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# In Defence of a Fallen King:

## A Critique of the BC Grizzly Bear Scientific Review

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In Defence of a Fallen King:

Author's Update & Formal Submission to the MFLNRORD Public Consultation Process

October 24<sup>th</sup> 2017 was a day that British Columbian's will remember. It was the day the Auditor General of British Columbia released a report pertaining to the government's management practices of our iconic grizzly bear. Ten recommendations were made and, overall, it was found that mismanagement of the species has occurred for many decades and over multiple successive governments. British Columbians, and our First Nations brothers and sisters, are to be congratulated and should be proud of the work they have done in bringing a spotlight to the plight of BC's grizzly bears. Many environmental groups have engaged in herculean efforts to ensure that the grizzly bear was a priority issue for the 2017 BC provincial elections (I would know, a bear made it onto my campaign sign!). Hundreds of thousands of dollars, countless volunteer hours, direct political engagement, and networking and information sharing like never before; all at great personal and financial risk to many of the people who have stood up for BC's grizzly bears. Bravo Zulu BC – well done. Before providing my updated comments, I want to recognize the Raincoast Conservation Foundation, Simon Fraser University, University of Victoria, and the Hakai Institute for their original research; as well, the David Suzuki Foundation and the UVic Environmental Law Clinic for bringing this public research forward and building the initial submission to the Auditor General (AG). The AG report is truly a mark of the joint efforts of these organizations, their bold stand, and their foresight to engage early in seeking an independent review; but most of all, thank you to all British Columbians and over 50 organizations that have stood the test of time and displayed resilience beyond measure.

For my part, while the sun may seem to be setting on this fight, I do not believe it to be over – only beginning. The AG's report highlighted many issues with the current system, including: enforcement, habitat loss, program review and effectiveness, and trophy hunting. With this all said, it is

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prudent to recognize that lasting change, and species survival, means we have to deal with these concerns now. The work has only just begun. I am not in a position to comment on each section or concern raised within the AG report. However, there are two points that I would like to comment on and make both the public and the government aware of as we move forward. These are, 1) the two “independent” reports referenced by the AG are a point of contention with me. One such report was the exact subject of my original 2016 critique titled *In Defence of a Fallen King*. 2) As mentioned below, the COS enforcement of grizzly policies and legislation has always been a concern of mine. While I was honoured to be able to make two submissions to the AG during her investigation, I remain extremely concerned about this agency, its abilities, oversight, training, and internal culture.

The Province of BC has already engaged in a public consultation process, which ends on November 2<sup>nd</sup> 2017. Many groups and individuals have already made their submissions. This document is my public submission for this engagement. However, I hope to be involved internally with the development of Provincial policy (especially enforcement programs) as things move forward. As these comments are merely an update to a previous piece of work, I will only deal with the points raised above pertaining to the independence of program reviews and the COS enforcement of legislation and policy. These updated comments also contain some preliminary data and findings, which will be released in detail late November 2017 within my technical report *Law Gone Wild: A Descriptive Analysis of Public Confidence Levels in BC's Wildlife Enforcement Agencies*. I have structured these updated comments to first deal with the two independent reviews mentioned by the AG, second to address the COS enforcement of new legislation and policy, and third to provide concluding remarks on the issue.

### **The issue of “independence” in previous program reviews**

The AG report mentions the 2016 “review” of the Province’s management of hunting. I believe that the publication being referenced is the *Scientific Review of Grizzly Bear Harvest Management System in British Columbia*. This exact publication was the subject of my original critique which follows

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this update. While it was not the purpose of the AG to review the validity of these reports, I maintain my original contentions, and the points raised in my original critique. As with much of grizzly bear issues, financial incentives, in my opinion, underpin the very foundation of grizzly bear decisions made over the last decade. Consultants are paid to write the reviews (and often want returning work from the government of the day), former Minister Bill Bennett and his financial ties to the Guide Outfitting Industry, and even the Province itself loading up the general coffers with blood money; “money” that is what it comes down to. Much of our decision-making has been driven by greed and private interest instead of the legitimate concern about the survival of the species, a species already a conservation concern. I remain deeply troubled about inaccurate reports, report data, and population estimates which have found their way into the bowels of BC management rhetoric as a result of financial conflicts of interest (perceived or legitimate, it matters not). I say it does not matter whether or not the financial conflicts are perceived or legitimately validated because what matters is the public’s trust in the process. As a result, public perception is everything. If there is a perceived financial bias or conflict than the legitimacy of legislation and policy will be called into question, every time. **I recommend that a special conflict of interest or ethics guideline/policy be developed for public servants engaged with work on the grizzly bear file or in the development of formal BC policy on this issue.** Public servants or consultants with a conflict identified under this new policy should be excused from the file, or subjected to a performance review of their conflict, in order to maintain public trust and confidence in the process. The former *scientific* reviews the Province has done should be scrapped and not relied on in any way. We should verify our baseline population data and begin from the ground up in a transparent and publically accountable manner that recognises ethics issues and potential conflicts of interest.

