GRIZZLY BEAR FOUNDATION

Report of the Board of Inquiry

Michael Audain
Stuart McLaughlin
Suzanne Veit

February 2017

Acknowledgements

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Photo by Arkusm
Kootenay National Park, BC

Introduction

A. This Inquiry

The Board of Inquiry was established in September 2016 by the newly formed Grizzly Bear Foundation to review the status and future of the grizzly bears of British Columbia in order to set the direction for the Foundation's work. This threeperson Board — composed of Michael Audain (Chair), Stuart McLaughlin and Suzanne Veit — has sought information and advice from a broad group of BC residents and organizations regarding:

The Grizzly Bear Foundation is Canada's only charitable organization dedicated solely to the welfare of grizzly bears *(Ursus arctos)*. It supports the preservation of grizzly bears through research, public education and conservation.

- Threats to British Columbia's grizzly bear populations including habitat fragmentation and loss, hunting, food source depletion, climate change, poaching and traffic accidents.
- Human-bear interaction.
- Support for the bear viewing industry and its growth in a responsible manner, including the potential for increased employment opportunities.
- The future of grizzly bear survival in British Columbia.

During the Fall of 2016, the Board held public meetings in Cranbrook, Prince George, Fort Nelson, Vancouver, Prince Rupert and Victoria. We also received a number of oral and written submissions from people and organizations who did not attend the meetings but wished to share their views. This process allowed us to hear from a wide variety of individuals and groups including conservationists, First Nations, hunters, guide outfitters, ranchers, trappers, and artists including wildlife photographers. In addition, the Board met with representatives of the Ministries of Environment; of Forests, Lands and Natural Resource Operations; and of Jobs, Tourism and Skills Training. We also talked with independent bear biologists and a number of non-governmental organizations dedicated to the well-being of the grizzly bears. We have studied the latest scientific literature on grizzly bears including the recently published Scientific Review of Grizzly Bear Harvest Management System in British Columbia (2016) commissioned by the provincial government.

Soliciting input on the future of the bears from a wide range of interested individuals and organizations has been a useful, and we believe an essential, step in understanding the importance of the grizzly bear to our province and, indeed, to Canada and North America. The views presented to us touched on everything from the provincial government's grizzly bear management system, the legal hunting question, the issue of access to the backcountry for resources and recreation, to many other components that combine to determine what the status and future of grizzly bears in our province will be.

Photo by Mick Thompson. Atnarko River, Tweedsmuir South Provincial Park, BC.

To fully capture the essence of these diverse views, in Appendix A on page 57 we have summarized the many submissions and input made to the Board of Inquiry. We encourage those interested in the future of the bears to review and consider these different points of view.

As we pointed out to all participants in this process, we are not grizzly bear experts, and this is not intended as a scientific report. We are residents of BC who want to ensure that there is a future for grizzly bears. We sought advice from scientists and others who have knowledge of grizzlies in order to determine how best our new organization can add to the many efforts already underway by numerous dedicated people and organizations. Most of these focus their activities on specific regions of the province, for instance on the Coast or in the Kootenays. The Grizzly Bear Foundation will assume a provincial perspective and plans to be active everywhere in the province where grizzly bears live. It is also the intent of the Grizzly Bear Foundation to work closely with all individuals and groups committed to the future of the grizzly bear.

Based on all the information gathered over the past few months, we include our assessment of the main threats and outline where we believe the Grizzly Bear Foundation can help. In addition, we include some suggestions to governments that we believe could assist in a combined effort to ensure the long term welfare of our grizzly bears.

We have learned much from this process. But we still have a lot to learn about the complex relationships that define our evolving human relationships with grizzly bears. We have heard about the long standing and respectful relationship between First Nations and grizzly bears but we realize we also have more to learn in this area and look forward to establishing strong working relationships between First Nations and the Grizzly Bear Foundation.

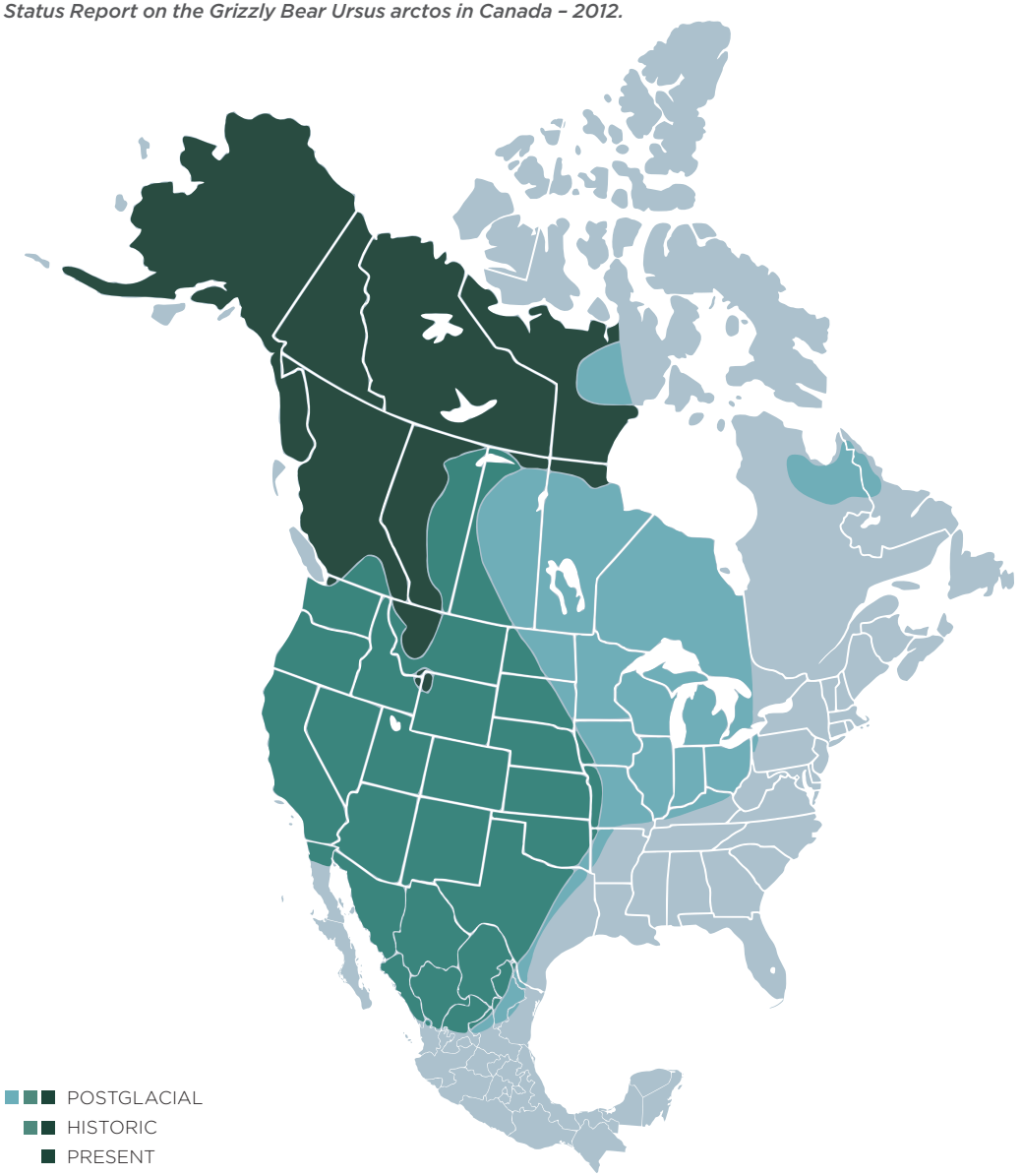
Our knowledge of the issues facing ranchers operating in grizzly country is not complete. We have heard about some of the problems of predation and financial compensation but we do not yet have sufficient information to fully understand the impact of grizzly predation on this industry. This is an area we will pursue.

We have also just begun the process of connecting with organizations and individuals in other jurisdictions such as the Government of Canada, the Government of Alberta, and the American states near our borders (Alaska, Idaho, Montana, Washington, Wyoming) that have grizzly interests similar to ours and whose policies and practices will impact on grizzlies on all sides of the border. Grizzlies do not acknowledge provincial, state or national borders so we must all work together.

We appreciate the generous response to our request for information and advice from so many individuals and organizations. It is clear to us that there is an enormous amount of interest and energy being directed to the future of the grizzly bear. And it is equally clear that there is no one single action or 'player' that can alone guarantee the future of the grizzlies. We need a broad coalition of interests to combine, over a long period of time, to meet our shared objectives. We fully expect the Grizzly Bear Foundation to play a useful role as one of the participants in this worthwhile endeavour.

Figure 1: Shrinking distribution of the grizzly bear during post-glacial, historic and present time.

Sources: Feldhamer, George A., Bruce C. Thompson, and Joseph A. Chapman. Wild Mammals of North America: Biology, Management, and Conservation (2003). Creative Commons Attribution-Share Alike 3.0 Unported; and Government of Canada. COSEWIC Assessment and Status Report on the Grizzly Bear Ursus arctos in Canada – 2012.



B. The Importance of Grizzly Bears

The brown bear *(Ursus arctos)* — which North Americans call the grizzly — is the widest ranging of the world's eight bear species. The brown bear is also found in Asia and Europe.

Grizzly bears arrived in North America from Eurasia as early as 70,000 years ago.[1] Geneticists are still unpicking the details, but it is now thought that various groups arrived during several intervals, some intermingling, some migrating to different parts of the continent at different times.[2] Nonetheless, the fact is that grizzly bears survived major extinctions of the Late Pleistocene period and by the early Holocene they ranged as far east as Ontario, Ohio and Kentucky and as far south as Mexico.[3] But environmental conditions fluctuated through the Holocene, when the south and east colonizing fronts of grizzly distribution likely faced inhospitable conditions and succumbed to extirpation (became locally extinct).[4]

By historic times (i.e., the 19th century), grizzlies were living throughout much of the western half of the contiguous US, central Mexico, western Canada, and most of Alaska.[5] Once Europeans arrived on this continent, the grizzly bear's range suffered in proportion to the number of humans taking over the landscape. Engaging in the fur trade, the gold rush, mining, cattle ranching, forestry, and building dams, settlements and transport routes, these humans and their

1 Mattson, D. All Grizzly.org: **Evolutionary biogeography**.
2 Mattson, D. All Grizzly.org: **Early Prehistory**.
3 Government of Canada (2012). **COSEWIC Assessment and Status Report on the Grizzly Bear Ursus arctos in Canada**.
4 Mattson, D. All Grizzly.org: **The Holocene**.
5 United States Fish and Wildlife Service Grizzly Bear Recovery Office (2011). **Grizzly Bear (Ursus arctos horribilis) 5-Year Review: Summary and Evaluation**.

Table 1: Provincial government's 2012* population estimate by Grizzly Bear Population Unit

**Note: The most recent available. Source:* DataBC.

GRIZZLY BEAR POPULATION UNIT	EST. POP.
Alta	132
Babine	313
Blackwater-West Chilcotin	53
Bulkley-Lakes	439
Cassiar	612
Central Monashee	147
Central Rockies	169
Central Selkirk	188
Central-South Purcells	176
Columbia-Shuswap	346
Cranberry	349
Edziza-Lower Stikine	398
Finlay-Ospika	971
Flathead	175
Francois	55
Garibaldi-Pitt	2
Hart	244
Hyland	231
Kettle-Granby	86
Khutzeymateen	280
Kingcome-Wakeman	199
Kitlope-Fiordland	214
Klinaklini-Homathko	251
Knight-Bute	250
Kwatna-Owikeno	229
Moberly	71
Muskwa	840
Nation	170
North Cascades	6
North Coast	190
North Purcells	234
North Selkirk	265
Nulki	44
Omineca	402
Parsnip	455
Quesnel Lake North	187
Robson	534
Rockies Park Ranges	116
Rocky	538
South Chilcotin Ranges	203
South Rockies	305
South Selkirk	58
Spatsizi	666
Spillamacheen	98
Squamish-Lillooet	59
Stein-Nahatlatch	24
Stewart	358
Taiga	94
Taku	575
Tatshenshini	407
Toba-Bute	116
Tweedsmuir	368
Upper Skeena-Nass	755
Valhalla	88
Wells Gray	317
Yahk	20
GRAND TOTAL	**15,072**

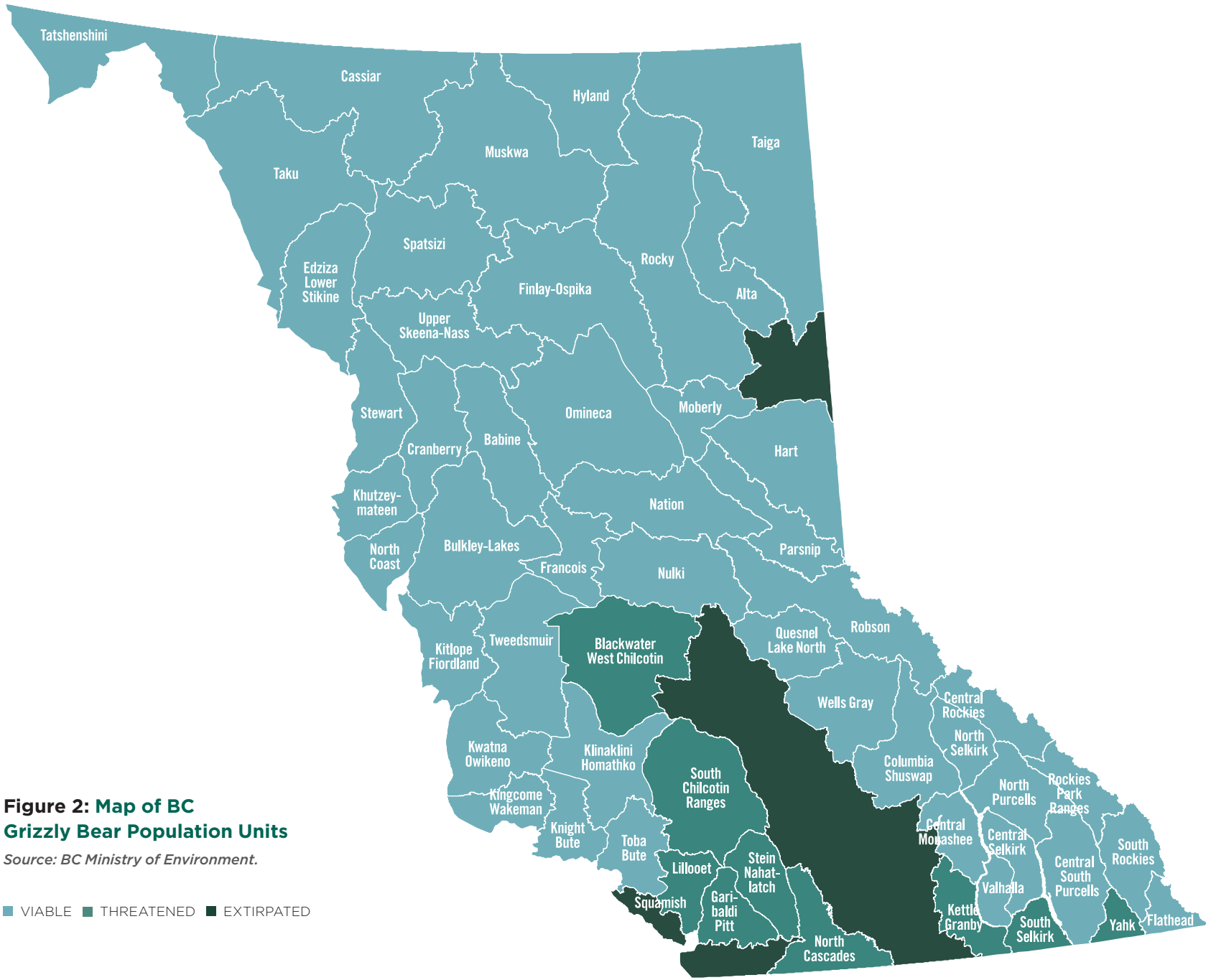


Figure 2: Map of BC Grizzly Bear Population Units

Source: BC Ministry of Environment.

VIABLE THREATENED EXTIRPATED

guns decreased the number of grizzly bears dramatically, reducing their former distribution, as shown in Figure 1 on page 3.

In parts of Canada, grizzly bears were wiped out. The 'Prairie population' — widespread across the Prairies and the non-mountainous boreal regions of Alberta, Saskatchewan and Manitoba prior to European settlement — was designated as extirpated by the Committee on the Status of Endangered Wildlife in Canada in 1991 and was officially listed under the *Species at Risk Act* as such in 2003. Grizzly bears also existed as a relict population[6] on the Ungava peninsula of northern Quebec and Labrador but this population was pronounced extinct in 2012 after not having been documented since 1948.[7]

Today Canada is home to about 25,000 grizzly bears who are widely distributed through the Yukon, the mainland parts of the Northwest Territory, Nunavut and British Columbia, as well as being found in a western portion of Alberta. In the United States, Alaska hosts a large number of grizzly bears (over 30,000) but in the rest of the US there are just five areas within four northwestern states (Idaho, Montana, Washington and Wyoming) that combined support only 1,400–1,700 grizzly bears.[8] British Columbia shares the North Cascades population with Washington state.

The BC government estimates that there are approximately 15,000 bears in the province. Figure 2 on page 5 shows the 56 Grizzly Bear Population Units (GBPUs) that are currently used by the government for conservation and management, land use planning and determining if or how many grizzly bears can be killed by hunters.[9] As illustrated, grizzlies have been extirpated in portions of the province, and other populations are at risk of becoming so. Table 1 on page 4 shows the estimated number of grizzlies in each GBPU.

Ecological

Biologists have consistently emphasized the importance of grizzly bears from an ecological perspective. They are considered an 'umbrella' species because landscapes that can support healthy grizzly bear populations benefit an array of other plants and animals. Grizzlies also play a significant role in a healthy ecosystem. Digging for roots, bulbs, ground squirrels, other small creatures and insects, their long claws (powered by their impressive shoulder muscles) rake and turn over huge areas. Over time, this work uncovers nutrients from lower levels of soil, boosting the diversity and productivity of plant communities. On top of that, through their feces, grizzlies distribute seeds from a range of plants including huckleberries, chokecherries, currants, mountain ash and pine trees.

Grizzly bears who eat fish, particularly salmon, star in another vital natural process. By discarding salmon carcasses grizzlies are part of a predator–scavenger complex that in BC includes at least 23 species of mammals and birds. Scientists know this is how marine nutrients get transferred from streams to shore ecosystems and that these "subsidies"

6 A relict population is a remnant of a population that formerly had a wider distribution.
7 Government of Canada (2012). See *supra* note 3.
8 United States Fish & Wildlife Service. Mountain-Prairie Region: Endangered Species, Mammals, **Grizzly bear**. Accessed 1 February 2017.
9 Province of British Columbia (2010). **Grizzly Bear Hunting: Frequently Asked Questions**. Ministry of Environment.

don't only support many animals but affect the productivity of and may even control the biodiversity of stream-side plant communities.[10]

As British Columbia is home to as many as half of Canada's remaining grizzlies, our stewardship role with regard to their health and long-term well-being is particularly important. This responsibility has long been recognized by the provincial government. A 1995 policy paper entitled "**A Future for the Grizzlies: British Columbia Grizzly Bears Conservation Strategy**" outlines the ways and means government intends to protect and restore grizzly bear populations throughout British Columbia.

In 2002, the government recognized 60 GBPUs and hunting was permitted in 49 of those.[11] Today, there are 56 GBPUs. Nine are closed to hunting because the bear populations there are considered to be 'threatened'. In a further five GBPUs no hunting is allowed due to small population sizes or special designations, leaving 42 units where grizzly hunting takes place. There are additional areas in the province where hunting is not allowed — for example in national parks, certain provincial parks and a few grizzly bear management areas. In total around 35% of the province (not including Vancouver Island, the Sunshine Coast, the Lower Mainland or Haida Gwaii) is closed to grizzly hunting.[12]

The grizzly bear hunt is the most rigidly and conservatively controlled hunt in the province, according to the BC government.

