that will provide long-term stability and act as a source of bears for the surrounding small threatened sub-populations. There is also an international and continental context at play as well. Grizzly bears have been extirpated across the western US from Mexico to a point where the extinction line in the Purcell - Selkirk area is just south of the US border (of course grizzly bears in the Rocky Mts. and Yellowstone extend well into the US, see Figure 1). ***Keeping this core anchor sub-population healthy, intact, and un-fragmented is likely essential to maintaining the long-term self-sustainability of the larger Canadian regional Purcell-Selkirk grizzly as well as maintaining the international grizzly bear distribution extending directly south into the US.***

Figure 1. a) Fragmented remnant grizzly bear distribution in the larger Rocky Mountain region. Dotted lines represent sub-population boundaries created through human fragmentation of the landscape. Very limited female movements and reduced male movements occur across dotted lines. Numbers indicate approximate (~) sub-population size. Note the ~600 bear subpopulation in the central Selkirk & Purcell Mts. and location (star) of the proposed JGR. The best biological option for movement of bears over the long-term is along arrow routes. b) current and historic grizzly bear distribution.



Third, the main cause of the regional fragmentation has been major highways and associated human settlement and developments. Therein lies the risk of the Jumbo Glacier Resort to the Purcell - Selkirk anchor sub-population. It is the location of the Jumbo Glacier Resort in the centre of the Purcell Mts. that causes concern. There is a very real potential that the associated highway (particularly as it might cross the Purcell range, this has been proposed for over a 20 years by various groups and the JGR may provide leverage in the future) and associated human settlements will fragment the Purcell range over time. The main link between the Purcell – Selkirk anchor sub-population and the small threatened populations to the south will be through the south Purcell area (east across Hwy 3A north of Creston into the Selkirks; and across Hwy 3 in the Purcells – arrows in Figure 1a) because the southern Selkirk area is likely too developed to function as an effective linkage area for bears (Castlegar – Nelson – Balfour). An east-west fracture stimulated by the JGR would effectively separate these linkage areas from much of the anchor core Purcell-Selkirk sub-population (see Figure 1).

Realize that while we are working to minimize the effects of those fractures (dotted lines on Figure 1), and will likely succeed in managing people and bears to a place where animals are moving between these sub-populations with an acceptable survival rate, we will likely never erase those fractures. They are a fair consequence of the human landscape. ***Therefore, underlying our ability to “solve” this conservation problem is the necessity that the Purcell-Selkirk anchor sub-population remain healthy, intact, and un-fragmented so it can act as that regional source population so necessary for the future of the human-induced regional meta-population.*** There is room for development in the region, but to manage our natural resources well, they will have to be strategically and thoughtfully placed.

The other research result I have to report concerns the reasons why the Purcell Mt. Grizzly Bear Population Units (GBPU) are below their expected population size (Central Purcell GBPU - 54% of expected capacity; South Purcell GBPU - 46% of capacity; Yahk - 20% of capacity) as reported a few years previously. It turns out the best predictor of grizzly bear occurrence in the South and Central Purcell and Selkirk GBPUs is backcountry road densities associated with adjacent human population patterns. Habitat differences also play a role of course, but road densities were consistently the best predictor of grizzly bear occurrence by a factor of 2 to 1. It does not appear that overhunting is responsible for the depressed Central Purcell GBPU as hunting rates were sustainable even considering the new lower population numbers. Inadvertent overhunting may have played a role in the South Purcell GBPU. Hunting has been closed in the (Purcell Mt) Yahk GBPU for some time, so it has not been the problem there. Currently, hunting is regulated fairly well in BC and as such, is not generally a conservation problem. Historic (1900-1970) high mortality rates have helped create this problem, but human settlement patterns and unreported mortalities associated with the challenges of coexistence in the front and backcountry have likely kept the Purcell grizzly from rebounding as many other populations in the region have. Most of these mortalities are preventable with effective management. The Purcell grizzly bear will need thoughtful land use management to attain recovery to some appropriate level above the threatened population threshold (50% of capacity) and I would assume that is a Provincial goal. From a grizzly bear perspective, it would seem appropriate to actually effect the management necessary to restore the Purcell grizzly to secure numbers before we consider allowing the JGR into the backcountry.

From the perspective of long-term coexistence with self sustaining grizzly bear populations in the region, it would be prudent to consider the cumulative effects on the Purcell range. The Purcell Mt. grizzly’s numbers are depressed yet they are a part of an important anchor core sub-population in a larger fragmented grizzly bear distribution. To recover the Purcell grizzly so it may in fact act as a regional core, it will likely be necessary to strike a better balance between human use and wildlife habitat needs (i.e - we will have to improve upon the status quo). Frankly, inserting a large all season

resort in the centre of the range will increase the challenge of achieving such an improved balance, as well as potentially create another serious fracture across a most important regional core sub-population.

To assess the impacts on grizzly bear populations trying to exist in the long-term, it is relevant to consider the regional meta-population (South of Hwy 1) scale as indicated in Figure 1. Our understanding of grizzly bear ecology and inter-population dynamics has improved greatly in the past decade to the point where we now can see the bigger picture and consider larger scale impacts. A reasonable metaphor might be how nations evolved to consider certain national issues for their international implications. In this instance it is necessary to expand the scale of consideration to the regional meta-population which includes the threatened sub-populations to the south and west and think past the first generation of owners of the proposed resort out several decades, to what will likely happen. Keeping the scope of decisions on too small a spatial and temporal scale can lead to unconsidered and undesirable cumulative effects. Because grizzly bears live at the large scale and the populations change relatively slowly, they are very susceptible to this syndrome.

Finally, keeping our natural systems in a state where they can adapt to climate change may be the most important consideration. Grizzly bears are an umbrella species that in many ways represent a wider array of species and ecosystems. Their widespread and diverse habitat needs, and sensitivity to human activities, make them an ideal surrogate for a more complex natural system. It is predicted that fragmentation will challenge wildlife and ecosystem response to climate change, and climate change will exacerbate fragmentation. ***Keeping our province minimally fragmented for wildlife and ecosystem shifts and changes will be an important aspect of our preparation for climate change.*** Understanding and doing what is necessary to keep grizzly bears healthy across our province, particularly in the south where humans overlap significantly, may be a prudent endeavor for British Columbia's future.

Sorry to have a less than favourable submission. In contrast, my grizzly bear message is usually one of considerably more optimism. However, there is optimism in this story. I have spent the past 5 years researching ***solutions*** to this regional fragmentation and currently work within the Trans-border Grizzly Bear Project with the cooperation of the federal US Fish and Wildlife Service to implement workable and reasonable conservation solutions for these issues on both sides of the international border. I can report that we are making great progress and have cultivated the cooperation of industry, hunting and recreation groups, the public, private land owners, local and regional governments, and ENGOs. Our thorough research and reasonable approach to solutions has resonated with these groups and because of that we have a good chance of solving this problem. However, keeping the 600 bear Purcell – Selkirk anchor sub-population healthy, intact, and un-fragmented is an integral part of the regional solution. I humbly ask for your cooperation by considering my comments on this important issue.

I offer this new information in the spirit of keeping society and decision makers informed about the results of the biological research into our natural systems that we ultimately depend.

Respectfully,



Michael Proctor
mproctor@netidea.com
250-353-7339 or cell 250-353-8072