### **The Conservation Officer Service (COS)**

The Auditor General has pointed out that despite amendments to the existing *BC Wildlife Act*, the government has failed to establish procedures for evaluating the effectiveness of COS enforcement

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activities pertaining to attractants and wildlife. In multiple media interviews over the last year I have pointed out that public education pertaining to wildlife attractants (bears specifically) requires effective enforcement for implementation; that currently, we do not have accurate urban planning that takes into account co-existence through environmental design of urban spaces, nor do we include in urban planning the application of wildlife enforcement activities. This results in wildlife co-existence issues at the urban interface. I have argued for a more holistic approach that starts with planning at the community level, community engagement, and public participation and ownership of the end result.

The AG also addressed staffing levels within the COS. During the 2017 provincial elections, I routinely critiqued the former administration for the lack of conservation officers at the field level. I argued that there is not enough boots on the ground to provide effective coverage of *preventative* wildlife co-existence planning and enforcement of existing attractant laws. There has been other reports and submissions to the government by both a former Chief Conservation Officer and the BCGEU (i.e., the union for COS officers) which echo these same points and assertions. However, I maintain **that providing additional funding and officers into the current COS model is not advisable** due to internal cultural issues and processes which I addressed in my recent essay *To Conserve and Protect: A discussion starter on public trust and wildlife enforcement in BC*. The model of the COS needs to change before overall public confidence can be increased and maintained. It is not realistic to think that an officer who is a licenced hunter, and in some cases a trophy hunter himself/herself, can avoid a reasonable apprehension of bias when deciding to kill a grizzly bear, not with the current structure of policy on officer discretion and predator relocation. I say this not as an academic theory, but from personal experience. When I was a conservation officer, I became personally aware of a senior officer ensuring he “attended” to a file involving a grizzly bear cub at a log sort. He tranquilized it, held it up, had another officer take picture, and then killed it privately away from the public eye. Others routinely still take “trophy” photos of the paw sizes and head of the bears they kill despite my knowledge of internal

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direction not to do so. Some officers, that are hunters and trophy hunters, like hunting and killing animals for work –I believe this to be a conflict of interest for those individuals with that approach to their conservation job. It is mission creep and a serious cultural issue within the agency that is posing a clear, present, and direct risk to the conservation of the grizzly bear species and the environment and wildlife more broadly speaking. Providing additional funding to this model is not advisable because the public's trust in the enforcement of any new legislation of management policies will likely be undermined. **A public service ethics/conflict of interest policy as described above would also assist here. The development of a new model and structure is advisable.**

I echo the AG's concerns about the reliance and use of WildSafe BC to administer wildlife-coexistence programs. However, I make these additional comments. WildSafe BC is an extension of the BC Wildlife Federation (BCWF). Although I do agree that BCWF and WildSafe BC do some really great conservation and environmental protection work, the problem for grizzly bear management is the ideology of *why* this work is being conducted. For the BCWF the underpinning ideology is that environmental protection and species conservation is necessary for the continuance of recreational hunting. For grizzly bears, the COS should be enforcing a ban on hunting. There is a dichotomy between the ideological positions of enforcing law to ensure the *conservation* of a species and enforcing law to ensure the continued practice of *hunting* a species. The AG specifically mentioned she would remain silent on specific hunting policy issues, but they are important to consider. I make my comments regarding the BCWF out of caution but also necessity. I have many friends who are members and the BCWF president for Region 1 spoke out in my defence on behalf of their 10,000 members when the government took action against me when I spared the two bear cubs in 2015; an expression of support that I am very grateful for. Therefore, while I bring this point forward for discussion, in no way do I attempt to detract from the community work that WildSafe or BCWF is involved in. However, from a law enforcement and integrity perspective, it is problematic to have armed officers that are licenced