Cultural and Spiritual

The longtime presence of grizzly bears in what is now British Columbia saw them coexisting with BC's first peoples and, indeed, the deep relationships that many First Nations share with the grizzly have been interwoven into their art and mythology. For some nations, the bears are seen as teachers, guides, symbols of strength and even considered as possessing human traits.

Many indigenous communities have grizzly bear houses or clans. For example, the Nuxalk people of Bella Coola believe that the Creator put their ancestors on Earth in various animal cloaks including the grizzly. To this day there is a House of the Grizzly. The Katzie people of the Pitt watershed did not kill grizzly bears for their flesh — although occasionally a hunter might take a grizzly bear for its hide. This custom arose because the grizzly bear is considered one of the helpers of Khaals, an important spiritual figure.[13]

These are just a couple of examples of the enduring cultural and spiritual meaning that the grizzly has for many indigenous people. Indeed, BC's First Nations are amongst the signatories — who together represent over 700 tribal nations from both sides of the Canada–US border — of a document of intertribal solidarity sparked by their opposition to the delisting from the *US Endangered Species Act* (ESA) of the grizzly bears in Greater Yellowstone, which they believe would lead to trophy hunting and destructive land use. As of the writing of this report those who have signed include Canada's former Assembly of First Nations

10 Shardlow, T.F., Hyatt, K.D. (2013). **Quantifying associations of large vertebrates with salmon in riparian areas of British Columbia streams by means of camera-traps, bait stations, and hair samples**. *Ecol. Indicat.* 27 97–107. DOI 10.1016/j.ecolind.2012.11.011
11 Province of British Columbia (2002). **Grizzly Bears in BC – Ecology, Conservation and Management**. Ministry of Water, Land and Air Protection.
12 Province of British Columbia (2010). See *supra* note 9.
13 Katzie First Nation **website**.

James Hart, The Dance Screen (The Scream Too), 2010–13, red cedar, yew wood, abalone, mica, acrylic, 332 x 479 x 35.7 cm. Gift of Michael Audain and Yoshiko Karasawa to the Audain Art Museum. Photo courtesy of Vancouver Art Gallery (Trevor Mills).

***The Dance Screen (The Scream Too)* depicts an ecosystem of creatures who are all dependent on the health of salmon stocks. The iconography of the work stems from traditional Haida beings — a great mother bear, bear cubs (in human form), killer whales, frogs, eagle, raven, beaver, salmon and salmon people — and celebrates the pivotal role of these animals in Haida culture and society.**

National Chief Perry Bellegarde, BC Assembly of First Nations Regional Chief Shane Gottfriedson, and chiefs and councillors from over 40 BC First Nations.[14]

"...the GRIZZLY has been our ancestor, our relative. The GRIZZLY is part of us and WE are part of the GRIZZLY culturally, spiritually and ceremonially. Our ancient relationship is so close and so embodied in us that the GRIZZLY is the spirit of our holistic eco-cultural life-ways," reads **The Grizzly: A Treaty of Cooperation, Cultural Revitalization and Restoration** (The Grizzly Treaty).

Another legal initiative is underway in honour of the grizzly. In December 2016, the Supreme Court of Canada heard its first-ever indigenous freedom of religion case. It was filed by the Ktunaxa Nation Council against the BC Minister of Forests, Lands and Natural Resource Operations. The Ktunaxa assert that the Minister approved a proposed ski resort development in the heart of an area of spiritual significance (Qat'muk) and that this would irreparably harm their nation's relationship with the Grizzly Bear Spirit that resides there, which they consider "an important source of guidance, strength, protection and spirituality".[15]

Regardless of the outcome of that case, there can be no doubt of the spiritual and cultural importance of the grizzly to this nation: "We, the Ktunaxa,...have a deep spiritual connection to the animal world, and in particular, to the grizzly bear.

14 Piikani First Nation. **The Grizzly: A Treaty of Cooperation, Cultural Revitalization and Restoration**. Accessed 7 February 2017.
15 Ktunaxa First Nation **website**.

Qat'muk is a very special place where...the Grizzly Bear Spirit was born, goes to heal itself, and returns to the spirit world," states the Qat'muk Declaration.

Here are some other recent examples of First Nations thought on the role of grizzly bears:

"We, the St'át'imc, recognize grizzly bears as an important umbrella species that needs protection, which in turn will assist us in protecting our cultural heritage on the landscape."

– St'át'imc Chiefs Council Resolution

"Ki?lawana? (grizzly bear) has been integral and critical part of Syilx culture since time immemorial — its presence in Syilx Territory is an indicator of the health of Syilx land and people."

– Okanagan Nation Alliance, Tribal Council Resolution

"...[G]rizzlies... are an integral feature in the culture of First Nations in BC and have an important role in the coastal ecosystem."

– BC Assembly of First Nations Resolution Banning Trophy Hunting of Bears

Economic

There are two commercial industries associated with the grizzly bears of BC. The first, and longest standing, is the guide outfitting industry. Guide outfitters are those whose work involves equipping and/or assisting and guiding clients — largely non-resident tourists — in hunting, fishing and wilderness touring. Together with the resident hunters of the province, these clients generate around $350 million annually in economic activity including hotel and food spending, and equipment and gas sales, according to the government.[16] This figure, however, was questioned in the 2014 Center for Responsible Travel/Stanford University study The Economic Impact of Bear Viewing and Bear Hunting in the Great Bear Rainforest of British Columbia[17] partly because it was a huge leap up from the $48 million reported by BC Stats for 2003 in a 2005 report.[18] To put this in perspective, the overall tourism industry generated $14.6 billion in revenue in 2014.[19]

Resident and non-resident hunters, as well as guides, pay various licence charges and fees that total approximately $7.3 million annually and which go into the Province's general revenue fund and can be used on government programs such as health or education. Most licences also include a conservation surcharge that

WHAT A GRIZZLY BEAR HUNTER CURRENTLY PAYS THE PROVINCE

RESIDENTS OF BC
Wildlife hunting licence: $32
Limited Entry Hunt fee: $6
Species licence: $80
Total: $118

NON-RESIDENTS
Wildlife hunting licence: $180
Species licence: $1,030
Total: $1210

Source: Province of British Columbia (2016). 2016-2018 Hunting and Trapping Synopsis. *Ministry of Forests, Lands and Natural Resource Operations.*

16 Province of British Columbia. Press release, 22 Dec. 2016: "**Wildlife allocations 2017–21 released**". Ministry of Forests, Lands and Natural Resource Operations.
17 Center for Responsible Travel (2014). **Economic Impact of Bear Viewing and Bear Hunting in The Great Bear Rainforest of British Columbia**. Pp 14.
18 Province of British Columbia (2005). **British Columbia's Hunting, Trapping & Wildlife Viewing Sector**. BC Stats.
19 Destination BC. **Value of Tourism 2014**.[20] Piikani First Nation. See *supra* note 14.

is directed to the Habitat Conservation Trust Foundation as part of a conservation funding model that we discuss page 32.

The second commercial industry is bear viewing. This activity has grown exponentially over the past 30 years and is particularly active on the Coast. The economic impact of the commercial bear viewing industry is substantial and has been well documented. The most widely cited being the aforementioned Great Bear Rainforest study that showed bear viewing generated 12 times more visitor spending and 11 times more government revenue than grizzly hunting. Appendix A on page 57, includes some details about the economic contributions of these commercial enterprises through the submissions presented by their representatives at our public meetings in September.

C. Government Responsibilities

The status and future of grizzly bears in our province depends on many individuals, organizations and levels of government, all of which have interdependent roles to play. Governments have particular legal responsibilities for the protection of wildlife including grizzlies.

First Nations Governments

Prior to the arrival of Europeans in BC, First Nations communities had their own laws and their own governments. With the establishment of British colonies, traditional First Nations governments were dismantled and replaced with government structures under the *Indian Act* that were more similar to European models.

Aboriginal rights are protected under the Canadian Constitution. *The Royal Proclamation of 1763* declared that only the British Crown could acquire land from First Nations. That acquisition was usually done through treaties. In BC however, this treaty process was never completed in the same way as it was in other Canadian provinces. Most First Nations had to wait until 1993 to pursue their aboriginal rights through the BC treaty negotiation process. The treaty process has, however, progressed slowly. As a result, a number of First Nations in BC have taken their concerns to court in an effort to resolve long-standing issues of land rights.

In recent years, the Canadian courts have recognized that First Nations have legal rights that have never been extinguished. These rights may eventually include the right to create laws about the use of lands with aboriginal title. At this time, the specific rights and responsibilities associated with their traditional lands and resources are in a period of evolution, but will likely have important economic ramifications for the province, as well as a significant impact on the grizzly bear populations of BC.

There are 203 governments represented by the BC Assembly of First Nations, many of which are also members of Tribal Councils, treaty groups or other alliances. Indeed, BC is noted as having the greatest diversity of aboriginal culture in Canada, according to the federal Ministry of Indigenous and Northern Affairs. It is no surprise, therefore, that First Nations governments are similarly diverse in their approaches to the grizzly bears in their territories.

Many nations, including the **Coastal First Nations Alliance**, have banned trophy bear hunting in their traditional territories. Instead, they have developed bear viewing as an economic pursuit in keeping with their traditions.

The need to recognize the role of the grizzly appears to be resonating with many of North America's indigenous peoples. The Grizzly Treaty that, as mentioned above, has recently been signed by a large number of nations and tribes states that "no hunting of the GRIZZLY — be that categorized as sport or trophy hunting — will be permitted or licensed on any lands our NATIONS hold jurisdiction over".[20]

While nations such as the Tahltan Nation and the Nisga'a Lisims in the northwest of the province do have guide outfitters operating on their territories and offer hunting services including the hunting of grizzlies, others such as the Okanagan Nation Alliance whose territories include areas where the grizzly population is recognized as threatened have committed to help the bear recover using "best available information, practices and scientific knowledge balanced with our Traditional Knowledge and protocols" (Tribal Council Resolution 2014/15 no 292).

Some nations are being proactive. The Kwiakah First Nation is developing a comprehensive grizzly bear recovery strategy in the Phillips River Watershed, to mitigate further ecological damage that would put grizzlies there at risk of extirpation.[21] Both the Homalco and Heiltsuk First Nations are undertaking field research and DNA analyses on grizzly bear populations in their territories. The Homalco are doing so to ensure that sustainable bear viewing is neutral on the grizzlies and the Heiltsuk are as part of research on the impact of salmon availability on bear range, as well as to understand the implications of salmon/bear movement for managing conservancy size and avoiding human–bear conflict.[22]

RECOMMENDATION TO THE GRIZZLY BEAR FOUNDATION

Facilitate a forum with First Nations to consider potential partnership initiatives to secure the status and future welfare of grizzly bears.

The Provincial Government

At the provincial level, grizzly bears are of particular interest to several Ministries and Crown corporations that have relevant statutory responsibilities.

There is no single piece of provincial legislation in BC that covers all the issues related to the protection of wildlife including grizzly bears. We have the *Wildlife Act* that regulates bear hunting. When it comes to industrial development that affects grizzly bears, BC has taken a sector-by-sector approach. *The Forest and Range Practices Act* (FRPA) regulates logging and ranching, and government has designated the grizzly bear as a "species at risk" under its *Government Actions Regulation*. This allows the government to create Wildlife Habitat Areas and require measures that can be used to protect grizzlies, providing that they do not "unduly reduce the supply of timber" and that the benefits outweigh any adverse impact to logging

20 Piikani First Nation. See *supra* note 14.
21 Coast Conservation Endowment Fund Foundation (2016). **Awards summary**. Accessed 5 February 2017.
22 Housty, W.G., Noson, A., Scoville, G.W., Boulanger, J., Jeo, R.M, Darimont, C.T., and Filardi, C.E. (2014). **Grizzly bear monitoring by the Heiltsuk people as a crucible for First Nation conservation practice**. *Ecology and Society* 19(2): 70. DOI: 10.5751/ES-06668-190270.

industry costs.[23] However, such regulation only applies to forest and range practices — not to other industrial or human activities. We also have the *Oil and Gas Activities Act* (OGAA) under which the grizzly is listed as threatened and which also addresses Wildlife Habitat Areas with respect to the oil and gas industry. While these tools are available, there are large portions of the province that do not have any Wildlife Habitat Areas designated for grizzly bears.[24]

There is also the *Park Act* that can be used to protect wildlife including grizzlies, but in many provincial parks grizzly hunting is allowed under certain conditions as specified under the *Wildlife Act*. There is also the *Environmental Assessment Act* that involves assessments of how certain proposed resource-based projects are expected to impact on wildlife including grizzlies.

The Ministry of Forests Lands and Natural Resource Operations (MFLNRO) and the Ministry of the Environment are the major agencies responsible for administering these statutes. In addition, the growing attraction of grizzly bear viewing in the province has sparked the attention of the Ministry of Jobs, Tourism and Skills Development and the Crown corporation Destination British Columbia under the *Destination BC Corp Act*.

In terms of funding research associated with wildlife including grizzlies, there are two major government related initiatives in the province. The first is the **Habitat Conservation Trust Foundation** that is an independent body under the *Wildlife Act*. And the second is the **Fish and Wildlife Compensation Program** administered by BC Hydro, a Crown corporation.

Several provinces such as Alberta and Ontario have provincial Species at Risk legislation. One of the features of such legislation is that it brings together the many legislative threads that together combine to protect wildlife. For the public, this consolidation makes it easier to understand and navigate the complicated processes that determine how effectively provincial wildlife is protected, while for the government, this consolidation facilitates accountability to the public.

Photo by Jim Lawrence* KootenayReflections.com *Cub by River.

By comparison to those provinces, our BC legal framework for the protection of wildlife including grizzlies seems to be fragmented and impenetrable to most citizens of the province. A more accessible regulatory framework would invite more public dialogue and would help shape the Province's approach to the stewardship of wildlife, including the grizzly, which in turn would help define the scope and urgency of funding related to such stewardship.

23 Government Actions Regulation, **BC Reg 582/2004**. Accessed through BC Laws on 24 January 2017.
24 Province of British Columbia. **Approved Wildlife Habitat Areas (WHAs)**. Accessed 24 January 2017.

We expect that this regulatory and administrative system is one dimension associated with the status and future of the grizzly bear that might be highlighted in the Auditor General's report on the Province's grizzly bear management due to be published this Spring. Regardless, the Board of Inquiry is of the view that BC should reassess its regulatory framework and strive to develop a wildlife stewardship model that is Canada's best.

Local and Regional Governments

At the local and regional levels of government, the involvement with grizzly bears is largely related to human-bear conflict management. Local and regional governments have the authority to enact bylaws to deal with bear attractants (such as garbage disposal) that can have a major impact on human–bear interactions. In addition, they are encouraged to participate in Bear Smart, Bear Aware and WildSafe initiatives that reduce the likelihood of serious conflict between humans and bears in communities living in close proximity to black and grizzly bears. While local and regional government bylaws might appear to be statutory authorities of lesser significance than those at the provincial and federal levels, the fact is that they are essential to the effective management of human–bear issues at the community level.

The Federal Government

At the federal level, there are two agencies that have responsibilities of particular relevance to grizzly bears. One is Parks Canada. Grizzly bears are protected from hunting in national parks and there is important research being conducted in national parks about the status and future of grizzlies in our province and in Alberta. The other is the Canadian Wildlife Service, which is responsible for administering the *Species at Risk Act* (SARA) that provides the federal legislative framework for the protection of endangered and threatened species in Canada.

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) uses scientific knowledge to classify wildlife species as extinct, extirpated (extinct at a local population level), endangered, threatened or of special concern. SARA requires the government of Canada to take COSEWIC's designations into consideration when establishing the legal list of wildlife species at risk.[25] COSEWIC has assessed the population that includes BC's grizzly bears (now known as the Western population) as of "Special Concern" in 1991, 2002 and 2012.

Fisheries and Oceans Canada is yet another federal agency that has special relevance to the grizzly in our province. This agency holds federal responsibility for the *Fisheries Act* that includes the regulatory framework for the salmon fishery. Salmon is an essential nutrient for coastal grizzly bears.

Last but not least of the major federal statutes that have a significant impact on grizzlies is the *Canadian Environmental Assessment Act* that requires proponents of major projects to identify the likely environmental impacts on wildlife of those projects. There have been several recent examples — such as large scale resource projects like the New Prosperity Mine — of how this process can impact grizzlies in BC.

25 Government of Canada. Committee on the Status of Endangered Wildlife in Canada. About COSEWIC: **Brief History**. Accessed 2 February 2017.

2

Photo by Jim & Doria Moodie

Our Assessment of the Threats

Based on the input we received and additional information to which we were directed, in this section we summarize the chief threats we see to the welfare and future of BC's grizzly bears. We also identify areas in which the Grizzly Bear Foundation may be able to make a contribution. These threats are: habitat issues, parks and grizzly security, human-grizzly conflict and provincial government management issues.

A. Habitat Issues

Through all the input received and research we read, we realized that there are numerous complicated challenges involved in attempting to ensure that grizzlies have access to the large territories that permit them to thrive. It became clear to us that there are many competing land use priorities that have the potential to threaten the long term survival of our grizzly bears.

Human Impact on Grizzly Landscapes

Large-bodied ramblers with attendant high food energy needs, omnivorous grizzly bears don't actually have just one habitat but instead call whole landscapes their home. They range over hundreds of square kilometres as they seek the seasonal foods found in forest openings and young forests or on avalanche chutes before moving on to spots with enough energy-rich foods like berries or salmon to gorge on so that they can become biologically ready to hibernate deep in mature forests.

However, despite the widespread perception that BC has plenty of wild untouched places, the timber industry, hydro dams and other energy infrastructure, agriculture, human settlements and recreation have brought our expanded human footprint into many formerly natural areas. Even when a part of their landscape is not lost altogether, increased proximity to people can alienate grizzly bears from such sections of land, or else put their security at risk if they dare to tread in these places.

Grizzly bears are rather unique creatures. Their size and related energy needs are such that their adaptability and omnivorous needs see them living in not just one habitat but conducting their lives over a whole landscape.

Grizzly bears are known to be creatures of habit, usually returning to the same seasonal food sources and areas throughout their lifetimes.[26] So, this loss and alteration of their complex mosaic of habitat is challenging enough, yet our search to expand access to resources and recreational activities also means that progressively more roads split through grizzly bear landscapes. Growing road networks not only increase the risk of bears being struck by vehicles but allow more people easier access to the wilderness, raising the chances of human–bear contact that leads to conflict, hunting and poaching kills.

"There are over 600,000 kilometres of resource road in BC (enough to drive from Vancouver to Halifax and back 50 times). This enormous legacy is growing — on the order of 10,000 kilometres is being added every year. Over 75 percent of resource roads were built by the forest industry..."

"Over half the resource roads are not being maintained. Much of that unmaintained road has been deactivated, but there is still potential for some of those roads to cause environmental damage and some continue to provide unintended access."

– *Source: Forest Practices Board "*Access Management and Resource Roads: 2015 Update*".*

Further, more barriers like highways, as well as agricultural lands and settlements in mountain valleys, can leave grizzly bears stuck on a certain 'island' of land. This fragmentation keeps females from emigrating into other populations where they might be needed to maintain minimum population numbers, and prevents male and female dispersal, limiting genetic variability. When a population becomes isolated it will be much less resilient to natural or human-caused shocks as its bears cannot go exploring other landscapes in search of new resources.[27] In southern BC, this type of fragmentation of grizzly bear landscapes is recognized as a serious threat to the sustainability of certain populations (for details, see section 1 of Appendix A page 57).

RECOMMENDATION TO THE GRIZZLY BEAR FOUNDATION

In collaboration with recreation groups, clubs and commercial operators, undertake a study regarding the impact of access to the backcountry and propose strategies for the protection of sensitive grizzly bear habitat.

Parks and Grizzly Bear Security

In our public meeting process we discovered that a lot of people are thoroughly surprised to learn that hunting of grizzly bears is permitted in many of BC's provincial parks. It is disheartening to realize that this means that although quality habitat is there, security for grizzly bears is not. In contrast, no hunting is permitted in Canada's national parks, including those in our province.

26 Gyug, L., Hamilton A., and Austin, M. (2004). **Grizzly Bear — Accounts and Measures for Managing Identified Wildlife**. BC Ministry of Water, Lands and Air Protection.
27 Proctor, M.F., Paetkau, D., McLellan, B.N., Stenhouse, G.B., Kendall, K.C., Mace, R.D., Kasworm, W.F., Servheen, C., Lausen, C.L., Gibeau, M.L. and Wakkinen, W.L. (2012). **Population fragmentation and inter-ecosystem movements of grizzly bears in western Canada and the northern United States**. *Wildlife Monographs*, 180(1), 1-46. DOI: 10.1002/wmon.6.

Using data that the Province requires every hunter to supply, in 2010 the David Suzuki Foundation mapped out the locations where 10,811 of BC's grizzlies were killed by humans from 1977 to 2009 (of those, 9,484 were legally killed by hunters). By overlaying the kill sites on a map of provincial park boundaries, the foundation showed that from 1977 to 2008 at least 547 grizzlies were killed by hunters in 60 provincial parks, wildlife management areas, ecological reserves and conservancies. Northern Rocky Mountains Provincial Park topped the list at 98 grizzly kills, followed by Spatsizi Plateau at 73, Purcell Wilderness at 53, and Tatshenshini-Alsek at 45.[28]

BC has taken steps to protect the grizzly habitat in some areas, including by banning certain resource-extraction activities. However: "What we have is a parks system that protects bear habitat, but which doesn't protect the bears themselves," **noted Faisal Moola**, the Suzuki Foundation's director of terrestrial conservation at the time.

The Board of Inquiry was disappointed to note that BC Parks' commitment to wildlife was not sufficiently reflected in its **Future Strategy**. We are of the view that all provincial parks inhabited by grizzly bears ought to be sanctuaries for them.

OPTIMAL GRIZZLY LANDSCAPES:

- **Roadless**
- **A mosaic of areas hosting young plant communities and natural forest clearings**
- **Close to denser forest that offers grizzlies cover for hiding and shade for their day beds**

Bear Food Challenges

Threats to grizzlies are often interrelated. For example, bears can suffer nutritionally and energetically[29] if they are displaced or alienated from their optimal food sources due to human development or recreational activities. This is of particular concern for females, as they tend not to range as far as do males and thus have fewer food source choices.

We also heard about other problems that can arise with food supplies. In BC, grizzly bear diets (plural here because what grizzlies eat differs biogeographically) rely on an array of foods including sedges, grasses, tubers, roots and heavily on wild berries and salmon. These latter two are of primary importance because they are high-energy foods that the bears crave in the prehibernation season.

A prevailing concern shared with us was about poor berry plant production and how in some years it can fail entirely. This annually variable food supply is relatively natural and a female grizzly's body is evolutionarily equipped to respond by absorbing embryos in late fall if she has not built reserves of >20–24% body fat so as to not endanger her survival. Nonetheless, a lack of berries in a place where the number of bears is already declining may, on the long term, push up the risk of extirpation. Researchers know that berries in the Pacific Northwest are quite sensitive to temperature and rainfall at certain times of the growing season, and some

28 Gailus, J., Moola, F. and Connolly, M. (2010). **Ensuring a Future for Canada's Grizzly Bears**. David Suzuki Foundation.
29 Fortin, J. K., Rode, K. D., Hilderbrand, G. V., Wilder, J., Farley, S., Jorgensen, C., & Marcot, B. G. (2016). **Impacts of Human Recreation on Brown Bears (Ursus arctos): A Review and New Management Tool**. *PloS one*, 11(1), e0141983. DOI: 10.1371/journal.pone.0141983.

have begun working on models for berry crop forecasting[30] that would enable people to prepare for crop failures that leave grizzly bears hungry and thus more likely to get into trouble by seeking food in human domains. An uncertainty here, of course, is the impact of climate change.

Photo by Mick Thompson. Grizzly Bear with salmon, Atnarko River, Tweedsmuir South Provincial Park, BC. Declining salmon runs and human overexploitation can leave mother grizzlies short on nutrients, reducing birth rates.

Logging can also impact bear food supplies. In terms of berries (**many types** of which grow in BC), recently cut forests might have the potential to become berry abundant because berries require the light of open canopies. However, the manner in which timber companies disturb the soil (using heavy machinery and often herbicides[31]) and replant logged areas reduces the likelihood that native grizzly plant foods will thrive there. It also increases the chances that tenacious weeds like thistle will take over.[32] On the topic of soils, we were repeatedly told that because of a social fear of wildfire — which arose due to the prioritization of timber stocks, agricultural land and other property — fire suppression has become too predominant with land management no longer including adequate natural fire or prescribed burning. This is recognized as having altered the ecological condition of the province's forests (and grasslands), impacting fire-tolerant berry shrubs and other plant communities.[33]

The state of BC's salmon stocks also came up as a key concern for the well-being of many of the province's grizzly bears. The alteration, disruption and destruction wrought by urban development, agriculture and resource exploitation has already long been causing the deterioration of many watersheds and impacting salmon habitat. And now the rising temperature of BC's streams and rivers — due to removal of shade by timber clear cut and the impact of climate change — is a further worry for the province's salmon runs,[34] which grizzlies often already have to share with over-exploitive commercial fisheries.

The Department of Fisheries and Oceans Canada's **Wild Salmon Policy** recognizes the need for fisheries management to transcend salmon 'production' alone and consider the needs of terrestrial species. The Raincoast

30 Holden, Z.A, Kasworm, W.F., Servheen, C. and Dobrowski, S. (2012). **Sensitivity of Berry Productivity to Climatic Variation in the Cabinet–Yaak Grizzly Bear Recovery Zone, Northwest United States, 1989–2010**. *Wildlife Society Bulletin*, 36: 226–231. DOI: 10.1002/wsb.128.

31 Canadian Forest Service. Technical Note No. 112: **Frequently Asked Questions On the Use of Herbicides in Canadian Forestry**.

32 Van Tighem, K. (2013). **Bears Without Fear**. Rocky Mountain Books.

33 Holt, R.F. (2001). **Strategic Ecological Restoration Assessment (SERA) of the Prince George Forest Region**: Results of a Workshop. Ministry of Environment Habitat Branch.

34 Takashi Gomi, T., Moore, R.D. and Dhakal, A.S. (2006). **Headwater stream temperature response to clear-cut harvesting with different riparian treatments, coastal British Columbia, Canada**. *Water Resources Research* Vol. 2. DOI: 10.1029/2005WR004162.

Conservation Foundation notes: "For this policy to be meaningful however, it requires fisheries managers to consider bears and wildlife by lowering catches and allowing more salmon to reach the rivers to spawn."[35]

Other ecological problems can affect grizzly food. Grizzly bears are known to feed on whitebark pine seed caches buried in the ground by a bird called the Clark's nutcracker. Whitebark pine, a tree species found at upper subalpine elevations, has sadly been victim of the combined impacts of white pine blister rust (a fungus), mountain pine beetle, climate change and fire exclusion/suppression. In 2012, the federal government added whitebark pine to Schedule 1 (endangered) under the *Species at Risk Act*.

Due to the vastness of the province and the geographic and ecological complexity of grizzly bear landscapes, these examples are in no way exhaustive.

The fact that 94% of BC is Crown land and as such is under the jurisdiction of the provincial government presents some unique problems and possibilities with regard to grizzly bear habitat and food challenges. On the one hand, many people are of the view that they should have generous access to Crown land for recreation as it is "government land", that is to say that it belongs to the people of the province. These expectations may not take into account the impact of unrestricted public access to critical bear habitat.

On the other hand, the fact that so much territory is under the control of the provincial government also means that there are real opportunities for careful planning and control of these lands for multiple purposes including the protection of grizzly bear habitat. It also needs to be noted that recent court decisions on First Nations involvement in managing the natural environments on their traditional territories is yet another critical factor in land use planning in the province.

We certainly recognize that many of the issues involved in grizzly bear food challenges are also "macro" in nature (climate change, growing industry, overfishing and aquaculture implications) and have a multi-pronged impact on our natural world and society. While solutions to these macro challenges will be very long-term and will most certainly outreach the purview of a grizzly bear management strategy, the grizzlies' plight in this respect points to the need to prioritize the challenges that we can impact significantly in the short term.

In the end, while the known adaptability of grizzly bears suggests that habitat or dietary factors alone may not cause the loss of BC's grizzly bears, food is nonetheless a prime motivator of their behaviour. Thus another danger is how habitat and food stresses can provoke a dangerous intersection with the next threat that we will discuss — what happens when grizzlies clash with people.

RECOMMENDATION TO THE FEDERAL GOVERNMENT

Salmon provide extremely important nutrient subsidies to terrestrial plant and animal communities, including grizzly bears. In preparing its implementation plan for the Wild Salmon Policy, we recommend that the Department of Fisheries and Oceans explicitly consider in its allocation formula the nutritional needs of grizzly bears, a keystone species in the predator-scavenger complex that uses and distributes marine nutrients.

35 Raincoast **website**. Accessed 20 January 2017.

B. Human–Grizzly Conflict

Grizzlies can live for 30 years but, in areas with considerable human–bear interface, people cause the deaths of over 80% of grizzly bears.

Human-caused mortality is by far the greatest source of mortality for grizzlies. It is also the chief factor limiting grizzly bear populations other than major energy foods. In BC, every year there are an average of 326 human-caused grizzly deaths with the majority of those (264) being hunter kills.[36] (For more about the grizzly bear hunt, please refer to section 3 of this report on page 39.) And these numbers do not include the unreported kills associated with poaching and killings that remain ambiguous in nature because the individuals involved prefer to "shoot, shovel and shut up". Much concern over these human-caused deaths was expressed to us at the public input sessions held by the Board of Inquiry as well as in meetings and conversations with provincial public servants and independent biologists.

Further, a large number of people spoke about the many grizzly bears shot "in defence of life or property". We learned that the non-hunt mortality problem is complex and significant, largely because it has roots in human psychology, values and attitudes and, in some circumstances, in economics. But we were also encouraged to hear from people dedicated to understanding bear behaviour and educating others and assisting communities and agricultural businesses to adopt tried and true non-lethal means of keeping grizzly bears from meeting death unnecessarily.

Also amongst non-hunt mortality are the grizzlies who are struck by trains and vehicles. The table on page 21 details the number and types of known grizzly deaths in 2015.

What Underlies the Difficulties in Human–Bear Relations?

Prior to European arrival in what is now Canada, First Nations had long shared the land with the grizzlies. When Europeans arrived, they came with a pioneering attitude and the conviction that survival required human domination over nature. As the newcomers knew little about grizzly bears except the aggression they were capable of, these creatures became the ultimate symbol of the dangers entailed in the process of settling wild places, and their latent ferocity became the central myth.

Thus, thanks to our evolutionary drive to survive, North Americans spent several hundred years refusing to tolerate the presence of this potentially dangerous species, which is precisely how grizzly bears were wiped out from most of this continent. In this context, British Columbia's progress over the past 40 years in halting such widespread extinction is a remarkable accomplishment. There remains much to be done to secure the future of the grizzlies but we must acknowledge how much dedication and solid work have been expended to protect and restore grizzly populations by the provincial government in conjunction with many community partners.

36 MFLNRO. Submission to the Grizzly Bear Foundation Board of Inquiry, October 2016.

Table 2: Known grizzly bear deaths in 2015

Source: Ministry of Forests, Lands and Natural Resource Operations, 2016/2017.

GRIZZLY BEAR POPULATION UNIT	POPULATION ESTIMATE	AUTHORIZATIONS ISSUED*	SPECIES LICENCES SOLD	HUNTER KILLED	ILLEGALLY KILLED	NON-HUNT MORTALITY	TOTAL MORTALITY	STATUS	REASON FOR STATUS (POPULATION ESTIMATE)
Extirpated GBPUs	N/A	N/A	N/A	N/A	1	4	5		
Alta	132	17	10	1			1	Viable	
Babine	313	110	41	1		1	5	Viable	
Blackwater-West Chilcotin	**53**	**N/A**	**N/A**	**N/A**			**0**	**Threatened**	**<50% of carrying capacity**
Bulkley-Lakes	439	96	52	11		3	14	Viable	
Cassiar	612	177	97	13			13	Viable	
Central Monashee	147	10	8	1			1	Viable	
Central Rockies	169	32	29	3			3	Viable	
Central Selkirk	188	38	23	5			5	Viable	
Central-South Purcells	176	15	8	1		5	6	Viable	
Columbia-Shuswap	346	69	41	3		1	4	Viable	
Cranberry	349	99	36	5			5	Viable	
Edziza-Lower Stikine	398	82	32	3			3	Viable	
Finlay-Ospika	971	469	122	16		1	17	Viable	
Flathead†	175	3	2	1			1	Viable	
Francois‡	**55**	**N/A**	**N/A**	**N/A**	**1**		**1**	**Viable**	
Garibaldi-Pitt	**2**	**N/A**	**N/A**	**N/A**			**0**	**Threatened**	**<50% of carrying capacity**
Hart	244	11	10	5	3		8	Viable	
Hyland	231	69	29	3			3	Viable	
Kettle-Granby†	**86**	**N/A**	**N/A**	**N/A**			**0**	**Threatened**	**<50% of carrying capacity**
Khutzeymateen	280	N/A	N/A	N/A			0	Viable	
Kingcome-Wakeman	199	38	9	1			1	Viable	
Kitlope-Fiordland	214	25	5	0			0	Viable	
Klinaklini-Homathko	251	9	6	2			2	Viable	
Knight-Bute	250	21	6	4			4	Viable	
Kwatna-Owikeno	229	17	3	1			1	Viable	

GRIZZLY BEAR POPULATION UNIT	POPULATION ESTIMATE	AUTHORIZATIONS ISSUED*	SPECIES LICENCES SOLD	HUNTER KILLED	ILLEGALLY KILLED	NON-HUNT MORTALITY	TOTAL MORTALITY	STATUS	REASON FOR STATUS (POPULATION ESTIMATE)
Moberly‡	**71**	**N/A**	**N/A**	**N/A**			**0**	**Viable**	
Muskwa	840	224	122	18		4	22	Viable	
Nation	170	54	32	3	1		4	Viable	
North Cascades	**6**	**N/A**	**N/A**	**N/A**			**0**	**Threatened**	**<50% of carrying capacity**
North Coast	190	79	32	4			4	Viable	
North Purcells	234	53	41	3		1	4	Viable	
North Selkirk	265	59	40	5			5	Viable	
Nulki‡	**44**	**N/A**	**N/A**	**N/A**		**1**	**1**	**Viable**	
Omineca	402	201	88	10			10	Viable	
Parsnip	455	266	121	7		1	8	Viable	
Quesnel Lake North	187	46	27	4			4	Viable	
Robson	534	195	95	9			9	Viable	
Rockies Park Ranges	116	2	2	2		2	4	Viable	
Rocky	538	109	73	11			11	Viable	
South Chilcotin Ranges	**203**	**N/A**	**N/A**	**0**		**1**	**1**	**Threatened**	**<50% of carrying capacity**
South Rockies†	305	15	13	9		9	18	Viable	
South Selkirk	**58**	**N/A**	**N/A**	**0**		**1**	**1**	**Threatened**	**<50% of carrying capacity**
Spatsizi	666	221	92	21			21	Viable	
Spillamacheen	98	19	17	2			2	Viable	
Squamish-Lillooet	**59**	**N/A**	**N/A**	**N/A**			**0**	**Threatened**	**<50% of carrying capacity**
Stein-Nahatlatch	**24**	**N/A**	**N/A**	**N/A**			**0**	**Threatened**	**<50% of carrying capacity**
Stewart	358	77	31	8		1	9	Viable	
Taiga‡	**94**	**N/A**	**N/A**	**N/A**			**0**	**Viable**	
Taku	575	139	82	13		2	15	Viable	
Tatshenshini	407	104	41	7			7	Viable	
Toba-Bute‡	**116**	**N/A**	**N/A**	**N/A**			**0**	**Viable**	
Tweedsmuir	368	57	28	2		1	3	Viable	
Upper Skeena-Nass	755	93	35	6			6	Viable	

GRIZZLY BEAR POPULATION UNIT	POPULATION ESTIMATE	AUTHORIZATIONS ISSUED*	SPECIES LICENCES SOLD	HUNTER KILLED	ILLEGALLY KILLED	NON-HUNT MORTALITY	TOTAL MORTALITY	STATUS	REASON FOR STATUS (POPULATION ESTIMATE)
Valhalla	88	4	3	1			1	Viable	
Wells Gray	317	45	26	2	1		3	Viable	
Yahk	**20**	**N/A**	**N/A**	**N/A**		**2**	**2**	**Threatened**	**<50% of carrying capacity**
Outside current GBPU Boundaries	N/A	N/A	N/A	N/A		2	2		
GRAND TOTAL	**15072**	**3469**	**1610**	**230§**	**7**	**43**	**280**		

Notes:

* This includes only resident hunter figures as non-residents receive permission to purchase a grizzly licence via the quota allotted to the guide outfitter that they hire, figures for which are not available by GBPU. The number of authorizations issued is to maximize opportunities for resident hunters within their allocated share of the "annual allowable harvest" (permissible number of legal kills). The allowable harvest of grizzly bears during the 2012-2016 allocation period was 2,866, or 573 per year, which equates to 3.8% of the provincial population estimate (15,000) annually. The anticipated allowable harvest of grizzly bears during the 2017–2021 allocation period is 2,884, or 577 per year.

† MFLNRO staff told us that since 2015 there have been some population declines in parts of the East Kootenays (South Rockies GBPU and Flathead GBPU), however it appears that some populations in the West Kootenays (Kettle Granby GBPU) have increased. However, they say, the population estimate for the province will likely remain very close to 15,000.

‡ These GBPUs are closed to hunting "as the conservation risk of hunting such small populations is deemed unacceptably high".[37]

§ Of the total hunting 2015 mortality of 230 grizzly bears, resident hunters killed 164 and non-resident hunters killed 66.

Photo by Mick Thompson. Grizzly Bear in the brush. Atnarko River, Tweedsmuir South Provincial Park, BC.

37 Austin, M.A., Heard, D.C., Hamilton, A.N. (2004). **Grizzly Bear (Ursus arctos) Harvest Management in BC**. British Columbia. Ministry of Water, Land and Air Protection.

Today, based on differing value systems and experiences, views on killing grizzlies diverge and vie for attention (as illustrated in Appendix A: What We Were Told on page 57). Yet a resounding majority of those giving us their input agreed that reducing human–grizzly conflict remains an important endeavour. For, despite the progress made since grizzlies were considered and exterminated as 'vermin', human–bear relations still get seriously tested when grizzly bears lumber out of the wild seeking food on farms, ranches or in backyards. With BC's ongoing human population growth and spreading development, grizzlies will continue losing core food resource-rich habitat. The implications of this threat are worrisome because bears who visit communities set amidst the fringes of the wilderness are at risk of ending up dead.

It is common for people to suspect that such ursine visitors have become 'problem/ nuisance' bears who pose and will continue to a pose danger. We also heard people living in areas prone to this phenomenon voice the belief that a rise in such incursions means that the local bear population has grown. Either of these assumptions, while often not correct, might prompt a decision to relocate grizzlies or lead to a conclusion that a bear-lethal solution is best.

One of BC's grizzly scientists has been convinced by her work with grizzlies that "these charismatic megafuna are much more willing to live with us than we are with them", Lana Ciarniello noted in the acknowledgements to her doctoral thesis.