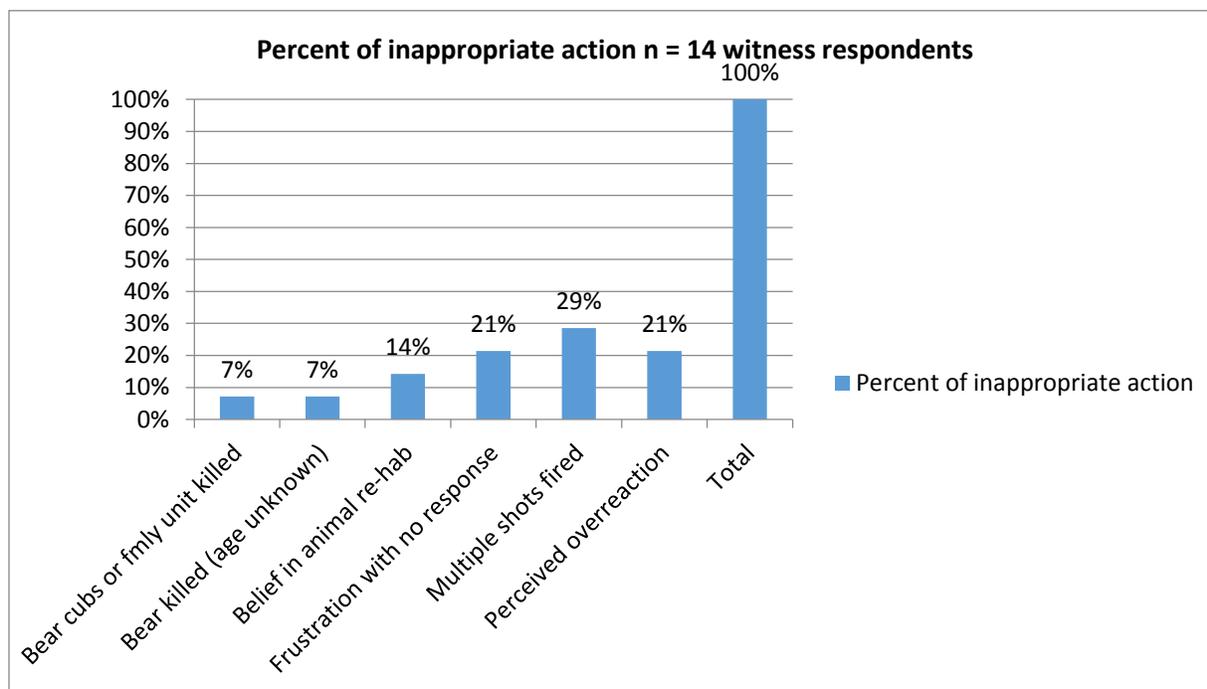
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hunters, in some cases trophy hunters, who are also members of the BCWF and overseeing/making recommendations for government funding to BCWF wildlife programs and their affiliates. This, in my view, and I say this with great hesitation and restraint, is a conflict of interest for law enforcement. **I would recommend an independent panel be responsible for directing, monitoring, and assessing/evaluating the programs that the government funds.** The COS should not be responsible or involved. I would recommend that if WildSafe receives funding, wildlife re-habilitation facilities and other community programs should be able to apply for dedicated funding as well. Again, a conflict of interest policy would assist in minimising this public concern.

### **Final comments**

The issue of public trust in BC and the government killing of wildlife is an emerging public concern. In my soon to be released paper, *Law Gone Wild: A descriptive analysis of public confidence levels in BC's wildlife enforcement agencies*, I will be showing that there is a statistically significant relationship between officers killing animals, the “appropriateness” of the actions, and levels of public confidence in BC – this includes grizzly bears. A preliminary regression analysis and cross tabulation (based on a secondary analysis of a third party public survey conducted by Insights West, n=809) shows that public confidence in law enforcement agencies, who respond to wildlife calls, is directly related to the level of perceived appropriateness of an officer's actions and, with the COS, the respect showed the wild animal. Although the majority of the public is “not sure” what constitutes an appropriate level of force when killing a wild animal, if a member of the public witnesses a bear killed on their property, a bear cub killed, multiple shots fired, or perceived over reaction (i.e., animal is killed when there is no actual risk), public confidence in the agency will be significantly reduced.

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From the additional data, which will be released in my report, a general argument could be made that the current manner in which the COS responds to wildlife calls could be improved with additional officer training and a re-focusing on priority tasks and public trust. While I expect some to critique the low sample size of lethal force witnesses identified from the 809 participants in the survey, as a law enforcement officer with over 15 years of experience in multiple countries, even one witness describing dissatisfaction with an agency as a result of lethal force is enough to evoke the concern of management – much less 14 witnesses describing an officer's actions as inappropriate. Even more concerning, over 80% of individuals who have called for help with wildlife are dissatisfied with the responding agency. In my opinion, when responding to wildlife calls, the COS is failing to maintain public trust as the lead provincial wildlife response agency and the RCMP, in certain areas, require wildlife training. For a visual reference, when all open ended survey responses from the public are run for word frequency, the top 100 words used look like this:



## Forward

I have prepared this report out of concern for grizzly bears in B.C. With a public opinion poll showing that over 90% of British Columbians oppose the hunting of grizzly bears, the government of British Columbia has hard decisions to make about grizzly bear management in the future.