At worst, such a response risks causing harm (i.e., a decline in the bear population) even though the underlying issue is likely ecological, or in terms of human behaviour, a failure to secure attractants. Indeed, evidence is emerging showing that the biggest driver of human–grizzly bear conflict is reduced natural food supply[38] and readily-available human food attractants.[39]

In addition, no matter the driver, we learned that science indicates that current practices for dealing with conflict are only temporary solutions that are unlikely to decrease future conflicts. How relocation or killing of a 'problem' bear affects the social dynamics of the local grizzly population is complex enough — for example, two more human conflict-prone juvenile males might move in if a dominant male is removed or killed. But, more importantly, evolutionary biology suggests that killing bears who choose to dine in places that have suddenly (on an evolutionary time-scale) become human-dominated will do nothing to keep bear after bear from making the same blunder. Dead bears cannot learn anything to teach to their cubs. The same applies to bears suffering road and rail deaths — many grizzlies will continue opting for spring forage along roadsides or to eat spilled grain on train tracks despite the danger that they will end up fatally hit as many of their forbearers were.

Conflict mortality happens in the backcountry too, as this category includes grizzlies killed on their wilderness landscapes by people who were not actually hunting them. Grizzly bears end up dead in confrontations with ungulate (elk, deer, moose) hunters or when shot mistakenly by black bear hunters. Why do grizzly bears get killed in the wild like this? Researchers say that grizzly bears seem to

38 Artelle, K.A., Anderson, S.C., Reynolds, J.D., Cooper, A.B., Paquet, P.C., and Darimont, C.T. (2016). **Ecology of conflict: marine food supply affects human-wildlife interactions on land**. *Nature Scientific Reports* 6:25936 DOI: 10.1038/srep25936.

39 Personal communication with Michael F. Proctor, Trans-border Grizzly Bear Project.

be genetically hard-wired to deal with perceived threats aggressively, so when hunters or trappers surprise grizzlies on their territory it is a recipe for trouble.

Food attractants can also be an additional driver here. We heard anecdotal accounts from hunters who believe that grizzly bears in the BC Interior have come to associate the sound of gunshots with hunter-generated prey carcasses or carrion. Ungulate hunters often butcher their prey in the bush and pack out the meat, leaving behind the entrails and other unwanted parts. Unfortunately, bears sometimes arrive whilst the hunters are still present. When we asked hunters and trappers whether they carried bear spray in case of such situations, almost all told us that they would prefer, or feel more secure, using their guns. This may seem reasonable but the science has demonstrated that bear spray actually offers better protection.[40] Again here, the death of a bear will not teach other bears to fear hunters. Indeed, it's easy to imagine that a grizzly attracted to gunshots may be one who was in the past lucky enough to encounter a pile of elk guts left behind by a hunter.

In the backcountry, poachers too are a growing threat as road densities increase — a concern highlighted by many of the researchers and lay people who shared their views with us. Despite BC's 1993 ban on trade in bear parts, a black market demand endures. Poaching is something that is difficult to quantify and thus combat. The government's calculation for setting grizzly hunting maximums first deducts the average number of non-hunting kills, which includes an estimate of the unreported kill rate for each Grizzly Bear Population Unit. To arrive at an unreported kill rate, the computations take into account the estimated relative number of people with firearms that spend time in grizzly bear habitat in the area in question.[41]

RECOMMENDATIONS TO THE GRIZZLY BEAR FOUNDATION

• Support efforts to address attractants at the local level by producing a Model Bylaw Toolkit that governments can tailor for implementation in their own municipality or region.

• Launch an outreach program to strengthen knowledge-sharing amongst those engaged in grizzly bear-focussed activities throughout BC. Augment the knowledge base about what can best secure the future of the province's grizzly bears. Report back to the public annually about the most effective initiatives across the province.

RECOMMENDATIONS TO BC LOCAL AND REGIONAL GOVERNMENTS

•Institute measures to reduce attractants in public spaces and parks.

• Work to increase the number of communities that are pursuing Bear Smart status.

• Introduce and enforce bylaws regarding attractants.

40 Smith, T. S., Herrero, S., Layton, C.S., Larsen, R.T. and Johnson, K.R. (2012). **Efficacy of firearms for bear deterrence in Alaska**. *The Journal of Wildlife Management*, 76: 1021–1027. DOI:10.1002/jwmg.342

41 McLellan, B.N., Hovey, F.W., Woods, J.G. (2000). **Rates and Causes of Grizzly Bear Mortality in the Interior Mountains of Western North America**. BC Ministry of Environment, Lands and Parks and University College of the Cariboo.

Social Challenges and Solutions

Obviously, since the grizzly behaviours that lead to conflict are not something we can simply ask the bears to refrain from exhibiting, the onus rests on homo sapiens to figure out and mitigate this threat.

In terms of human settlements, what must first be considered, we learned, is that there is a "social carrying capacity" for bears in most communities. In other words, there are only so many grizzly bears local people or food producers may be willing to deal with. When grizzly bears kill livestock, destroy beehives or are seen in backyards, people can be left feeling insecure, either physically, financially, or both. While effective equipment exists to deter bears from urban temptations, agricultural property and hunter camps, the cost of these can be an obstacle. In addition, when a grizzly actually does attack a person, the outcome can be very serious or fatal. Government records show that over a 29-year period from 1987–2016 there were six grizzly-caused human fatalities in BC.[42] Clearly, people living near grizzly bears need to feel safe if we expect them to accommodate the presence of the grizzlies. When people feel safe they are less likely to shoot grizzly bears on sight.

There can be an attitudinal link to hunting as well. Based on input we received, it became clear to us that reductions in the number of grizzly bears the government determines can be hunted, or even media coverage of anti-hunting perspectives, can leave rural people feeling as if their problems and needs are unaddressed. This is particularly true if people's livelihoods are tied directly or indirectly to hunting. Commenters also remarked that that the tenor of a lot of the anti-grizzly hunt discourse can make even hunters who don't hunt grizzly bears fear that other wildlife may also soon become the object of calls for bans. This is the "thin edge of the wedge" — a worry among some hunters that if grizzly bear hunting is abolished, eventually all hunting will be abolished.

Listening to communities and working collaboratively with them to find the appropriate tools and incentives so that they feel safe is key, we were told by people specialized in grizzly bear–human coexistence. BC and Alberta have intensive wildlife conflict management programs and education initiatives that have raised tolerance levels and saved grizzly lives while also boosting public safety. For example, through the BC Ministry of Environment's Bear Smart Communities Program, experts work with provincial and local governments to not only provide clubs, schools and individuals with information but also offer hands-on training and guidance to municipalities and business employers/managers, assisting them in implementing sustainable wildlife conflict management and mitigation strategies.

On this topic we are also very interested in a research, education and management project done under the BC Hydro Fish and Wildlife Compensation Program that was brought to our attention by the project's coordinator at our Vancouver public meeting. Undertaken in a community located extremely close to a kokanee spawning channel constructed after the Duncan River was dammed, this project offers invaluable evidence on non-lethal bear management as well as on effective social change techniques. One of the many crucial things we gleaned from this research was that cost-sharing initiatives such as loans of bear-resistant bins for garbage or livestock

42 Personal communication with Anthony Hamilton, Large Carnivore Specialist, BC Ministry of Environment.

feed and subsidies to help with the cost of electric fencing go a long way in building community capacity for attractant management.

The Board of Inquiry is of the view that it would be useful for the Grizzly Bear Foundation to focus some major efforts on the issue of human-bear conflict. There are a number of very promising initiatives currently underway and we believe the Foundation could play an active role in assisting those groups to extend their reach. Additional initiatives that are currently unfunded might also be considered.

RECOMMENDATIONS TO THE GRIZZLY BEAR FOUNDATION

• Prepare, publish and distribute material for elementary school children about grizzly bears in BC. Solicit the collaboration of educational experts, bear biologists, illustrators and appropriate school curriculum officials.

• Formulate and deliver a demonstration project to highlight the use of electric fences and bear spray in strategic locations. Do so in partnership with an existing local coexistence organization. Develop and circulate a Best Practices Guide on the basis of this work.

C. Provincial Government Management Issues

The provincial government is tasked with the responsibility for putting into place the necessary regulatory and management framework for the protection of grizzly bear populations in BC. During the course of our inquiry we have heard about the dedication, hard work, experience and skill of the many public servants who are responsible for implementing that framework.

Over the past 30 years, some important initiatives have been undertaken by the Province to protect the bears. For example, in 1984 the government established a large no-hunting zone in the Khutzeymateen Valley on BC's north coast. This was later expanded and, in 1994, became Khutzeymateen/K'tzim-a-deen Grizzly Bear Sanctuary, a Class A Provincial Park — the first area in Canada to be protected specifically for grizzly bears and their habitat. In 2008, two areas of the Khutzeymateen Inlet were identified for conservancy status during negotiations between the Province and First Nations governments following the North Coast Land and Resource Management Plan. In addition, the lands adjacent to the protected areas were closed to grizzly bear hunting as were two other coastal zones.

Photo by Province of British Columbia. Grizzly on the outskirts of Stewart, BC.

We have also heard, however, of some significant weaknesses in the current management system. These systemic weaknesses are: inadequate population estimates, weak compliance and enforcement capability, insufficient conservation funding, and a fragmented governance regime that impedes public accountability. We are concerned that the combined impact of these weaknesses in the system represent a serious threat to the provincial government's ability to protect the future of the grizzly bears. At a time when balancing the cumulative impact of resource development with biodiversity is becoming ever more difficult, scrutiny of these issues is warranted.

Population Estimates

Due to the vastness and forested nature of the province, the remoteness of many grizzly populations and the overall elusiveness of these bears, monitoring them is difficult and the costs high. How many grizzly bears live in BC has thus long been a challenge for government scientists to establish with confidence.

Starting in the early 1970s and through the 1980s, several research approaches and calculation methods for estimating populations were tried and refined.[43] Since then, as technology advanced, tools like Geographic Information Systems and DNA analysis have been added to the scientist's toolkit comprising on-the-ground research, aerial survey, and fitting grizzly bears with tracking collars. Today the BC Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) uses the resultant improved population inventories in data-driven statistical analyses that enable extrapolation to areas that have not been inventoried.[44] Eighty-three of the Province's 200 grizzly bear population management units — a subdivision of GBPUs — have been inventoried, according to **DataBC** records. Further, according to what we were told by MFLNRO research ecologist Bruce McLellan, 'mark-recapture' data — collected using DNA from grizzly hair snagging 'traps'— has been obtained for 35 inventories in the province.[45] According to some of the scientists we consulted, this is a fair amount of research considering the people-avoidant characteristics of grizzlies and the size of BC.

Grizzly bears are one of the species that have characteristics that make them hardest to count.

The reason population estimates received so much attention at the Board of Inquiry's public meetings is that they are used in the calculations the Province makes to try to determine how many grizzly bears they believe can be hunted without causing populations to decline and risk disappearing. By 1995, with a growing consciousness of the impact of "our rising population, urban development, land use and other human activity"[46] on grizzly bears, the government released the British Columbia Grizzly Bear Conservation Strategy. This blueprint for conservation and management of the province's grizzly bear populations had the mandate of ensuring "the continued existence of grizzly bears and their habitats for future generations". It called for several courses of action and amongst those instituted were

43 Hamilton, A.N. and Austin, M.A. (2001). **Grizzly Bear Harvest Management in British Columbia: Background Report**. BC Ministry of Water, Land and Air Protection.
44 McLellan, B.N., Mowat, G., Hamilton, T. and Hatter, I. (2016). **Sustainability of the grizzly bear hunt in British Columbia, Canada**. *Jour. Wild. Mgmt.* DOI:10.1002/jwmg.21189
45 MFLNRO. October 2016 meeting with the Grizzly Bear Foundation Board of Inquiry.
46 Province of British Columbia (1995). **A Future for the Grizzlies: British Columbia Grizzly Bear Conservation Strategy**. Ministry of Environment, Lands and Parks.

the cross-province application of Limited Entry Hunting, the government's lottery system for limiting residents' hunting opportunities rather than allowing a general open season, and a quota system for guided non-resident hunters.

The Strategy also called for the establishment of an advisory committee which in 1998 issued its first report card that contained sharp criticisms regarding the lack of implementation of the Strategy, which officially still remains the Province's guiding policy. Since then, the government has on a number of occasions conducted or commissioned reviews of its procedures for estimating how many grizzlies can be hunted. Independent scientists[47] too have played an important role in critiquing the government's work. While some Grizzly Bear Population Units may be temporarily closed to hunting where known mortality has met or exceeded allowable limits (as established through the MFLNRO's Grizzly Bear Harvest Management Procedure[48]), a large number of people told us that they believe it is not enough. Indeed, prior to the launching of this Board of Inquiry, the concern of scientists, law experts and environmentalists had already prompted the decision last year by the Auditor General of BC to audit the government's overall approach to grizzly bear management. In that climate, the government again decided to try to alleviate concerns. The Scientific Review of Grizzly Bear Harvest Management System released last October by the MFLNRO detailed many aspects of the hunt management system that need improving, including population estimates.[49] A glaring item on the recommendation list was the inadequacy of resources, which was exactly in line with what many commenters alleged to us. Pointing to the need for additional, focussed resources, another complaint we heard from conservationists was that the human resources and costs focused on population estimates are detracting from other urgent work. A popular lament was that the government's science wasn't translating into "action on the ground", such as on boosting connectivity amongst grizzly populations that are being fragmented or isolated, protecting habitat, or reducing mortality levels.

Decision making expediency is urgently needed, noted one of the submissions we received:

"Definitive scientific proof is unnecessary for the proper decisions to be made. Decades of scientific study will only provide continued degradation of habitats and populations while impacts escalate with ongoing human activities —be they resource extraction, access development, or backcountry recreation."

Another phrase that we heard serves well to capture a phenomenon that many on both sides of the grizzly hunt debate felt was complicating progress — "my science versus your science". It is a well-known part of human nature that people's views often fall victim to bias. If something — even widely-accepted scientific evidence — does not reinforce a narrative that we wish to advance, our subconscious will be prone to resisting it. We saw firsthand how grizzly bear population estimation can be employed in this way.

47 Artelle, K.A., Anderson, S.C., Cooper, A. B., Paquet, P.C., Reynolds, J. D., & Darimont, C.T. (2013). **Confronting Uncertainty in Wildlife Management: Performance of Grizzly Bear Management**. *PLoS one* 8(11): e78041. DOI:10.1371/journal.pone.0078041

48 Province of British Columbia (2012). **British Columbia Grizzly Bear Population Estimate for 2012**. Ministry of Forests, Lands and Natural Resource Operations.

49 Boyce, M.S., Derocher, A.E., Garshelis, D.L. (2016). **Scientific Review of Grizzly Bear Harvest Management System**. Ministry of Forests, Lands and Natural Resource Operations.

Overall, based on so many of the views we received, we believe that perhaps the biggest threat posed by grizzly population estimates as a management tool is that they are only part of the picture and a focus on them may be distracting.

The Province manages the hunt not the grizzlies, we were told, and this means it is neglecting the top three areas that are fundamental to grizzly bear conservation:

- Population fragmentation and connectivity to heal that fragmentation.
- Habitat quality — i.e., researching and managing habitat for high quality grizzly food.
- Habitat security — which would entail mortality reduction actions, non-hunt mortality management actions, non lethal management of potential problem bears, electric fencing and working with communities, individuals and farmers to help solve their grizzly bear problems.

Indeed, in the face of human development and climate impacts it is important to remember that, as noted by some of the government's very experienced scientists, grizzly bear populations are very dynamic and can go up or down quickly due to changes in habitat and food conditions. Add in uncertainty about the unreported kill rate of female bears highlighted by those same scientists[50] and it is clear that rather than asking for exact population numbers, we should be discussing what level of risk we are willing to accept. For there is a higher-level certainty; namely, that considered over longer historical periods, there is no question that grizzly populations have decreased. Myriad activities connected to such a reduction in population have also increased, only this time exponentially.

We may thus infer that while we argue over the exact numbers of remaining bears, we risk dwindling their population to nothing before we take a definitive step to preserving them.

RECOMMENDATION TO THE PROVINCIAL GOVERNMENT

Renew and update the 1995 British Columbia Grizzly Bear Conservation Strategy, and determine the human and financial resources necessary to implement the Strategy. Include a comprehensive public consultation.

Weak Compliance and Enforcement Capability

One of the issues that emerged consistently across the province is the view that BC's conservation officers are overstretched and thus cannot respond in a timely way to many wildlife enforcement matters, including those involving grizzly bears. This concern was expressed by hunters, conservationists, guide outfitters, trappers, environmental lawyers and many other people.

Conservation officers are in charge of enforcing the *Wildlife Act* and the *Environmental Management Act*, among many other laws. In fact, over the past 20 years, their responsibilities have grown to include enforcement of over 30 statutes from both federal and provincial jurisdictions.

50 McLellan, B.N., Mowat, G., Hamilton, T. and Hatter, I. (2016). See *supra* note 44.

Laws that are not effectively enforced are not taken seriously. Without a good compliance and enforcement program people are more inclined to knowingly break the law when there is little expectation of being caught. When it comes to grizzly bears, there are numerous illegal acts that could have serious implications with regard to the future of these bears.

"More 'boots on the ground'" was a refrain heard over and over as the obvious solution to the issue of wildlife law enforcement. The Society of BC Conservation Officers emphatically agrees, with their website stating[51] that an inadequate staffing level is resulting in higher case loads, slower response times or an inability to respond at all. "Our motto used to be 'Anytime Anywhere' now it is 'Sometimes Maybe'," the Society laments. Other organizations have also voiced concern, BCGEU, the union that represents conservation officers, and West Coast Environmental Law amongst them. In addition, over the last 15 years, the Union of BC Municipalities has endorsed seven resolutions decrying the lack of funding for the Conservation Service.

Meanwhile, First Nations are implementing nation- and community-based initiatives that employ Indigenous Guardians[52] to manage and steward lands and waters, whilst also fostering people's connection to the land. Guardians monitor ecological health, protect sensitive areas and species, maintain cultural sites and interpret cultural aspects, as well as contributing in other ways. Apart from the wildlife and ecosystem benefits, these programs are not just creating employment but strengthening community well-being. Based on these diverse benefits, there is increasing pressure on the federal government to help expand the Guardians — which already numbers around 30 programs across BC — into a national network. The Board of Inquiry finds the Guardian model of great interest.

"Our motto used to be 'Anytime Anywhere', now it is 'Sometimes Maybe'," laments the Society of BC Conservation Officers.

Those who flout environmental laws geared to the protection of wildlife, including grizzly bears, are likely to become ever more brazen as they realize that enforcement capacity is inadequate. This is a major malfunction in the current grizzly bear management system.

Of course formal enforcement is a specialized field entrusted to those with a high level of training and the appropriate legal authority. However other staff and volunteers can support enforcement activities with methods that proactively encourage compliance. Whether this takes the form of identifiable monitors in the field or citizens employing an app to report law breakers, supportive public contributions would not only serve to deter unauthorized activity, but can engage more British Columbians in conservation. The app developed by the BC Wildlife Federation is an interesting example of such efforts. Users take geo-referenced, time-stamped photos or videos of illegal use or abuse of natural resources. Because it uses a phone's GPS, the app lets people submit these images even when out of cell service areas. Reports get forwarded automatically to the appropriate enforcement agency.

51 The Society of British Columbia Conservation Officers **website**. Accessed 29 Nov. 2016
52 National Indigenous Guardians Gathering **website**. Accessed 30 Dec. 2016.

We believe that the provincial government should seek and expand creative efforts that can boost wildlife conservation capacity in BC.

RECOMMENDATION TO THE FEDERAL GOVERNMENT

Expand the Guardian program to more interested First Nations communities, including supporting them to develop ecotourism infrastructure such as accommodations, if this is of interest to them.

RECOMMENDATION TO THE PROVINCIAL GOVERNMENT

Strengthen Provincial wildlife enforcement capability and increase actions that proactively encourage compliance with wildlife protection laws.

Conservation Funding Model

As mentioned in Section 1B on page 9, the government collects more than $7.3 million from hunting licences and fees every year. However, most of this is directed into the government's general revenue fund and can be used on other government programs, leaving only the surcharges on some licences to be directed for wildlife conservation work, amounting to $2.25 million a year.

The management of these funds is entrusted to the non-profit Habitat Conservation Trust Foundation (HCTF). Begun in 1981, this was originally a government-administered fund set up to provide the resources for hunters, anglers, trappers and guide outfitters to undertake conservation work that went beyond basic government management of wildlife and fish resources. In 1997 the HCTF became a self-administering stand-alone trust within government and ten years later, the *Wildlife Act* was again amended to make it completely independent.

From this surcharge regime, $155 million has been spent on BC's wildlife conservation over these past decades, the HCTF states.[53] Yet, when we met a segment of its main contributors (hunters), many told us that money for conservation is drastically short and that they believe that, at a minimum, the entirety of hunting licence revenue should be going into the fund.

The case of the grizzlies is an apt illustration of underfunding. As noted in this report, the comprehensive study of grizzly population trends and all the factors affecting their landscapes are costly undertakings. As is addressing the human–bear interactions that too frequently spring from people's use of those landscapes. Yet, the conservation funds that are directed to "grizzly bear research, inventory and monitoring projects" amount to only $230,000 per year, MFLNRO staff told us in an October 2016 meeting. They also gave us a list of notable 2016/17 projects paid for in this way. These were:

- Electric fencing studies to reduce conflicts between grizzly bears and humans.
- Spatial identification of the most important food sources for grizzly bears in the West Kootenays (huckleberries) to inform future food resource supplies and conservation decisions.
- Development of specialized habitat models across the threatened South Chilcotin Grizzly Bear Population Unit.

53 Habitat Conservation Trust Foundation **website**. Accessed 30 December 2016.

- Mapping and identification of important grizzly bear habitats in the Moberly Grizzly Bear Population Unit to inform the designation of Wildlife Habitat Areas.

Many people told us that they feel the government does not prioritize wildlife management, or that the realities of the province's economic indebtedness to natural resources put the types of work that grizzlies most need at odds with the province's fiscal health. It is difficult to make headway on adjusting general attitudes towards the responsible management of grizzly bear populations when the overwhelming sentiment among those closest to the issue is that government itself has not prioritized it.

Photo by Kathryn Burrington. Great Bear Rainforest, British Columbia, Canada. travelwithkat@rocketmail.com

In a province where almost 94% of the land is publicly owned, citizens trust the government to be in charge of the state of our forests, watersheds and wildlife. So it came as a surprise to us how reliant BC's wildlife is on the HCTF and other non-governmental conservation organizations. Indeed, "in practice, the management of conservation lands relies less on specific legislative tools than on stakeholder consultations, partnerships with external agencies, and working agreements to facilitate habitat-sensitive resource use", the MFLNRO notes.[54]

Thankfully, for the grizzly bears, there are some progressive proactive conservation oriented management activities underway in one area of the province targeted at several threatened grizzly populations. The Trans-border Grizzly Bear Project has been working on recovery of the threatened South Selkirk and Yahk GBPUs for over a decade. Instigated and applied totally outside of government, this effort has received a portion of its funding from the HCTF. Having identified population fragmentation over much of the province,[55] the project then pinpointed specific connectivity areas and works to enhance connectivity to reverse fragmentation.[56] It has also been involved with substantial work to reduce non-hunt human-caused mortality and collaborates with the BC Conservation Officer Service to apply non-lethal management actions and research (following the fates of managed bears to see what works and what doesn't) that have saved the lives of many grizzly bears, especially females. Further, the project has done extensive research into habitat quality and important food resources, and on habitat security by examining the role of access management across the region. These are

54 Province of British Columbia. Ministry of Forests, Lands and Natural Resource Operations: **Conservation Lands**. Accessed 6 February 2017.
55 Proctor, M.F., Paetkau, D., McLellan, B.N., et al. (2016). See *supra* note 27.
56 Proctor, M.F., Nielsen, S.E., Kasworm, W.F., Servheen, C., Radandt, T.G., MacHutchon, A.G. and Boyce, M.S. (2015). **Grizzly bear connectivity mapping in the Canada-US trans-border region**. Journal of Wildlife Management 79:544-55. DOI: 10.1002/jwmg.862.

comprehensive activities that the Grizzly Bear Foundation believes should be emulated by the Province of BC as they are realizing positive results.

Perhaps the question of what the public wants for BC's grizzly bears could be a catalyst for an open sharing of innovative solutions that see us find a better path forward. The Board of Inquiry believes that more public and First Nations engagement could expand the stakeholder pool and strengthen the partnerships and grass-roots initiatives upon which wildlife conservation currently hinges.

RECOMMENDATIONS TO THE GRIZZLY BEAR FOUNDATION

• Appoint a research advisory committee to identify knowledge gaps and formulate future research priorities for the Foundation.

• Explore the establishment of a BC university-based institute that will cultivate a repository of grizzly bear research and make it publicly available.

Organizational Fragmentation

Since natural resource sectors are so key to the economic health of the province and yet can have substantial habitat impacts, land use planning is by default a part of the grizzly picture. Other industry regulation and decision making processes also interplay with wildlife conservation. As is illustrated in the Appendix: What We Were Told, we heard serious concern about how the amount of forest that can be cut annually is determined. In addition, a large portion of those who spoke to us also questioned whether companies extracting natural resources are being held accountable for the true costs of accessing the public resource. This includes for things like the decommissioning of roads built for industry use and addressing road density. Intersecting with the latter is the fact that outdoor recreation is of growing social importance to BC residents and becoming a significant part of the tourism sector, yet effective tools for managing human access to the wilderness are lacking or not being utilized.

FORESTRY MANAGEMENT

As omnivores, grizzlies are adaptable, yes, as natural disturbances happen all the time to forests. However, the health of BC's forests is suffering due to climate change and drought, as well as pine and spruce beetle outbreaks. Many who gave us input voiced their doubts on whether the government process for determining the amount of timber that can be logged is flawed and the amount cut thus excessive.

Part of this problem, some commenters told us, is that a reorganization of government services and ministry responsibilities in 2010 saw the inclusion of Fish and Wildlife management within the Ministry of Forests, Lands and Natural Resource Operations. "I see [this inclusion] as a seriously backward step for it results in any conflict on fish and wildlife in relation to the management of provincial lands and forests being resolved within one ministry without any possibility of discussion at either the public or cabinet level," said an engineer with long involvement working on conservation with provincial ministries in regard to grizzly bears. Indeed, if one looks at the MFLNRO's most recent

Photo by U.S. Geological Survey. Mountain Pine Beetle impacted forest. Yellowstone National Park, Colorado, US

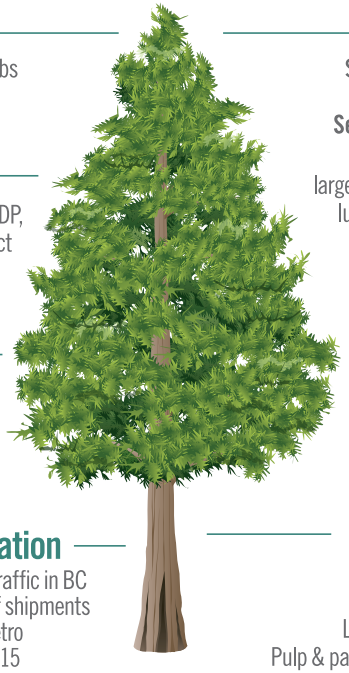
Service Plan,[57] the fact that "Streamlined authorizations processes" is the first objective listed might support that view.

Other key players have also found the organizational framework to be dysfunctional. A January 2011 Report of the BC Task Force on Species at Risk noted "fragmented accountability" and "shrinkage of budgets" as administrative limitations in the current approach to conservation in the province.[58] The government itself is cognizant of such problems and an internal report from Prince George-Mackenzie MLA Mike Morris (Parliamentary Secretary to the Minister of FLNRO Steve Thomson at the time) recommended a review of all resource laws with a view to consolidating them. In addition, it argued that "nebulous" and "ambiguous" language should be removed from the *Forest and Range Practices Act* as it "significantly lowers the threshold protecting our biodiversity". The report, released in December 2015 and entitled Getting the Balance Right:

57 Province of British Columbia (2016). Ministry of Forests, Lands and Natural Resource Operations **2016/17–2017/18 Service Plan**.
58 BC Species at Risk Task Force (2011). **Report of the British Columbia Task Force on Species at Risk, January 31, 2011**.

THE ECONOMIC IMPACTS OF FORESTRY IN BC

Source: Province of BC (2016). Strong Past, Bright Future: A Competitiveness Agenda for British Columbia's Forest Sector. MFLNRO.



Jobs
65,500 direct jobs in 2015

GDP
$8.8 billion of GDP, $5.4 billion direct in 2015

Taxes
$1.7 billion of total revenue, $1 billion direct in 2015

Transportation
20% of all rail traffic in BC in 2014, 20% of shipments through Port Metro Vancouver in 2015

Exports
$12.9 billion (38.1% of Canada's Total Forest Sector Exports in 2015)
BC is one of the world's largest exporter of softwood lumber, and a significant global producer of pulp, paper, and bio-energy

Rural Communities
More than 140 rural communities in BC depend on forest sector

Manufacturing
30% of all BC Manufacturing Sales
Lumber: $8.6 billion and Pulp & paper: $4.5 billion in 2015

Improving Wildlife Habitat Management in BC, also called on the Province to add more natural resource compliance and enforcement officers and to expand their powers.

Minister Thomson said that while the "essence" of the Morris report would be implemented, recommendations on changes in law and the addition of staff wouldn't be.[59] Wildlife conservation advocates were disappointed, maintaining that legislative change and funding capacity are exactly the big-picture issues that we need to start tackling if we are serious about sustaining biodiversity in the province. Observers have noted that the report got to the heart of how to protect wildlife habitat and that Morris's conclusions were already well-documented, including in reports from the Auditor General and the BC Ombudsman.

In terms of how this impacts grizzly bear conservation, one comment from the government-commissioned 2016 Scientific Review of Grizzly Bear Harvest Management System was inline with what several others with direct experience mentioned to us. Commenting on whether a recommendation from a previous review had been followed to "ensure that land-use planning initiatives by the Ministry of Forests reflect the needs of wildlife in general, and the needs of grizzly bears in particular, within a context of ecosystem management", the report noted:

> "There is no higher-level planning occurring in the Province. FWB [Fish and Wildlife Branch of the MFLNRO] indicates that they are reaching the limits of habitat protection for grizzly bears. Moreover, there are other species (e.g., caribou) with greater habitat and conservation needs than grizzly bears."[60]

We obviously understand that natural resources play a key role in BC's economy, and that balancing this fact with our province's biodiversity — which is already impacted by climate change and problems like beetle epidemics — is a complex challenge. However, the Board of Inquiry thinks it is important that emphasis be placed on how these two priorities are intrinsically interlinked. Otherwise both are at risk. To again quote the Task Force on Species at Risk:

59 Hoekstra, G. **B.C. balks at changing law to protect wildlife and biodiversity**. *Vancouver Sun*, 21 December 2015.
60 Boyce, M.S., Derocher, A.E., Garshelis, D.L. (2016). See *supra* note 49.

"Increasing numbers of ecological communities and species entering the at-risk lists can be interpreted as an indicator of declining ecosystem condition and extent. This is important because ecosystems lie at the heart of our economy by providing irreplaceable ecosystem services, ranging from clean water to fertile soils to pollination of crops to abundant renewable resources to carbon sequestration. The species that we are potentially losing are the 'biological moving parts' that keep our ecological communities functioning."

Thriving grizzly bear populations, as we suggest in this report, could well serve as the charismatic face of those healthy ecological communities. In that way they can inspire us all to join in reminding the government that the province's economic health is tied to the condition of our environment.

RECOMMENDATION TO THE GRIZZLY BEAR FOUNDATION

Solicit a partnership with a major forestry company. Reach an understanding of the needs and issues the forestry industry faces in terms of access planning. Demonstrate how logging and grizzly bear protection can both be accommodated. Develop and circulate a Best Practices Guide on the basis of this work.

Photo by Jim Lawrence KootenayReflections.com

3

Photo by Jim & Doria Moodie

Grizzly Bear Hunting: Conservation & Ethical Questions

A. Is Hunting Grizzlies a Conservation Issue?

The government-approved killing of grizzly bears by licensed hunters is an issue that has attracted significant public and media attention over the past many years. Indeed, some government officials complain that the public focus on the hunting of grizzlies diverts attention from more pressing issues that need addressing if we are to protect and restore grizzly bears in our province. On the other hand, many of BC's citizens and organizations are astonished that grizzlies continue to be hunted for sport and trophies and that we have not eliminated this hunt long ago.

In October 2016, the provincial government released a report written by three scientists it had retained to provide an independent review of the grizzly bear management system in British Columbia. The review concluded that "the BC grizzly bear harvest management procedures have attained a high level of rigour with a solid scientific underpinning modified, as necessary, by professional judgment. We believe that adequate safeguards have been established to ensure, with a high degree of confidence, the sustainability of this harvest."[61] The report nonetheless made 51 recommendations to improve the system. The authors also noted that they had not considered the ethical issues of hunting grizzlies. In essence, the authors of this report conclude that it is possible to sustain the grizzly bear populations of this province while at the same time allowing a highly regulated hunt to take place in selected areas.

As of the writing of this report, the provincial government has not publicly committed to implementing any of the recommendations contained in the report. Nor does the provincial government have anything to say, that we know of, about the ethical issues involved in the killing of grizzlies. The Province released this report as evidence that its long-standing policy of authorizing the killing of grizzly bears under strict government management is a sound policy and one that does not jeopardize the future of grizzly bears in BC. In other words, it is of the view that hunting of grizzlies is not a conservation issue.

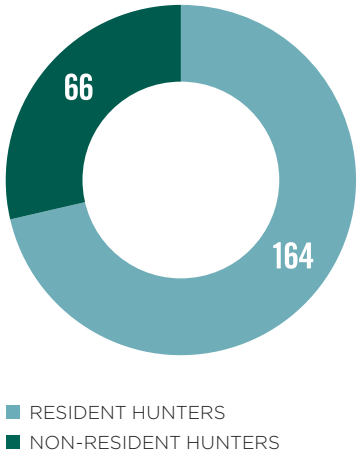
61 Boyce, M.S., Derocher, A.E., Garshelis, D.L. (2016). See *supra* note 49.

Additional reasons the provincial government often offers[62] for authorizing the hunt include: hunting has long been a recreational and cultural pursuit for many British Columbians and one they are entitled to enjoy; hunting by residents and non-residents alike brings important revenues to the province that can be used for conservation purposes as well as associated spending to local economies; and, hunters provide valuable information and insights about the state of our wildlife that help the government in ensuring that our province retains its many wildlife resources.

Some hunters believe that the killing of grizzlies under strictly regulated conditions determined by the government will assist conservation efforts by "managing" excess bears who would otherwise create more human–bear conflict. There does not seem to be any scientific support for this position. Indeed recent empirical evidence, based on 54 years of data from BC grizzly bears, suggests that hunting has no effect on bear-human-conflict.[63] In addition, grizzlies are slow reproducers and are known to self-regulate the density of their population. If there are too many bears and food becomes scarcer or dominant males monopolize access to food sources as they sometimes do, fewer cubs will be born. This is because female grizzlies are "delayed implanters" — after becoming pregnant, their bodies halt embryo development temporarily. Then, in late fall, if the mother is nutritionally healthy enough to sustain cubs, embryo development will restart. Further, scientists such as those on the Trans-border Grizzly Bear Project are showing that there are many non-lethal ways of managing human-bear conflicts.

GRIZZLY BEARS REPORTED KILLED BY HUNTERS IN 2015

Source: MFLNRO data 2016.



Some hunters believe that grizzlies are killing too many ungulates and therefore are responsible for the decrease of caribou and moose populations in certain parts of BC. Again, the science does not support this causal relationship, but rather points to the existence of a more complex set of factors, including human-caused habitat alteration. Studies are currently underway at the provincial government level to find out what the many causes of the moose population decline might be.

Many hunters have asserted that by killing large male grizzly bears they are protecting the lives of grizzly cubs and therefore helping to maintain a healthy grizzly bear population. The science is not clear on this issue and there may in fact be contrary conclusions to be drawn from the research available to date.

Finally, both the provincial government and many hunters have stated that hunting grizzlies is part of our cultural heritage and ought therefore to be respected as such. The question is however: is it a cultural heritage to be continued or one to be remembered? Should what may have

62 Province of British Columbia (2007). **A Strategy for Resident Hunter Recruitment and Retention in British Columbia**. Ministry of Environment, Fish & Wildlife Branch.
63 Artelle, K.A., Anderson, S.C., Reynolds, J.D. et al. (2016). See *supra* note 38.

been necessary for survival for our ancestors be re-enacted in this day and age for sport? Some of our past "cultural practices" in many domains of Canadian life are remembered but not continued, and for very good reasons.

The BC Wildlife Federation and the Guide Outfitters Association of BC[64] agree with government that the hunt is not at odds with grizzly conservation.

Despite these reassurances from such long-involved sources, there are still a number of biologists and other knowledgeable people who believe that our provincial policy of allowing a grizzly bear hunt has the potential to jeopardize the long-term sustainability of the bears. They believe that the grizzly population estimates are suspect or inadequate and that the hunt is shortsighted and risky. This is because there are various unpredictable cumulative factors such as food source shocks, rail accidents and poaching that could combine to produce major negative changes in a grizzly population and government scientists are not in the position to be aware of all such situations in a timely way. If this were to occur, it would be extremely difficult for a grizzly population to recover and, since grizzlies serve as an ecological barometer, would likely indicate broader ecological problems.

The potential impacts of climate change on salmon runs, berry availability, temperature changes leading to denning time adjustments, combined with BC's ongoing human population growth (which will spur continued resource extraction and recreational pursuits in the backcountry), mean that we can anticipate mounting pressures on grizzly bears in terms of habitat alteration, loss and fragmentation, and contact with humans. Under these circumstances, it seems reasonable to these environmental specialists that a healthy skepticism about the sustainability of the hunt is still warranted.

B. Is Hunting Grizzlies an Ethical Issue?

Most people we spoke with concede that hunting for food is an acceptable reason for killing animals as long as it is done in a responsible manner, consistent with the survival of the species being hunted. Similarly, a majority seem to accept that sometimes it is necessary, for reasons of public safety and protection of property, to kill grizzly bears. It is the killing of animals for sport and trophies that generates such heated debate.

The times have changed in BC since bounties were paid for grizzly hides. A new appreciation of the value of our natural environment has involved a widespread reconsideration of how we relate to our wildlife. This is especially true as regards to our relationship with grizzly bears. First Nations have always had a deeply respectful attitude toward the grizzly; by contrast, the first Europeans who arrived in BC were afraid of these big creatures and killed them at will. Over the past 50 years, however, we have slowly begun to consider ways of living in harmony with these animals. Those who are against grizzly hunting believe that where there are grizzly bears, there are healthy wild ecosystems. And wilderness is an essential feature of our province. Grizzlies are iconic to BC. People come from all over the world to view them and to admire them. They are an intrinsic part of our heritage.

64 Guide Outfitters Association of BC. News release, 1 April 2016: "**Grizzly Bear Science**".

Wildlife management literature has begun to recognize and study these strong attitudinal shifts that support restoring a more harmonious relationship between humans and wildlife. Recent major surveys of attitudes of British Columbians on the status and future of grizzlies have indicated a general desire among a significant and cross-sectional majority of people in our province to end the hunt.[65]

On what basis are an increasing number of people demanding that the hunt be eliminated? We have briefly reviewed the conservation reasons above. From an ethical perspective we have heard and read about a variety of reasons. Some animal rights groups are simply against the human use of all animals for whatever reason, and this includes the grizzlies. Others, and they are more numerous and closely identified with animal welfare — not animal rights — consider it wrong to kill an animal simply for the sport of it or to bring home as a trophy its head, claws or hide. They believe that inflicting pain and suffering on a grizzly bear for the simple recreation of a human hunter is cruel and irresponsible.