### **An epic failure.**

A report was commissioned by the Ministry of Forests, Lands, and Natural Resource Operations, and made available to the public earlier this year (2016), that claimed to review all material related to their current management of the grizzly bear harvest. The report alleged that the government's systems had a "high level of rigor with a solid scientific underpinning."

But the report itself found many major flaws with the grizzly management system. I reviewed the report in greater detail and I found critical issues with the language used and the conclusions made. I suspected that the report could potentially mislead public opinion, or most concerning, the independent investigation by the B.C. Auditor General which was already underway.

### **Nature's fallen king.**

Grizzly bears are vital components of our ecosystems, and could arguably be considered Canada's "king" of the wild. However, I contend that, following years of mismanagement and a flawed report that could potentially push them toward extirpation, it is time to stand in defence of this majestic animal. This critique of the government's report highlights some of the significant failings that should be considered by the Auditor General prior to concluding their investigation. Notably, our critique found:

1. Contrary to report conclusions, the government has not displayed a high level of scientific rigor in the management of B.C. grizzly bears.
2. The language used within the report is specific to the conservation and sustainability of the *killing* of grizzly bears **not** the conservation and sustainability of the animal itself.
3. Current management practices pertaining to kill data collection (eg. the sex of the bear killed) are potentially significantly flawed and posing a direct risk to the conservation of the species.

### **A species of special concern.**

There will always be moral arguments for or against a grizzly bear trophy hunt, but our government has an obligation to make science-based decisions on wildlife management. And, based on the information included within (and notably left out of) their own report, they must immediately act to protect our grizzly bears from themselves and bad data. The grizzly bear in B.C. is a recognized species of special concern. The critique that follows is an abridged version of a much larger piece of work. I believe we need to begin moving our public conversations back towards the true *conservation* of the B.C. grizzly bear verses the various competing economic interests the animal provides. I look forward, with great anticipation, to the public debate and conversation that I hope is soon to follow.

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In Defence of a Fallen King: A Critique of the BC Grizzly Bear Scientific Review

## 1. Introduction

The government of British Columbia published their report, *Scientific Review of Grizzly Bear Harvest Management System in British Columbia*, in October 2016. The 55-page report was initially written in August 2015, and revised in March 2016, prior to its release to the public.

In the introduction of this report, the authors state “we conclude that the BC grizzly bear harvest management procedures have attained a high level of rigor with a solid scientific underpinning modified, as necessary, by professional judgment.”

This report was written in part “to provide recommendations for improving the province’s grizzly bear harvest management procedure” and therefore should itself be held to the highest scientific standards. It has clearly failed to do so, however, in numerous ways. These failings have the potential to lead to disastrous policy regarding the management and harvest of grizzly bears in British Columbia.

In this critique of the Scientific Review of Grizzly Bear Harvest Management System in British Columbia (‘the report’), the authors will show:

- That the report does not provide evidence compelling the public to believe the government’s grizzly bear harvest management system has attained a “high level of rigor” and, in fact, shows several critical flaws in the government’s system;
- That the report itself does not meet standards of scientific review in the fields of academia or research;
- That the report does not consider the vital input of First Nations opinion or traditional knowledge, or the public’s clearly documented and valid opinions and cultural beliefs regarding the grizzly bear harvest; and,

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- That the political nature of the harvest of grizzly bears routinely creates a culture that ignores science (ecology, biology, and sociology) and best practices.

### **1.1 Acknowledgement of Bias**

Bryce Casavant, the primary author of this critique, acknowledges that his history as a Conservation Officer under the Ministry of Environment for the government of British Columbia, as well as his recent involvement seeking the nomination for candidacy in a provincial political party, may create conflict with his review of government policy. This conflict will be mitigated by thoroughly referencing all third-party citations, and using peer-reviewed data or theories whenever possible.

### **1.2 Acknowledgement of Funding**

Bryce, and other listed and unlisted contributors, have received no funding, contributions or benefits from political parties, non-government organizations, government agencies, or third parties for their participation in this critique.

### **1.3. Acknowledgement of Expertise**

Bryce has an extensive background in reviewing and writing government policy, reviewing scientific reports, and analysis of policy and environmental sciences, through his work as a Conservation Officer with the Ministry of Environment of British Columbia, Natural Resource Officer with the Ministry of Forests, Lands, and Natural Resources Operations of British Columbia, and as a doctoral candidate with Royal Roads University social science program.

### **1.4. Purpose of Critique**

This critique is meant as an executive level briefing note, is intended for public release, and will be submitted to the auditor general of BC. This document is an abridged version of a larger piece of work.