There is a large body of respected academic literature on this very topic. Indeed, major thinkers at some of the world's top academic institutions are reaching new conclusions about our ethical obligations towards what are commonly called "non human animals". This is no longer a fringe area of study but a major undercurrent in the disciplines of philosophy, ethics, anthropology, sociology, biology, psychology, etc.

Animal welfare is a field of science taught in universities that encompasses several disciplines including biology, behavioural ecology, evolutionary psychology, physiology, neuroscience, ethics and economics. Focused initially on animals owned by humans, such as farm animals, it has now expanded to include wild animals. Indeed, a submission we received from Kristen Walker, of the Applied Animal Biology Faculty at the University of British Columbia, highlighted how our own society has double-standards that deserve scrutiny. While "this is not to say that that hunters do not follow their own code of ethics", hunting in BC is largely unregulated from an animal welfare perspective, she noted.

"Most of the hunting is done out of a vehicle or boat so it is not a physically demanding hunt," advertises one guide outfitter's grizzly bear hunt web page.

"The issue of humane euthanasia (or 'good death') has been comprehensively addressed in production animal, companion animal and research animal settings. There are set performance standards of how long an animal should be conscious before being slaughtered in production animal systems, with detailed regulations and training protocols that are species specific," Walker explained. "There are no such regulations or training protocols that exist in British Columbia for bear species."

It is quite possible that the advent of home made videos widely distributed on the internet has contributed to the public's growing distaste for grizzly bear hunting. The reality of the hunt — involving long range rifles with scopes, the use of dogs wearing GPS collars, the frequent need to shoot a grizzly more than once to kill it, the obvious distress of the animal once hit — has been captured on camera, along with the triumphant cries of exaltation from the hunters involved. For most people, these are sobering videos to watch. There is a huge disconnect between these images and the myth of

65 Insights West. **Survey on Animals in BC and Alberta — October 5, 2015** (detailed data tabulations).

the hunter fearlessly taking on this "wild and dangerous" animal, risking life and limb to do so. In most of the videos, the grizzly is ambling across a valley, feeding on salmon or munching on huckleberries when hit several times from a distance, and is thus writhing in pain by the time it is killed.

Photo by Jim Lawrence KootenayReflections.com

It would be a mistake to believe that those who are anti-hunting for ethical reasons are anti-science. As a prominent evolutionary biologist remarked: "Science deepens our intimacy with the world. But there is a danger in an exclusively scientific way of thinking."[66] Essentially, he argued: "science is one story, true but not complete and the world cannot be encompassed in one story."[67]

Science plus would probably be a more accurate way of describing those thoughtful individuals who are against the grizzly hunt. They argue that science is absolutely necessary in wildlife management but it is not sufficient for determining grizzly bear management policies.

Another ethical issue shared by many individuals who gave input to the Inquiry is the use of language by hunters, guide outfitters and the provincial government. They refer euphemistically to "harvesting grizzly bears" as opposed to "killing grizzlies". "Harvestable surplus" is used to describe the number of bears the government determines can be killed by hunters. They say "success rate" instead of "kill rate" to describe the rate of hunter kills compared to the number of tags/quotas issued. Dr. Gosia Bryja, summarized the language concerns in a submission she sent us:

> "Years of education — formal or informal — about wildlife management and conservation have shaped our views and beliefs about the natural world. Words like 'crop', 'harvest', 'stock', 'cull', 'yield' and 'surplus' used in biological sciences and by government institutions in reference to wildlife have been so broadly and indiscriminately disseminated that they have achieved a predictable outcome — stripping us of compassion towards non-human animals."

66 Haskell, D.G. (2012). *The Forest Unseen: A Year's Watch in Nature.* Penguin Books.
67 Gorman, J. **Finding Zen in a Patch of Nature**. *New York Times*, 22 October 2012.

C. The Board of Inquiry's Position on the Hunt

In this report we have summarized what we have heard from various groups and individuals on this issue. Here we consider these points of view and then present our opinion on this matter.

The provincial government's position, as explicitly stated in many documents over many years, is that the hunt is carefully managed and thus presents no major issues with regard to the conservation of the grizzly in BC. The government says that the hunt is based on sound biological science, is closely monitored and adjusted as required based on new and emerging information. An elaborate system of quotas and authorizations has been designed to target the hunt to areas that they calculate can sustain a certain number of hunter kills, which is currently 41 of 56 Grizzly Bear Population Units.

This position is supported by the Guide Outfitters Association of BC and the BC Wildlife Federation. In addition, these two groups believe that allowing a grizzly hunt "adds value" to the populations of grizzlies in the province thereby helping to ensure the continued survival of this species. In a nutshell, these groups are of the view that allowing the killing of some grizzlies by authorized hunters under strict government regulation is helping to conserve the larger grizzly population by preventing indiscriminate and unmonitored killing. In this way not only do they preserve the species but they also ensure that their traditional hunting practices will be maintained over time. They also point out that a percentage of the government surcharge attached to every grizzly hunter's license is directed to grizzly conservation projects.

Some conservation minded non-profit organizations that work on grizzly bear issues have not taken a public position with regard to the hunt. They tend to focus on community-based habitat and food source issues and work with all those who have the authority to deal with grizzlies, including the hunting community.

At the other end of this continuum are a large number of individuals, and conservation and environmental groups that are completely opposed to the grizzly hunt. They are of the view that, whether properly managed or not, the hunt presents a major threat with regard to the conservation of the grizzly in BC. They say that the science supporting the hunt is incomplete and not to be relied upon, resources to monitor the consequences of the hunt are inadequate and there is no certainty to the actual numbers of grizzly deaths each year. Further, to many it appears that the system of quotas and authorizations has been developed as a policy method to rationalize the maximization of hunting opportunities.

Some people told us they believe it is simply unethical and indefensible to kill these animals for sport. Others are of the view that whether or not the science indicates that the hunt can be pursued in a sustainable way does not mean that the hunt should be pursued. That ethical question — what is the justification for killing grizzly bears for sport? — is not one that can be answered exclusively by biological science. It is a question of ethics and one that must consider a broader range of social and cultural norms.

As previously noted, many but not all First Nations communities have banned the hunt in their territories although the provincial government does not at the moment acknowledge the legitimacy of these bans.

Having reflected upon and discussed these various points of view with biologists, conservation groups, First Nations, animal welfare groups, hunters and guide outfitters, provincial government representatives and many others, our Inquiry has reached its own conclusions about the grizzly bear hunt, which are as follows:

1. There is no doubt that hunters, guide outfitters and the BC Wildlife Federation (comprised largely of anglers and hunters) have historically played an invaluable role in conserving our wildlife over the past many years in partnership with the provincial government. At a time when very few other BC residents were interested, they spent time and money and amassed experience exploring the outdoors, working with government on conservation issues and contributing to conservation research. In response to their enthusiasm for hunting and willingness to contribute financially to conservation issues, the provincial government has developed a close working relationship with these groups and set aside, or protected in various ways, some large tracts of habitat needed for the well-being of the grizzly bear populations in the province. These measures have combined to produce what is called the "harvestable surplus" of bears, which is then made available for hunters to kill within carefully defined regulations. These efforts, while clearly intended to ensure the survival of the grizzly, have focused on assuring that hunters have something to hunt.

2. There is also no doubt that in the past 20 years an increasing number of BC residents and foreign tourists have newly "discovered" the magnificent wilderness of BC. It is no longer just traditional users of the backcountry but entirely new groups who are accessing the wilderness. Viewing our wildlife in their natural environments and exchanging guns for cameras, the bear viewing industry and the bear viewing public are examples of a new social ethic in relation to wildlife. This is an ethic that the provincial government has chosen to ignore in terms of its public policies on grizzly bear management. The active role of many conservation and environmental organizations has also been instrumental in bringing public attention to the status and future of the grizzly bear in our province. Their dedication and commitment to wildlife management has not, in our opinion, been properly reflected in the provincial government wildlife management system.

3. Numerous First Nations have a strong cultural connection to the grizzly and oppose hunting the grizzly for sport. Their views and their responsibilities in terms of the management of the lands and resources in their traditional territories have been confirmed in several important Supreme Court of Canada decisions. Many First Nations have taken significant steps to exert their views without acknowledgement from the provincial government or hunters.

4. We believe that the future of the grizzly bears in our province is going to be unavoidably compromised by certain trends that are already taking shape. This includes increased urbanization associated with human population expansion, surging backcountry recreational pursuits, climate change, continuing resource development, and declining wild salmon runs. Grizzlies need large undisturbed spaces in which to roam. It will be ever more difficult to provide those spaces given current trends, the cumulative impacts of which are inestimable even using the best science available at the present time. Under these circumstances, allowing hundreds of grizzly bears to be legally killed every year for sport or trophies is unreasonable in our opinion. As host of one of North

America's last sizable populations of grizzlies, we believe the onus is on the Province to take every precaution to ensure these bears continue to thrive here.

5. We are convinced that there is no one measure that alone can ensure the long-term survival of the grizzlies in BC.

Having considered all the information that we have reviewed during this inquiry, it is eminently reasonable to conclude that the era of hunting of grizzly bears ought to come to an end. It seems to us that the BC public is experiencing a dramatic shift in its relationship to the natural environment and in particular to the wildlife that is so central to our view of British Columbia. Inflicting deliberate pain on a grizzly bear for the sport of it or to acquire a trophy head, rug or claws is unjustifiable.

Further, of all the factors that have a negative influence on our grizzly bear populations, hunting is the one that is easiest to eliminate. Simply stop the hunt. This will free up enormous amounts of energy from government staff and hunters alike to focus on other threats to the grizzly population. Numbers will no longer be an issue that consumes inordinate resources. Sustenance hunters will continue to have a valuable role to play in safeguarding our natural environment. So will a large number of other environmental enthusiasts.

RECOMMENDATION TO THE PROVINCIAL GOVERNMENT

Terminate all hunting of grizzly bears in BC.

But let us be clear: assuming government would consider this option and discontinue the hunt, that would in and of itself save hundreds of bears from a painful death each year. But it would not alone ensure the long term viability of the grizzly in our province. All the critical issues around habitat protection, food sources and non-hunter grizzly kills would remain and need to be addressed if we are to ensure the future of grizzly bears.

While many of these issues are profound — 'macro', 'systemic', 'intrinsic' — and may not pertain exclusively to the grizzly's plight in BC, the issue of hunting does. Unlike all the other factors that conspire to challenge the grizzly, abolishing hunting is exclusively within our reach.

Photo by Jim Lawrence KootenayReflections.com

The end of the grizzly bear hunt should be accompanied by a number of important considerations. There is the question of compensation for those guide outfitters who rely on the grizzly hunt for their livelihood. There is an urgent need to expand the bear-related education projects and other supports that currently exist in BC to address the relationship between bears and humans and what needs to be done for both to live in harmony. There may be opportunities to assist those residents who live closest to bears with deterrent aids that are known to be effective such as electric fences. Finding out what makes people feel unsafe if they live in grizzly bear territory and working with them to become familiar with the tools they require to feel safe is essential.

There is a pressing need to enhance the capability of conservation officers to ensure compliance with laws impacting the grizzly and to work closely with those local governments and individuals who are the grizzlies' closest neighbours.

Finally, the potential for growth of the bear viewing and ecotourism industries needs to be developed. A regulatory framework needs to be pursued to ensure that these activities are conducted in a manner that protects the bears. These opportunities provide four major benefits: first, grizzlies can be admired without being killed; second, they "add value" to the bear by increasing the respect such viewing generates among the public; third, these industries create jobs for local people; and last but not least, they can provide additional revenues for government that could be used for conservation purposes.

There is no reason why a reasonable surcharge, similar to the one that is currently applied to hunting and fishing, could not be applied to others who wish to pursue the experience of coming into close contact with grizzlies in their natural environments.

As we have illustrated in this report, there are many threats to the protection and restoration of grizzly bears in our province. These are complex and require the involvement and good will of the provincial government, conservation groups, hunters and guide outfitters, and recreational groups — just to name a few — working together on long-term solutions. It is our intention to be part of this process and to contribute to the long-term survival of the grizzly. Over the coming months we will announce further priorities for research, education and conservation to protect and restore grizzly bear populations in British Columbia.

CONSERVATION FOR GRIZZLIES REQUIRES THESE KEY LIFE REQUISITES:

- **A place to live (habitat)**
- **Security (freedom from persecution)**
- **Sufficient foods**
- **A mate**

4

Photo by Jim & Doria Moodie

Bear Viewing

As noted in our Terms of Reference, the Board of Inquiry has gathered information and advice from a broad group of BC residents and organizations to help us better understand a number of issues related to the status and future of the grizzly bears in BC. One of our specific interests was if and how the bear viewing industry and its growth could be supported in a responsible manner, including the potential for increased employment opportunities.

We learned that over the past 20 years grizzly bear viewing has become an important recreational opportunity for many Canadians and foreign tourists. There are currently more than 30 specialized bear viewing operators in BC as well as some ecotourism operations that include bear viewing, most but not all of them located on the Coast. The industry has been a source of employment for British Columbians and made significant economic contributions to the province. Bear viewing has not only meant a source of revenue for operators but it has also offered first hand and up-close education to thousands of people about grizzly bears, how they live and what they need to survive.

Along the way, a number of best management regimes have emerged that both protect bear viewers and bears. There is also a growing body of knowledge about what is needed for bear viewing operations to be successful. For instance, the following five criteria have been suggested by LD Aumiller and CA Matt:[68]

- Viewability of bears. There must be a good population, ideally at a predictable natural food source.
- Stable land status and the ability to regulate other human traffic.
- Buffer zones to protect habituated bears. The protected area should encompass the home ranges of most of the bears using the site, and there should be consistent human conduct within this entire area.
- Stable funding to ensure quality management and proper supervision of visitors.
- Establishment of a management plan with defined goals and objectives.

Clearly, bear viewing is no easy, quick or cheap way to bring humans and bears together successfully in close proximity to one another. Considerable skill, knowledge and financial resources are necessary to ensure a safe experience for people and bears and one that can be sustained over time.

68 As noted in Davis, H. and Himmer, S. (2010). Bear-Viewing Areas in Alaska and British Columbia and Implications to Tweedsmuir Park (South).

One important question that has been raised about this industry is what impact it has on bears if they become habituated to people. Grizzly bears who become habituated do not show overt reaction when people are nearby. Food-conditioned bears who associate food with humans, on the other hand, can become major problems and create serious safety threats to humans. The current thinking and experience seems to be that habituated bears do not constitute a problem for humans but food-conditioned bears do. Further, it should be added that habituated bears are likely to be easy targets for hunters as they do not associate people with danger and are therefore not likely to leave the scene when approached by people. From the information we've gathered, it is our conclusion that bear viewing and hunting cannot coexist in the same locality.

As a result of the popularity of bear viewing and the increasing number of people and operators who wish to enjoy or provide this experience, it seems to us that the time has come to consider a stronger provincial regulatory framework to oversee this industry. Bear viewing is not a neutral activity from the bears' point of view. The number of people who are watching, location of viewing sites, hours of viewing, proximity to campgrounds and roads, availability of trained staff, all combine to make bear viewing an activity that could have either a negative or a neutral impact on bears. While the Commercial Bear Viewing Association has established some best practices on these issues in partnership with government and other interested parties (for more details, see the Appendix: What We Were Told), the fact is these standards unregulated and not necessarily followed by all bear viewing operators.

It also would seem reasonable for bear viewers and operators to contribute to the province's grizzly bear conservation program in a manner regulated by the Province and applied to all operators and viewers. Currently, in the Khutzeymateen, as part of a partnership agreement with BC Parks and Lax Kw'alaams First Nations, viewing guides contribute a per person donation to the Khutzeymateen Park Enhancement Fund. In addition, the bear viewing industry has begun contributing to important conservation research through the **Brown Bear Research Network** but this project is dependent on voluntary contributions from just some, but not all, operators.

Can grizzly bear viewing be extended to other parts of the province? We believe this question is well worth exploring. First, because when managed carefully bear viewing can be organized to have a minimal impact on bear behaviour while at the same time it has an important environmental education component which will be to the bears' benefit in the long run. And second, because this industry has significant economic and employment advantages from which the province can benefit. This is an industry that can be managed to become both economically important and environmentally friendly.

RECOMMENDATION TO THE GRIZZLY BEAR FOUNDATION

Conduct a study of potential new grizzly bear viewing opportunities across BC, in collaboration with a bear biologist and a representative of the bear viewing industry.

RECOMMENDATION TO THE PROVINCIAL GOVERNMENT

Regulate the bear viewing industry in consultation with representatives of this industry.

5

Photo by Jim & Doria Moodie

Summary of Recommendations

The Board of Inquiry has embarked on this journey determined to learn what the grizzly bears of our province require in the short and long term to enjoy a secure future. As noted in the introduction, we have learned a great deal about these bears and the threats to their well-being. We are extremely grateful for the time, effort and expertise that so many people and organizations have contributed to our Inquiry. The work that is being done by numerous community-based organizations to support grizzly bear populations is impressive and much needed. The Grizzly Bear Foundation looks forward to working collaboratively with these organizations to achieve our common goal of securing the future of grizzly bears.

The Grizzly Bear Foundation's education, conservation and research contributions to this effort can now get started. We have proposed several recommendations to guide the Foundation's work. Upon approval of the Foundation's Board of Directors, some initiatives will begin immediately, others will be implemented in phases as funding becomes available.

Grizzly bears in our province face substantial threats. We fear for the future of the bears unless all levels of government take a stronger leadership role in securing their future.

Recommendations to the Grizzly Bear Foundation

Education

1. Prepare, publish and distribute material for elementary school children about grizzly bears in BC. Solicit the collaboration of educational experts, bear biologists, illustrators and appropriate school curriculum officials.

2. Formulate and deliver a demonstration project to highlight the use of electric fences and bear spray in strategic locations. Do so in partnership with an existing local coexistence organization. Develop and circulate a Best Practices Guide on the basis of this work.

Conservation

3. Facilitate a forum with First Nations to consider potential partnership initiatives to secure the status and future of grizzly bears.

4. Launch an outreach program to strengthen knowledge-sharing amongst those engaged in grizzly bear-focussed activities throughout BC. Augment the knowledge base about what can best secure the future of the province's grizzly bears. Report back to the public annually about the most effective initiatives across the province.

5. Solicit a partnership with a major forestry company. Reach an understanding of the needs and issues the forestry industry faces in terms of access planning. Demonstrate how logging and grizzly bear protection can both be accommodated. Develop and circulate a Best Practices Guide on the basis of this work.

Research

6. Appoint a research advisory committee to identify knowledge gaps and formulate future research priorities for the Grizzly Bear Foundation.

7. In collaboration with recreation groups, clubs and commercial operators, undertake a study regarding the impact of access to the backcountry and propose strategies for the protection of sensitive grizzly bear habitat.

8. Explore the establishment of a BC university-based institute that will cultivate a repository of grizzly bear research and make it available to the public.

9. Conduct a study of potential new grizzly bear viewing opportunities across BC, in collaboration with a bear biologist and a representative of the bear viewing industry.

10. Support efforts to address attractants at the local level by producing a Model Bylaw Toolkit that governments can tailor for implementation in their own municipality or region.

Recommendations to the Federal Government

11. Expand the Guardian program to more interested First Nation communities, including supporting them if they wish to develop ecotourism infrastructure such as accommodations.

12. Salmon provide extremely important nutrient subsidies to terrestrial plant and animal communities, including grizzly bears. In preparing its implementation plan for the Wild Salmon Policy, we recommend that the Department of Fisheries and Oceans explicitly consider in its allocation formula the nutritional needs of grizzly bears, a keystone species in the predator-scavenger complex that uses and distributes marine nutrients.

Recommendations to the Provincial Government

13. Terminate all hunting of grizzly bears in BC.

14. Regulate the bear viewing industry in consultation with representatives of this industry.

15. Renew and update the 1995 British Columbia Grizzly Bear Conservation Strategy, and determine the human and financial resources necessary to implement the Strategy. Include a comprehensive public consultation.