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## **2. Critique of *Scientific Review of Grizzly Bear Harvest Management System in British Columbia***

### **2.1 Non-sequiturs abound**

The review makes a very clear statement about the current grizzly bear harvest management system in British Columbia:

“...we conclude that the BC grizzly bear harvest management procedures have attained a high level of rigor with a solid scientific underpinning modified, as necessary, by professional judgment.”<sup>1</sup>

This statement, however, is contradicted by significant flaws in the management system identified by the authors throughout the report. Some of those items follow.

#### **2.1.1 Expert Opinion**

When data is thought to be inaccurate in the planning of wildlife management, “expert opinion” can override physical, scientific methods of collecting and estimating populations. In the report, the authors note that, “...any data-based estimate will outperform expert opinion” and that 39% of the province’s populations are based on expert opinion instead of preferred methods of modelling. The review also highlights that “no clear criteria for the use of expert opinion over-riding model predictions, nor clear documentation of how experts derived their estimates.” Additionally, the obvious potential of bias of the managers who provide such expert opinion was not considered or listed in the review.<sup>2</sup>

#### **2.1.2 Lack of Funding**

An unreliable, and often unacceptably low, stream of funding for monitoring the resources surrounding grizzly bear populations, including the bears themselves, is shown to be very problematic for the report

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<sup>1</sup> Boyce, M; Derocher, A; Garshelis, D. (2016). Scientific review of Grizzly Bear harvest management system in British Columbia. Report to Ministry of Forests, Lands, and Natural Resource Operations (Manuscript). Retrieved from: <http://www.env.gov.bc.ca/fw/wildlife/management-issues/docs/grizzly-bear-harvest-management-2016.pdf>

<sup>2</sup> ‘The Report’ Pages 2, 17, 22

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authors, who note that a “...lack of resources reduced effective management planning and resulted in excessive dependence on extrapolation methods ... this resulted in an ad hoc inventory program largely driven by other resource development (e.g., oil, gas, mines, pipelines, hydro).”<sup>3</sup>

### 2.1.3 Intentions of the Report

Although the authors explicitly state that their report is not meant to address any ethical or beneficial aspects of killing grizzly bears, they immediately add,

“the International Union for the Conservation of Nature (IUCN) states that hunting plays a positive role in conservation because “the social and economic benefits derived from such use provide incentives for people to conserve them...” and, “An ironic benefit of harvesting is that it prompts agencies to conduct research and monitoring that they otherwise might not do; some non-harvested bear populations may be in jeopardy from human-imposed alterations to their habitat but monitoring of these populations is often inadequate.”<sup>4</sup>

Additionally, a language analysis of the executive summary and introductory chapter of the report shows that the authors repeatedly chose words that, akin to government public relations departments, minimize the act of killing, conflate conservation or sustainability of a *hunt* with conservation or sustainability of the *species*, and provide a sub textual support of existing policy. Examples include:

- Use of the word “harvest” over 25 times within the executive summary and introduction;
- The words “management” and “conservation” were used over 20 and 10 times respectively;
- The word “conservation” was used 6 times in the context of, but not specified as, conserving bears for the purpose of hunting;
- The word “sustainability” was used 6 times in the context of, but not specified as, sustaining killing practices; and,

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<sup>3</sup> ‘The Report’ Pages 3, 26-27

<sup>4</sup> ‘The Report’ Pages 8, 9

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- Supporting arguments included terms such as “high level of rigor,” “professional judgement,” “high degree of confidence,” “long and varied history,” “legally harvested,” and, “remain widespread.”

This simple analysis underscores a subtle support for the ethical or beneficial aspects of an ongoing grizzly bear hunt. The language within the executive summary of the report continued throughout the authors writing with an underpinning concept of sustaining a trophy hunt – instead of sustaining a species of special concern.

### 2.2 Expected Levels of Scientific Reporting

The Executive Summary of the report makes the claim that it is intended to,

“evaluate the sustainability of the grizzly bear hunt in BC, to assess the level of conservation risk associated with implementation of both the current and revised provincial grizzly bear harvest management procedures, and to provide recommendations for improving the Province’s grizzly bear harvest management procedure.”

As the report was written by at least two persons of academic backgrounds, it is expected that this *scientific review* will follow an accepted pattern or methodology common to reviews of scientific data and literature. However, there is no evidence to suggest this is the case, and, in fact, elements of the report indicate that sound methodologies, methods, and peer review would have potentially corrected contradictions within the report.

#### 2.2.1 Peer review and format

It could be argued that the purpose of a peer review is to provide a form of academic quality control, to evaluate theory, methodology, and methods; and to ensure the accuracy and quality of a paper’s scientific conclusions. This report, which was commissioned by the government of British Columbia, was

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not subjected to the peer-review process, and instead must stand alone on the merits of supposed experts.