16. Strengthen Provincial wildlife enforcement capability and increase actions that proactively encourage compliance with wildlife protection laws.

Recommendations to BC Local & Regional Governments

17. Institute measures to reduce attractants in public spaces and parks.

18. Work to increase the number of communities that are pursuing Bear Smart status.

19. Introduce and enforce bylaws regarding attractants.

Photo by Jim Lawrence KootenayReflections.com

A

Photo by Jim & Doria Moodie

Appendix A: What We Were Told

At the six public meetings held last Fall, as well as through written and oral input, the Board of Inquiry heard from a wide variety of individuals and groups. As illustrated in the body of this report, the challenges faced by BC's grizzlies are several. We begin this appendix with some specific areas of concern that were shared by many people, regardless of whether or not they opposed the grizzly bear hunt. Following this, in order to organize all input in a way that allowed us to draw out common themes and viewpoints, we found that dividing commenters by their opinion of the grizzly hunt was most effective.

1. Habitat and Human–Bear Coexistence

A large number of people we heard from mentioned the grizzly's overall role as an ecological barometer and the fact that ensuring good habitat and well-being for these animals would mean not just a more certain future for this species but also healthier wider ecosystems. These commenters ranged from simple nature-lovers to hunters, scientists, forestry professionals and environmental lawyers. Many of the main concerns they expressed were centred around issues that the BC Wildlife Federation and Guide Outfitters Association also identified (see next section below) such as the need to protect grizzly bears' home lands from the cumulative effects of resource development and human–bear conflict. Another recurring topic was the impact on grizzly bears and other wildlife of forestry, growing road densities and the increasing popularity of wilderness activities and the resultant spread of mountain bike trails and use of motorized recreational vehicles. On these topics we gained insight from individual experts and a variety of conservation organizations, including Wildsight and the Sierra Club, and others with specialized experience such as the Coast to Cascades Grizzly Bear Initiative, the Trans-border Grizzly Bear Project and the Yellowstone to Yukon Conservation Initiative.

Below we include some examples of more detailed input about a few issues of particular significance.

A. Insight on 'Threatened' Populations

We begin with input from one of BC's most experienced grizzly bear researchers, Bruce McLellan, who works for the BC Ministry of Forests, Lands and Natural Resource Operations (MFLNRO), as well as with the International Union for Conservation of Nature's (IUCN) Bear Specialist Group, and often collaborates with other wildlife experts and

initiatives. McLellan sent the Board of Inquiry short reports about the status of grizzly bear populations in two of the regions where we held public input sessions. Both of these areas happen to be places where grizzly bear populations face the most challenges and where the majority of the province's threatened population units (where no grizzly hunting is permitted) are concentrated.

South Coastal Mountains

"Just north and west of Vancouver are the south coastal mountains and there, grizzly bear conservation appears to be the most challenging in the province," McLellan wrote. This is because, in contrast to the interior mountains (Kootenay Region) and adjacent portions of Alberta and Montana, only a small amount of research has been done in the Stein/Nahatlatch, Squamish/Lillooet, and South Chilcotin Mountains. "These projects are ongoing and have provided some encouraging data but also some very discouraging information and have highlighted some difficult management situations."

The grizzly populations in "South Chilcotin and parts of the Squamish/Lillooet appear to be rapidly increasing… The Stein/Nahatlatch, on the other hand, is at a very low density and is still declining". It appears though, McLellan noted, that human-caused mortality is not "the most significant factor as more bears have died of natural causes than were killed by people". Analyses suggest that it isn't the survival rate either. Instead, it seems that young female bears are having their first litters later. This, in addition to the fact that the spring body mass and reproductive rate of the collared sample of bears is less in the Stein/Nahatlatch than the South Chilcotin, suggests a "bottom up" limiting factor, namely nutrition, he said. "Field work has documented far less high energy foods such as huckleberry, buffalo berry, and service berry in the Stein/Nahatlatch than the South Chilcotin and Squamish/Lillooet that are rich in these high-energy foods.

"Fragmentation is clearly a major issue in the south coastal mountains," he remarked." Once a contiguous population becomes fragmented into smaller, isolated populations then they become much more vulnerable" to things like food source failures, having a higher proportion of bears exposed to human settlement, and genetic issues.

There are many conservation issue in this area, McLellan said. He gave the following examples of priorities:

- To recover bears in the North Cascades, augmentation with both males and females will be necessary. Augmentation of females may also be needed for the Garibaldi/Pitt and Stein/Nahatlatch, although more work on the availability of high-energy foods should be done before bears are moved. One female was moved into the Stein/Nahatlatch. She remained for one year but was not foraging on high-quality foods when she should have been, and returned to her former range after an entire year in the Stein/Nahatlatch.
- Research and monitoring of high-energy foods in the Stein/Nahatlatch and Garibaldi/Pitt and to learn how, through fire and logging, to produce some of these foods. Map areas where wildfire managers should consider a let burn policy for long-term production of huckleberry and other high-energy foods. Potential and currently used salmon fishing areas should be mapped for protection and management.
- Education, guidance, and financial assistance to reduce human-caused mortality of bears in settled/fracture areas (Bear Aware and electric fencing).

- Purchase of and legal easements on important properties (i.e., so as to never subdivide or harvest certain tree species) in fracture areas.
- Implement access management in areas of known, high-quality habitats.
- Monitor commercial huckleberry harvest and work to curtail this practice in areas important for grizzly bears.

The Kootenay Region

"The Kootenay Region of British Columbia is, in many ways, the most interesting and challenging area for grizzly bear management in all of North America," McLellan commented. "Not only do about 160,000 people live in the region, but the cities of Calgary and Lethbridge are close by and the region has a great influx of recreationists throughout the year. Associated with all of these people are railroads, highways, rural enclaves, cattle ranches, and orchards. Industrial activities such as forest management and associated road access occurs over most of the region as well as open pit mining in the southeast corner. The Columbia River Treaty resulted in numerous large dams with reservoirs flooding thousands of hectares of rich, valley bottom habitat. There are numerous ski resorts, golf courses, mountain biking trails, snowmobile areas and cat and heliskiing centres. In addition, the Kootenay region is a destination area for ungulate hunters and grizzly bears are hunted by both residents and non-residents over most of the region; parts of the region (Flathead and South Rockies), have by far the highest grizzly bear hunter kill densities (bears killed/ha/year) in the province.

"In spite of these varied human impacts, approximately 1,900 grizzly bears, with some of the highest bear densities, are found in the Kootenay Region — this region is a fascinating area to gain insights important for grizzly conservation... This number of bears over an area of 97,413 km^2 makes an average density of 20 bears/1000 km^2 across the region. Although this density estimate includes areas settled by people where there are no bears... the density across the entire Kootenay appears higher than the 15.1 bears/1000 km^2 across the Greater Yellowstone Ecosystem that is mostly National Park, wilderness or roadless areas...," he said.

"Due partially to the level and diversity of human activity in this region, there has been far more research and inventory on grizzly bears here than anywhere else in Canada. At least 60 papers have been published in peer reviewed journals with data based fully or partially on these Kootenay projects."

Things of note for the region, McLellan explained, include grizzly population trends in three of the government's Grizzly Bear Population Units, which are used in the management of hunting.

"The population in the Granby area has increased from around 40 bears in 1998 to almost 100 in 2015."

"The population trend in the southern Flathead drainage, where it has been monitored for 38 years", on the other hand, has seen some ups and downs. From 1979 to around 1998 it rose at a fast pace to where it had almost tripled. "Due to this high density of bears plus a decade-long failure of huckleberries (the most important food in the ecosystem that bears relied on to gain fat stores for hibernation and reproduction), the reproductive rates of this population dropped dramatically, mortality rates of adult females appeared to increase, and the population declined at about 5% per year until around 2010. The population began to increase again since this time," he wrote.

"Although not as closely monitored, a similar trend of decline was measured in the South Rockies population unit that was at a very high density in the early 2000s but dropped by 40% since then…" The area includes a part of "the settled valley along Highways 3 and 95" that recent research says "appears to be an 'ecological trap' to which bears are attracted but have a much higher mortality rate than further back from the settled area". Grizzly bear collaring efforts are currently underway to understand the causes of mortality in this area, McLellan said.

Food and human-caused mortality are major factors contributing to population declines, he wrote. "Research, particularly in the Flathead, has highlighted the importance of the amounts of high-energy foods consumed by grizzly bears in the late summer and fall when they deposit fat needed for hibernation and reproduction… High-energy foods for bears in the Kootenays include huckleberry, buffaloberry, whitebark pine seeds, and ungulates…

"Human caused mortality (HCM), particularly non-hunting HCM that is difficult to quantify (and manage), is a major issue in areas settled by people (i.e., human–bear conflicts), but also in areas where ungulate hunting is common…". Unlike kills by hunters licensed to hunt grizzlies, which are all reported, many human-caused bear mortalities go unrecorded, he said. Such mortalities are often spatially concentrated and "are a major management issue in the Kootenay Region and elsewhere in the province". Recently, "the number of reported road and railroad kills has increased and the number that are unreported (animal wanders off and dies) may be much higher."

Population fragmentation is also a concern for some parts of the Kootenays. "The Flathead is part of a large population (≈ 1,000 bears) and is not totally isolated, but the fracture along Highway 3 is worsening. The South Selkirks and Yahk are more isolated and the populations are smaller. Some bear movement into these areas has been documented and some bears have been physically moved into the Yahk."

The conservation priorities McLellan listed for the Kootenays are:

- Education, guidance, and financial assistance to reduce non-hunting human-caused mortality of female bears in settled areas (Bear Aware and electric fencing) and by ungulate hunters (clean camps, proper meat poles, electric fencing, using bear spray instead of rifles).
- Implementing already agreed to access management particularly in critical energy food producing areas.
- Map areas where wildfire managers should consider a let burn policy for long-term production of huckleberry and buffalo berry.
- Quantifying the actual number of bears killed by vehicles and in particular along railways and learning how to reduce the number of these kills.

B. Connectivity of Bear Populations

We also heard from some organizations making step-by-step progress in terms of the "significant but not insurmountable challenges from the combined effects of habitat fragmentation on grizzly bears, including demographic and genetic isolation and movement limitations, ongoing or potential increases in human conflict and direct loss or alienation of critical seasonal habitats, especially for females with cubs.

"The practical effect of these factors is the potential to further erode grizzly bear range and distribution and interrupt the natural recovery of some Grizzly Bear Population Units. Addressing the root causes of the

'threatened' status of southwest BC's GBPUs will help implement the will of residents and First Nations to maintain grizzly bears regionally and provide a natural barometer of the health of wild lands," the Coast to Cascades Grizzly Bear Initiative told us.

Mark Worthing of Sierra Club BC summarized it:
"I encourage you to cast your gaze a bit wider than some of the ethical questions, and the moral questions. Totally valid questions, but if you cast your gaze a bit higher, questions like fragmentation, access management, not only in localized areas, but from the Coast to Cascades connectivity corridor routes, and the Yellowstone to Yukon scale, it will tell a slightly different story than localized conflict zones, or localized habitat fragmentation."

The work by organizations focused on North American connectivity is of vital importance, he said, because "the way that the government manages discrete populations, as if bears operate in little vacuums of management or something" does not adequately address this important problem. For example, the grizzlies of the Flathead are "a relatively healthy population" yet they also face a disproportionate amount of risks based on: a) how important they are to the larger population of grizzly bears, and b) because habitat fragmentation is considerable here with mining, logging and development, Crowsnest Pass, and Highway 3.

Without connectivity through keystone areas like BC's Flathead and the Elk Valley, North America's "bear populations may eventually just blink out over time, despite it being a vast landscape," Mark Worthing said.

"Those bear populations become disproportionately more important in a connectivity context," he explained. Without "connectivity through keystone areas like BC's Flathead, the Elk Valley", North America's "bear populations may eventually just blink out over time, despite it being a vast landscape," Worthing said.

C. Forestry and Industry Roads

The input we received included forestry and environmental law professionals who maintain that the government is failing to regulate the forest industry, forest industry roads, and other industrial roads for mining, and oil and gas. As a result, bears are losing habitat, being blocked from accessing parts of their landscape and dying in road/rail accidents, Also, or because these roads increase human access to the wilderness, more grizzlies are being killed either legally, illegally or in conflict situations.

"The elephant in the room is habitat destruction, owing to uncertainty in the review process for the estimation of timber supply, known as the timber supply review... that informs the rate of logging, known as the allowable annual cut..., which is determined by the Chief Forester," said Anthony Britneff, a forester with decades of experience in senior positions with BC's forests ministry. "The provincial government causes this uncertainty by using: out of date forest inventories; a computer model to predict natural stand growth, tree growth, that has not been validated and is based on data that were out of date, incorrectly compiled and corrupted; and a computer model used to predict the future growth of planted trees that has only recently been put through a questionable validation process against tree measurements collected at only one point in time.

Worse still, the government does not incorporate the effects of climate change into these growth models, particularly in the areas of declining forest health."

Forestry roads, he said, aren't being deactivated because forestry companies are "pushing into wildlife habitat areas, and they want to keep pushing into those areas, and logging. They're short of timber. Quite frankly, if you were to speak to professional foresters... who work for industry, they will probably tell you that they're having a lot of trouble finding the cut, the allocated cut, from the Chief Forester... The timber is not there."

"The Forest Practices Board is only responsible for the *Forest and Range Practices Act*," he responded when asked by the Board of Inquiry about the Forest Practice Board's role. "The setting of annual allowable cuts, and the whole cutting policy comes under a different act, which is the Forest Act, and the only organization that can possibly deal with that is the Auditor General," Britneff explained.

Environmentalist Vicky Husband said the Forest Practices Board does not "have laws that they can enforce. They cannot uphold good forest practices, because the laws were destroyed when the Campbell government came in 2003, and that's what happened, and that's why we've got the serious problems we have today in resource management."

Calvin Sandborn, legal director at the Environmental Law Centre of the University of Victoria, spoke of and supplied us with a report the Centre produced that looks at a specific example in the Granby Valley, where there is a grizzly population recognized as threatened by the MFLNRO.

"The Province set up protected areas in the Granby Valley, specifically to protect grizzly bears, and protected an inadequate amount of that area. Then they setup a Wildlife Habitat Area for grizzly bears around those parks, and said that scientifically we should not allow more density of roads than 0.6 kilometres per square kilometre of land, and acknowledged that that should be the cap on the number of roads in that area. Then, they just blew past that cap, they just ignore that cap and continue to approve logging. The only unroaded areas are the parks — right next to them are areas that are now targeted for logging, and they're going to log the last unfragmented habitat for grizzlies. All of this happening within a Wildlife Habitat Area..." Sandborn said.

D. Coexistence Solutions

The Board of Inquiry meetings took place in the fall, just as grizzly bears were getting set to den up. We heard from several people in the Kootenays that there were a lot of grizzlies wandering into towns (around Nelson) and some were being shot "in defence of life and property" (in the Elk Valley), likely because inadequate berry crops and/or possibly kokanee were leaving them desperate. As is probably already obvious from the body of the report, human–bear conflict is a complex issue impacting several of BC's most vulnerable bear populations. However, the province is fortunate to have specialized bear scientists who work with conservation officers, ranchers, farmers and community members on non-lethal management techniques for grizzlies. One of these scientists, Gillian Sanders, whose work focuses on agriculture and preventing agricultural conflicts, attended our Vancouver public meeting where what she said greatly helped our understanding of this very crucial issue.

"[T]here is an actual real social cost to having bears on the landscape and choosing to have bears on the landscape, specifically grizzly bears... It's honestly not fair for small food producers or somebody who just has a dozen hens in their backyard for their family's eggs to bear the social

cost of having those bears on the landscape, and the way I approach it is doing a fifty-fifty cost share for the price of electric fencing equipment.

"The answers are simple, but the education, the outreach… you can't tell people, especially rural people, how to live on their own private property and to not shoot bears that they perceive as threatening their family. Working with them and providing tools and providing incentive… when attractants are secured and bears are not going to get into sheds or on people's porches or killing livestock out the front door, tolerance for them does grow."

Sanders and several other researchers, beekeepers and people with grizzly experience confirmed the efficacy of tools and strategies to fend grizzlies off non-lethally and keep them from being attracted to human's domains. Chief among those are electric fencing and bear spray.

"I've been a commercial beekeeper for most of my life, so I've dealt with bears and electric fences and I want to say that they work very well. I've had to make it in grizzly bear habitat, not just black bear habitat," John Bergenske of Wildsight told us. "As far as the agricultural industry, I think that there is a greater responsibility than is being taken at present time to protect, whether it's honeybees, chickens, pigs or whatever, cattle from predation… It is a problem to have cattle in the high country… We do need to make sure there's a separation and there has been a significant change in terms of grizzly bear movement in the valley over the years.

"Then, there is a factor that I think is absolutely important and this is that hunters learn to use bear spray. I spent a couple years doing field work for Michael [Proctor, a scientist also in attendance] back here, in terms of collecting DNA samples and I was carrying rotten meat, rotten blood and fish guts around for two, three seasons with never a firearm or even a thought of a firearm, but bear spray. The times when I have had to use a bear spray I can tell you it works. The literature is absolutely clear that bear spray works far-far better than firearms, time and time and time again. A hunter who is out there without a bear spray, I think, basically is crazy because this is just the simple solution that works. I think that should be mandated."

E. Connecting People to their Land Base

Speaking at our Vancouver meeting was a research scientist working for a First Nation with traditional territory on the southern border of the Great Bear Rainforest. With over 20 years experience working with bears, Lana Ciarniello told us that she was asked to help Homalco Wildlife Tours learn more about the grizzly bears they were bringing people to view on Bute Inlet. Since the Homalco did not want her to use any invasive research techniques, she set up remote cameras in addition to doing hair-snagging 'traps' for DNA analysis, from which it was discovered there are 52 individual bears in the area.

"Then we ran this through some graphs and you can see that, when the visitors leave, the bears started moving around. So we started to look at, well, what we can do to make this operation easier on bears." Ciarniello told us about a viewing platform that the research found is not optimally designed or placed (it is too close to the river) and which the company is hoping to redesign and reposition, as well as some worry about how logging debris in the area has impacted an important salmon spawning river and how salmon is so key to the number of cubs mother grizzlies will birth.

However, another very compelling matter that she spoke about was how Homalco Wildlife Tours employs 24 Homalco people. "These are people who have had some hardships in the past. When they come in to Orford Bay and act as guides, we do a whole training process," she explained. Among the things the trainees learn is about ethnobotany and how their ancestors used local plants. "And you can start to see people starting to connect with the land base. You can start to see connections being made, with bears eating plants that the Homalco people also use," Ciarniello said.

"You can start to see healing occur within these people. And that really touched me. Beyond research and now into employment and connecting to their land base. This isn't just bears we're talking about, it's not just fish we're talking about and it's not just connected to the ecosystem where the bears are going to go fish; it's the people and the whole picture of how we all fit together. It's really important.

"Bears in Orford Bay are healing. They're healing to the people, they're healing to the Homalco Nation, they are their own being on a much larger scale. They help the eagles, they help the trees, and they help us, so that's why I came to talk with you today."

F. Cooperation

Finally, many people mentioned that the polarized viewpoints regarding grizzly hunting are preventing cooperation on threats that deserve greater attention.

"I think almost every speaker has had a grain of truth through them and I also want to throw in, sort of shooting straight here, they've also had a grain of self-interest in them," grizzly scientist Michael Proctor, of the Trans-border Grizzly Bear Project, commented at our Cranbrook meeting.

"I feel like the answer is the hub of a wheel and all these people are opinions and their self-interest around there [motions with hands]. I can just see the real possibility, the potential for each one of those groups compromising a little bit. The bear viewers giving up a bit, the hunters giving up a bit, the agriculture community giving up a bit and the environmental community giving up a bit. I think that you need to sort through the self interest and I can see everybody being able to work together and compromise at some level... I think everybody wants to see grizzly bears here 1,000 years from now."