One example of how this lack of peer-reviewing fails the document is the authors' decisions to outright reject the conclusions of certain B.C. scientists who made scientific findings within published peer reviewed work. As an example:

In referring to a published piece academic work regarding the failure to include or address uncertainty in population estimates of Grizzly Bears in British Columbia<sup>5</sup>, the authors note,

“Management decisions must be made whether or not all sources of uncertainty can be measured or identified. This does not imply that the management decisions are flawed simply because error and uncertainty exist. The manager must decide where to focus limited resources available for conservation.”<sup>6</sup>

Had the authors' report been subjected to a peer review it may have been noted, that, the study in question does not imply that the management decisions are flawed because uncertainty exists – it scientifically *concludes* that the manager's decision *must* be flawed because uncertainty is not identified:

“Outcome uncertainty alone – discrepancy between expected and realized mortality levels – led to excess mortality in 19% of cases (population-years) examined. Accounting for uncertainty around estimated biological parameters (i.e., biological uncertainty) revealed that excess mortality might have occurred in up to 70% of cases.”<sup>7</sup>

This study, which was peer-reviewed and accepted for publication, is rejected in the report for an apparent disagreement in semantics. In my opinion, the authors may have been specifically looking for a reason to justify the actions of current wildlife management. However, this study stood in their way.

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<sup>5</sup> Artelle, K; Et al (2013) Confronting uncertainty in wildlife management: Performance of grizzly bear management. PLoS ONE 8(11): e78041. doi:10.1371/journal.pone.0078041. Retrieved from: [http://www.pacificwild.org/sites/default/files/newsattachments/Confronting%20Uncertainty%20in%20Wildlife%20Management\\_Artelle-et-al-2013-BC-grizz-hunt.pdf](http://www.pacificwild.org/sites/default/files/newsattachments/Confronting%20Uncertainty%20in%20Wildlife%20Management_Artelle-et-al-2013-BC-grizz-hunt.pdf)

<sup>6</sup> 'The Report' Page 16

<sup>7</sup> Artelle, K; Et al. (2013) Confronting uncertainty in wildlife management: Performance of grizzly bear management. PLoS ONE 8(11): e78041. doi:10.1371/journal.pone.0078041.

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Further, the authors note in their introduction that,

“An estimated 15,000 grizzly bears exist in BC and they are managed in 56 Grizzly Bear Population Units (GBPU) Of these, 9 GBPU are listed as threatened; additionally, the bears were extirpated from areas of the SW coast, lower mainland, central interior, and NE BC around the Peace River area near Fort St. John. The remaining 47 GBPUs are considered viable and the stated objectives include maintaining current population abundance and distribution, and providing sustainable harvest and viewing opportunities where appropriate.”<sup>8</sup>

This data was provided to the authors by the BC Ministry of Forests, Lands, and Natural Resources – the government organization paying for the report. Ethical conundrum aside, the acceptance of this data as unchallenged fact flies in the face of the conclusions reached by the authors in discussing population estimates, when they note that,

“...expert opinion did not detect [in the studied South Rockies GBPU] population decline. As a result, mortality rates increased through time because a roughly constant number of bears were being removed from a declining population.” And, “Errors in estimating population size and rates of non-hunting human-caused mortality led to harvests that contributed to the continuing population decline: the total kill rate exceeded the target (unknowingly, until this study was completed) for 6 of 8 years.”<sup>8</sup>

It would be expected that in the efforts of a peer-review process this contradiction would be raised: either the government’s estimates are accurate, or are inaccurate. That the only time a population was specifically studied<sup>9</sup> to look for declines, despite the expert opinion widely used to generate population estimates, it was found that populations had declined dramatically. This should be indicative that the source of the data (the Ministry of Forests, Lands and Natural Resource Operations) is unreliable.

These issues raise serious concerns about the validity of the entire report, and are victims of what a

*Guideline for reading literature reviews* notes as a failing of reviews without the peer review process:

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<sup>8</sup> ‘The Report’ Page 8, 24

<sup>9</sup> Mowat, G; Lamb, C. (2016) Population status of the South Rockies and Flathead grizzly bear populations in British Columbia, 2006-2014 (Technical Report). Retrieved from: [https://www.researchgate.net/profile/Clayton\\_Lamb/publication/302934739\\_Population\\_status\\_of\\_the\\_South\\_Rockies\\_and\\_Flathead\\_grizzly\\_bear\\_populations\\_in\\_British\\_Columbia\\_20062014/links/5735fe0608ae9f741b29ca91.pdf](https://www.researchgate.net/profile/Clayton_Lamb/publication/302934739_Population_status_of_the_South_Rockies_and_Flathead_grizzly_bear_populations_in_British_Columbia_20062014/links/5735fe0608ae9f741b29ca91.pdf)

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“The expertise of the author is not a sufficient criterion of a review's credibility, since experts reviewing the same topic often come to different conclusions.”<sup>10</sup> For reasons described so far in this critique, it could be argued that the report is actually not a *scientific review* at all, but rather, a simple literature review that has failed to meet even the basic standards of scientific reporting.

### 2.2.2 Funding and bias

In an ideal world scientists would separate themselves from the possibility of conflict of interest in their acquirement of financial funding and personal and professional bias. However, it has been shown within the medical discipline that funding can influence research. I argue that wildlife research can suffer from the same issues<sup>11</sup>. It has also been argued that wildlife managers experience some level of bias in determining the conservation values of certain species.<sup>12</sup>

Resolving these issues is quite simple: declaration of funding and bias. Throughout the scientific community – be it wildlife research, biomedical journals, or even *Psychology Today* blogs, authors are providing the information that could impact their conclusions or interpretations so it can be considered through both peer review and post-publication reading by the public.

Yet this report, which has the implicit goal of influencing BC public policy, was provided to the public without any information regarding the funding (though an assumption can be made that the Ministry of

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<sup>10</sup> Oxam, A; Guyatt, G (1988) Guidelines for reading literature reviews. Canadian Medical Association Journal, 138, 697-703. Retrieved from:  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1267776/pdf/cmaj00165-0027.pdf>

<sup>11</sup> Bekelman, J; Li, Y; Gross, C (2003) Scope and impact of financial conflicts of interest in biomedical research: a systematic review. Journal of American Medical Association, 289 (4) pp 454-465. Retrieved from:  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.465.1516&rep=rep1&type=pdf>

<sup>12</sup> Lawler, J; Et al (2006) Conservation science: A 20 year report card. Frontiers in Ecology and the Environment, 4 (9) 473-480. The Ecological Society of America. Retrieved from:  
[http://onlinelibrary.wiley.com.ezproxy.royalroads.ca/doi/10.1890/15409295\(2006\)4%5B473:CSAYRC%5D2.0.CO;2/epdf](http://onlinelibrary.wiley.com.ezproxy.royalroads.ca/doi/10.1890/15409295(2006)4%5B473:CSAYRC%5D2.0.CO;2/epdf)

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Forests, Lands, and Natural Resource Operations paid an unknown amount of money to these individuals for their work), or biases of the authors.

### 2.2.3 Failure to apply the precautionary principle

A failure of reporting vital data in harvested bears is identified as a problem by the authors, who note as a comparison,

“An analysis of the reliability of sex reporting for polar bear (*U. maritimus*) hunter harvests in Alaska using genetic testing found that sex was incorrectly reported for 13.7% of the kills; more females were reported as males, than vice versa, resulting in a 12% under-estimate of harvested females (Schliebe et al. 1999).”<sup>13</sup>

Grizzly population estimates are under fire by the authors for failing to meet reliable criteria, and they add that “reporting of the sex of harvested bears is an essential component of the management of grizzly bears ... thus, it is essential that such reporting is accurate.”

Yet the recommendation is simply that “efforts should be made to increase full data submission.” This, in itself must call the validity of the entire report in question. **If accurate population estimates rely on input data (ie. sex reporting) and we know that this data is potentially flawed, then, by necessity, all population models and expert opinion contain significant elements of error.** Significant error is not a high level of rigor.

Either data is important or it isn't – these statements that indicate information is vital to create predictable models to manage the entire harvest. However, there is no immediacy to improving reporting of the information. This, in my opinion, amounts to an egregious potential error which threatens the entire species.

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<sup>13</sup> 'The Report' Page 28

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The precautionary principle must apply in such situations, and is explained by the Ministry of Environment and Climate Change (Canada), as “the absence of complete scientific evidence to take precautions does not mean that precautions should not be taken – especially when there is a possibility of irreversible damage.”<sup>14</sup>

There is no argument that BC grizzly bear populations are of concern, and that mismanagement could drive them to a path of extinction. Failing to recommend the precautionary principle based on the evidence and conclusions reached by the report is a clear failing of the report itself.

### **2.3 Input of First Nations and Canadian public**

The authors of the report state clearly that their report is intended to review the management procedures used in British Columbia regarding grizzly bears, and not the potential benefits or ethical arguments of hunting grizzly bears. Immediately following this statement, as noted in section 2.1.3 of the report, the authors provide subjective reference to the benefits of hunting grizzly bears. As well, it could be argued that ethical arguments form a significant part of not only public opinion but also the government management of the bears themselves. Therefore, if the authors were completing a complete review of the management system, the ethics of the management style should also have been discussed in a balanced manner and subjected to peer review.

Beyond that, however, the authors described their consultation process and that they “were encouraged to seek opinions about grizzly bear harvest management in BC to broaden the scope of the review.”

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<sup>14</sup> Environment and Climate Change Canada (2010) Planning for a sustainable future: A federal sustainable development strategy for Canada. Sustainable Development Office, Environment Canada. Retrieved from: <https://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=06E31414-1>

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In their listing of individuals consulted during the review, a trend emerges:

- Four university-affiliated researchers (one of whose peer-reviewed, published work they attempted to discredit);
- A representative of the Guide Outfitters Association of British Columbia (whose membership is made up of those who directly benefit financially through the harvest of grizzly bears in BC); and,
- Eight employees of the provincial government that commissioned the report.

Non-profit associations, numerous scientifically-conducted public opinion surveys, meta analysis of media reports, and internal government briefing notes (which frequently establish the difference between what government employees tell political leadership and what political leadership sets as policy) were not consulted.

In brief, the consultation process was a clearly, even if unintentionally, cherry picked to largely support government policy and management systems.

Had the authors not interviewed any of these individuals as part of their review process, or simply not entertained discussions on ethics and benefits, the lack of inclusion of the above-listed groups or data would not be as significant.

But, most importantly, the lack of inclusion of First Nations traditional knowledge, oral history, and expertise on wildlife and ecology in British Columbia, is insulting to this community; it is particularly difficult to stomach when discussions of population estimates being overridden by 'expert opinion' are accepted, or those who have clear conflicts and bias are included in the consultation process.

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This abhorrently cherry picked lineup of consultations should call into question the entire validity, intent, and recommendations of this report.

### 2.4 Culture of Contempt

The report commissioned by the Ministry of Forests, Lands, and Natural Resource Operations has signs of the hallmark culture of contempt for opposing views and scientific evidence.

This culture is not necessarily an outright denial of facts, but subtle suggestions that would lead to policies avoiding a grizzly bear harvest being incorrect or invalid. Examples of this are found throughout the review:

- The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) – a group of experts from First Nations, scientific communities, and government researchers – found in their 2012 report that legal hunting could be a threat to grizzly bear populations, which were identified as a species of Special Concern. The authors of the review rejected this claim by a team of internationally recognized experts by stating “...the basis for the assessment is unclear.”<sup>15</sup>
- The dismissal of conclusions and discussions that show major flaws in the management system in peer-reviewed, published academia, without evidence.<sup>16</sup>
- Not including obvious potential solutions to problems: “Maintaining a conservative harvest level is the most precautionary approach possible given resource limitations,” the authors noted. They willfully ignore the possibility of limiting the hunt to greater levels, or simply ending the hunt in specific or all GBPU.

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<sup>15</sup> ‘The Report’ Page 7

<sup>16</sup> ‘The Report’ Page 16

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- A brief, succinct comment about modelling. Which was their own model and which must be discounted due to incorrect sex data input which was previously discussed (above).
- No comments or review of the financial or political incentive to government for maintaining a harvest, or potentially increasing the number of available bears for a hunt, were included – yet cannot be ignored in any discussion of this management system.

### **3. Conclusion**

The authors of the government commissioned report state that there is a high level of scientific rigor supporting the current management system of grizzly bear harvesting in British Columbia. However, their own notes and comments indicate significant failures in this system – particularly around the lack of funding and other resources to ensure proper population estimates and modelling, which is the basis for the scope of the grizzly bear hunt.

The report, which claimed to be based solely on current systems and the background science supporting it, often shows deference to an ongoing harvest, regardless of findings, through use of key language and terms, and dismissal of peer-reviewed published studies that are counter to the government's position. Additionally, editorializing on validity of outside expert opinion, scientific findings, and public engagement call into question the independence of the authors.

Major questions surrounding the sourcing, funding, and potential biases of the authors, which would likely be established in a properly peer-reviewed process, remain unanswered.

And, significantly, throughout the entire document, there is no discussion or review of the political and financial gains, or biases held by government, to maintain a grizzly bear hunt in the province of British Columbia. While an argument for conservation or population management could be made in holding a

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hunt or harvest of grizzly bears, ignoring the political and financial gains that herald the need for such a hunt is alarming.

It is the request of the author of this critique that the Auditor General require the Ministry of Forests, Lands, and Natural Resource Operations release all documents, internal and external communications, and costs related to the development of this report, as well as recommend that it is not included in any policy decisions. Additionally, the Auditor General should consider recommending halting the harvest, or drastically reducing the harvest levels, until such time that an independent third party can form appropriate and scientifically acceptable population data. **This immediate halt to the hunt could be essential to the conservation of the species especially if there is potential that the government is going to allow a 2017 spring hunt to take place.**

This document is an abridged version of a larger piece of work and analysis. Please contact the lead author for further clarification or details if required. This concludes our submission to the Auditor General of B.C.

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*The views and opinions expressed in this publication are my own and do not reflect the views of the BC Public Service or its ministries.*

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