2. Those Unopposed to Grizzly Bear Hunting

The majority of individuals who identified themselves as in favour of grizzly bear hunting were guide outfitters and hunters. Amongst hunters were some who said that, though they did not hunt grizzly bears themselves, they believed those who wished to should be free to do so. Some of these non-grizzly hunting hunters said that this was because they feared grizzly bear hunting might represent "the thin edge of the wedge" whereby if the hunting of one species is disallowed then bans on the hunting of others will follow.

Many hunters expressed the belief that grizzly bears are a predator that humans need to 'manage' in order to maintain a number of grizzlies that does not end up having 'social costs' on the local people such as impacting other wildlife populations (e.g., moose) used for human protein needs, or compromising the safety of human settlements and livelihoods such as livestock.

However, many other aspects of the hunt and the future of grizzly bear populations were also discussed by people with pro-hunting views. Some of the Board of Inquiry's public input sessions were attended by representatives from the BC Wildlife Federation who were well versed in these issues. We begin with their composite perspective, followed by input sent by e-mail by the Guide Outfitters Association of BC, because these two organizations summarized just about every topic mentioned by individual commenters who were unopposed to grizzly bear hunting, as well as various ecological issues that were actually concerns shared by those opposed. After these accounts, we include some examples of individual hunter/guide/trapper commentary and then conclude the pro-hunt section with the only input we received from the agricultural industry.

A. BC Wildlife Federation

History of BCWF and Grizzly Hunt Management

BC Wildlife Federation representatives told us that the federation includes 100 clubs across the province — representing over 50,000 hunters, anglers and conservationists — and traces its roots back to the 1890s. The organization has helped in the evolution of grizzly hunt management, they said.

"In 1950 the bounty system was removed. In the 1960s more conservative hunting regulations were brought in and grizzly bears were classified as a game species, before that they were classified as pests. That was a long time ago but the BC Wildlife Federation was one of the organizations that led the charge to put hunting regulations on the grizzly bears because they were concerned that grizzly bears were disappearing," said Jesse Zeman. "Shortly thereafter baiting was prohibited, females and young were protected, and by the 1970s, grizzly bear hunting was moving to a lottery system. These are all good things; it's a direct reflection of change in social values and a more sustainable approach to resource management."

Grizzly Population Threats

"Moving grizzly bears onto this brought value to the species, brought 'social value' to them, and changed the public's perception of grizzly bears… The good news is in the last three decades grizzly bears are being seen in places where they had been extirpated… We have other places where there hasn't been any grizzly bear hunting where we have declining grizzly bear population management units…," Zeman continued.

"The big picture threats to grizzly bears are habitat fragmentation and loss, human bear conflict, non-hunting mortality, hunting mortality in the absence of good inventory, declining abundance in food and stochastic events which result in food failures," he explained. "Effects from highways, railways, hydro development, road densities, wildlife fences all result in unsustainably high mortality, genetic isolation and in some grizzly bear populations it has resulted in localized extirpation. So we have wiped out grizzly bears in areas.

"BC is managing its forests for maximum sustainable yield of wood, not for biodiversity, not for grizzly bears and not for huckleberry production," said BCWF's Jesse Zeman.

"On food supply, there are two main food supplies for grizzly bears. It's either berries or salmon or both. Both of those sources are at risk. In the interior grizzly bears rely on berries, principally huckleberries. Huckleberries rely on an open forest canopy. Open forest canopies are created by fire. We've been putting fire out for the last 60 years or more in British Columbia. That food supply is being put at risk and we've seen berry crop failures in southeastern BC and in the interior in the last two decades where grizzly bear productivity goes down, population estimates decrease.

"Other species in the province which are suffering include moose, elk, we have listed species like Lewis woodpecker, sheep and deer which all evolve around fire maintained ecosystems. All these species suffer when we put fires out. So it isn't just about grizzly bears, it's about the way we manage the landscape…

"On the fish side we have salmon and kokanee. The story this year [2016] has been about the record low return of sockeye in the Fraser River. The Fraser River has not just been suffering from slow sockeye return. The Fraser River, interior Coho have been on the verge of life support since the mid '90s. They have not recovered, we have not done anything to change the trend. Chinook are generally in decline as well," Zeman said.

"…West Kootenay bear conflict is going to go through the roof this year. The Kootenay Lake kokanee fishery has failed" and thus only 40,000 of the normal 3/4 million fish were expected to return to rivers there, he said. "And that's optimistic. What that means is the bears that normally fed on kokanee in the river are going to turn to people's properties and houses to look for a meal. The conflict's going to go up. We've been getting a number of calls about human bear conflict and also licensed and unlicensed bear viewing putting additional pressure on grizzly bears."

"You need a framework to deal with this, especially in years where we have these stochastic events where the food source for bears fail."

Landscape management is a huge problem, all BCWF representatives told us. "Bears require large tracts of undisturbed habitat" but "road density particularly in the northeast of BC and the southeast of BC" when input "into the cumulative effects assessment model, BC is in the red," Zeman stressed.

"Grizzly bears have a threshold that they can tolerate for road densities and we're not managing to that road density. We are managing well above it. The incentives to resource extraction do not include reducing road densities. The incentives for forestry is to increase the number of roads, the budget for building roads is there, there is no budget for reusing old roads and there is no budget to decommission roads," he said.

"Connectivity is becoming an increasingly big issue in places like the Kootenay region and the Okanagan valley…" There is a huge problem where wildlife such as "elk have stopped migrating into the back country. This is becoming a North America-wide phenomenon. Life is a lot easier closer to people to avoid predators," said Zeman. "People's response, naturally, is to build fences to keep elk and ungulates off their property. The long term for that is you're going to have a valley very similar to the Okanagan where there will be no corridors from one side of the valley to the other."

Conservation Funding

Gerry Paille, BCWF regional president of region 7b (Peace), explained that these problems stem from the fact that "the number of biologists employed by government has a line that looks like this [hand motions down angle] and in

the private sector in British Columbia the line is going like this [motioned up], totally opposing. The government is shifting responsibility for a lot of oversight from government to resource users and we don't see that as a good thing. Mount Polley is a good example and I'm sure it is impacting our wildlife as well."

Thus a priority issue for grizzly bear management and policy in BC, the BCWF argues, is the need to increase dedicated funding for all natural resource management. Despite being one of the most biologically complex regions in North America, BC is consistently one of the lowest funded fish, wildlife and habitat management jurisdictions, we were told by Mark Hall, vice president of the East Kootenay Wildlife Association and a member of BCWF's board of directors. For example, he said, "BC had no dedicated annual budget for grizzly bear management or research in the province. In comparison, Yellowstone, which is 90% smaller than BC, has an annual budget for grizzly bear management of $3.2 million and over $800,000 for grizzly bear research and monitoring."

All BCWF representatives and many hunters stressed the financial contribution of hunters to wildlife management. A BCWF representative said that "in 1981 there was economic downturn, government budgets were slashed. The BC Wildlife Federation asked for an additional tax on its licenses so that that money can be contributed to wildlife management," said Dustin Snyder, Vice President of Prince George's Spruce City Wildlife Association and a Director of the BC Wildlife Federation

The resulting surcharges have since gone into a fund managed by an organization set up for that purpose called the Habitat Conservation Trust Foundation (HCTF), as we discuss in section 2C of this report. The Foundation then redistributes this money in the form of grants used to fund conservation work across the province, he explained.

In 2014, the government collected $14 million from hunters, the majority of which went into the Province's general revenue (for use on any government program or service) Snyder told us, and only the portion coming from species licence surcharges ($2.7 million) was directed to the HCTF. "To date, more than $155 million has been invested in fish and wildlife through the HCTF fund. Over the past 5 years, this fund has paid nearly $1 million directly for grizzly bear research."

Zeman listed examples: "The themes for BC being funded through hunter dollars are population monitoring, food monitoring through huckleberry analysis and prediction, habitat selection, and also managing human bear conflict."

"Most of the grizzly bear research is managed through the BC Conservation Foundation and its WildSafe BC community program," Hall said. "The BC Conservation Foundation was formed by the BC Wildlife Federation. Without the HCTF and the BC Wildlife Federation, British Columbia would be decades behind North America in grizzly bear management."

New Funding Model

Hall said that both organizations he represented, BCWF and East Kootenay Wildlife Association, are advocating for a new funding model in British Columbia by which the following would go directly to wildlife conservation:

- All hunting licence and authorization revenues (this would be an increase of about $12–13 million a year to wildlife management, he noted.)

- A portion of the natural resource royalties and rent on the public land.
- Surcharges from eco-tours and outdoor recreational users.

"We're talking about just diverting money from users of the land so that our wildlife budgets will increase from $10s of millions $100s of millions in this province," he said.

Science-based Management and Politics

The BCWF believes that the success of wildlife conservation in North America is founded on the tenet of using science in wildlife management and representatives told us they believe that hunting is part of management. Further, the term 'trophy hunt' is polarizing and inaccurate we were told, as "the BC Wildlife Federation supports the retention of grizzly bear meat, and it's our premise that it is an edible game species," said Paille. "In British Columbia our grizzly bears have been studied probably as well or better than most jurisdictions and we are fortunate that our government has some of the best grizzly bear ecologists in the world working for them," he said.

Debate about whether the government science can be trusted needs to end, Hall said, as it "is not going to benefit grizzly bears or British Columbians. We need to become a culture, socially and politically, that trusts our scientists."

On the topic of politics in grizzly bear hunting and responding to comments made by people who spoke before him at the Vancouver meeting, Zeman said: "We don't pay politicians; we're a non-profit charitable organization so we are a lobbyist group in one sense; we meet with ministers… but we do not pay for campaigns, we organize campaigns, so just to make that clear to you all."

"By focusing on hunting, I think we've missed the real conversation about grizzly bears and their future: The long term viability needs a new approach to funding natural resource management and land use planning," said Snyder.

BCWF on Bear Viewing

BCWF representatives indicated that they believe bear viewing can co-exist with hunting to some degree (some regions not well-suited for viewing) as economic diversity is what keeps BC stable and prosperous. However, we were told that they think the bear viewing industry should be managed through regulation and policy so that grizzly bear conservation is the priority, not revenue, and so as to support small businesses operations as the guide outfitting industry does, they maintained, and to prevent mega-multi-national corporations taking control of amalgamated tenures. Bear viewing should also contribute revenue to the Habitat Conservation Trust Fund, they stressed.

B. Guide Outfitters Association of BC

The Board of Inquiry received a submission from the Guide Outfitters Association of BC (GOABC), a non-profit established in 1966 to represent the guide outfitting industry, as well as input from a number of individual members of the association.

The Association told us that the provincial government's conclusions, based on its prescribed procedure for estimating the grizzly bear population "are generally supported by the experiences of GOABC members, the majority of whom live and work in close proximity to populations of grizzly bears. They perceive grizzly

populations as increasing, based primarily on the frequency of grizzly bear sightings, and human-grizzly encounters, often experienced first-hand."

"The grizzly bear hunt poses no conservation threat to populations, especially considering that it is heavily biased towards mature males. An overabundance of older male bears can be a limiting factor for bear populations, as older males are known to prey on juvenile bears, and cubs. It is important to note that it is illegal in British Columbia to harvest any bear under the age of 2 years old, or any bear in the presence of a bear under this age... Indeed, and more generally, BC's bear management guidelines are very restrictive; and any area where a harvest of grizzlies might not be sustainable has been closed to hunting; a policy fully endorsed by GOABC.

"It is also important to note that legal hunting is not only a non-detrimental influence on wildlife population health and sustainability but that it can and does act positively to enhance wildlife conservation. The IUCN [International Union for the Conservation of Nature] states that the sustainable use of wildlife is an important conservation tool for wildlife species because the social and economic benefits derived from such use provide incentives for people to conserve them."

"GOABC recognizes that threats to the grizzly bear populations of British Columbia do exist, but emphasizes that our science-based, regulated harvest should not be counted among these. Indeed, we believe British Columbia is providing, through its multiple-use approach of regulated harvest, closed areas and bear-viewing policy frameworks, a strong example of how to co-exist with, sustainably utilize, manage and conserve its grizzly bear populations.

"Research shows that habitat loss and its cumulative effects are currently the greatest threats to BC's grizzly bear populations. Grizzly bears have been extirpated from 11% of their historical range in BC, which corresponds with concentrations of private land, high road densities, and human population centres.

"We recommend that the Province place a higher priority on grizzly bears and their habitats. This requires that future resource development must be sustainable and that industry, too, must place greater value on wildlife and their habitats."

The Ethics/Values Debate

"GOABC appreciates that many people, especially those living in urban areas, have never been exposed to the vital role hunting plays in effective wildlife management... Society is a complex amalgam of many points of view, and in any discussion of ethics, there will always be the question of whose values are 'right' and whose values are most important.

"While societal values are certainly relevant, care must be taken to ensure that debates about grizzly bear management are pursued on a course of knowledge. GOABC believes the most independent and reliable knowledge comes from wildlife science, and the experiences and observations of those who live and work in close proximity to the bears. Those who live nearest wildlife, especially large predators, are often best equipped to aid in practical decision-making processes involving wildlife management. Thus we fully support inclusion of traditional and experiential knowledge in wildlife policy development frameworks."

Economics

In addition to licence revenue that goes to government and the Habitat Conservation Trust Foundation, the GOABC said: "It is estimated that non-resident grizzly bear hunters generate additional revenue of between $1.32 and $2.75 million annually. These financial contributions, even without considering economic multipliers, are significant, not just in terms of British Columbia's economy generally, but also in terms of actual dollars available for wildlife and natural resource conservation. As we are all aware, conservation is an expensive business and governments everywhere are pressed to allocate sufficient resources to its purpose."

GOABC on Bear Viewing

"Over the last twenty years, British Columbia's wildlife viewing industry has experienced significant growth while the guide and outfitting industry has been operating businesses sustainably in British Columbia's backcountry for over one hundred years. GOABC therefore appreciates that grizzly bear viewing is also a contributor to British Columbia's economy, and, in certain areas of the province can represent a sustainable enterprise in support of local economies and human livelihoods... Furthermore, these are only two of the many business activities that operate on Crown land. There are numerous instances where various land access and tenure operations must find a way to share Crown land and cooperate with one another within their land allocation allotments.

"Guide outfitting and wildlife viewing have successfully co-existed for at least two decades in British Columbia and can continue to do so in the case of all species, including grizzly bears. Any perceived conflict between bear viewing and bear hunting can be addressed through constructive dialogue and policy application."

C. Individual guide outfitters, hunters and trappers

The input we received from individual guide outfitters and hunters added some regional and personal perspectives and more detailed concerns to the information provided by BCWF and GOABC. Here are some examples of recurring themes mentioned by a large portion of hunters and guide outfitters.

Population Estimates

Darwin Cary, a long time guide outfitter located in Muskwa-Kechika, said the northern bear population "is very very healthy at the detriment of all the ungulates: moose populations are in trouble due to predation on calves and grizzlies playing a large role." In his region, grizzly hunting creates local employment, he said.

Towards the northeast, BCWF representative Paille said, there is "a very conservative estimate of 2,100 grizzly bears up here, I don't think anybody believes there are that few grizzly bears up here". That is, he believed, because "the models, how government makes estimations on populations, are based a lot on vegetation and that does not work in our part of the province". He said that "it would be nice to have more science, but there are no crisis situations like there may be in a some other parts of the province and government Fish and Wildlife in the northeast is understaffed."

Two young brothers, Page and Daniel Norton, told us that because they want to remain in the small town in the McBride area where they grew up, they decided to enter the guide outfitting field as they feel it is one of the only job opportunities available in the area, due to the decline of

logging work. “Every year we see more and more of them [grizzlies], a healthier population. It’s a great thing, I think,” said Page. “By no means do I want to see less grizzly bears, I just think the concern that there’s a lack of them, maybe in certain areas that’s true, but for the Robson Valley and the areas I’ve seen, we’ve got a very healthy population.”

Daniel told us he saw this in other regions too, as he said he also works as an onsite “wildlife monitor” contracted by resource companies to protect and educate their staff and monitor and mitigate potential human–wildlife conflict. He told us that though this field requires training, such monitors will, in serious situations, still need to contact Conservation Officers if unable to deter a bear. He gave an example of a grizzly who swam out to a float camp and would not move off despite his use of acoustical deterrents. However, by the time the CO arrived, the grizzly had moved on.

Trapper Frank Rad told us “I think our grizzly bear population in the East Kootenays has expanded and what’s happening now is we have these juvenile bears, young sows, that are looking for habitat…” and thus getting into human–bear conflict, he said. “Right now, I believe they’re under-harvested.”

Social Carrying Capacity

“Bears need to be managed within the social carrying capacity of the province. History shows in wildlife management in the history of North America, if wildlife loses its ‘social value’, we exterminate them — whether it’s the buffalo, whether it’s the antelope, whether it’s elk. Hunters would love 200,000 elk in the Kootenays. Farmers want zero. So we need to manage them within the carrying capacity. Grizzly bears are no different,” said David Beranek, a GOABC representative who attended our Cranbrook meeting.

“Hunting is the only management tool other than uncontrolled killing… If you don’t have a managed hunting season, bears will die unmanaged because people just shoot them, whether that’s 2%, 4%, 6%, 10%, 50% or 100%, people eliminate bears like they have in Vancouver, like they have in Victoria,” Beranek said.

Ungulate Populations

“The introduction of these two big predators, the wolf combined with a rising population of grizzly bears in the last 50 years”, said hunter Rod Guimont, has contributed to a “decrease in our ungulate population in the Kootenays… We’re part of the predation issue, there’s no question. That’s all part of it, but it has to be managed… we had thousands of animals and we don’t have them anymore. I’m not blaming the grizzly bear, but if you want to let things go as they may and not have proper management then we’re all in trouble and they’re in trouble.”

“I would encourage the view of hunting… as a tool for wildlife management, because there is of course the predator/prey dynamic, where you see both interact with each other, and hunting can be used as a tool to help balance that,” said Alexander Lee, a young hunter/student, at our Victoria meeting. “I dislike looking at wildlife like this, or the ecosystem, as something that man has to manage, but in reality, because of our impact on nature, because we want houses to live in in the cities, we want roads… We have to say: ‘This is how much prey we have, this is how many predators we have’, and we have to balance that some way. Hunting isn’t the only tool, but I would encourage you to look at it as a tool towards wildlife management.”

Ungulate Hunter–Bear Conflict

Several guide outfitters and hunters talked about a growing number of incidences where hunters are confronted by bears "over hunter kills". Trapper Frank Rad said "...With this expanded population, what I'm finding [is that] these bears have changed in my lifetime. They've learned... when there's a gunshot in the woods, these bears know there's dinner. They're coming to that kill because they know there's an elk on the ground, there's a deer on the ground and the hunters cannot turn their back on it. They have to load their gun completely... One of these days, trappers are going to get hurt, they're going to get killed because these bears, you've got to be so careful."

"The biggest issue... is when we do get an animal, we get an elk or something like that, we have to watch our back," said hunter James Demchuk at the Cranbrook meeting. "A bear comes in, they want the kill just as bad as we do. They're bigger, they're more powerful, they're going to hurt us. What are we going to do? We're going to shoot them. That's protection. Yes, you heard a lot of talk about using bear spray. Very effective, but if I have the rifle in my hand, I'm not reaching for bear spray. Just this last week, I was lucky enough to harvest an elk... We were lucky enough that we didn't have that problem... Last year, there was a very high number of people who were attacked by bears, from September first right until the end of November and very much due to the lack of the berries and then knowing that when you harvest an animal there's a food source for them."

Bear Spray

On the topic of bear spray, the Board of Inquiry asked almost every hunter and trapper who attended the public sessions whether they used it and the large majority said they were more prone to use or trust their guns.

Trapper Don Wilkins said that he works with a handgun because with his beaver traps he'd be "working in close" and a startled bear is "going to react before I could probably even take the lid off the bear spray". He said he has never had a problem and hopes he never will but that he has heard from others who have used bear spray that "the bear just went, 'oop, all right' and then came again".

When we asked trapper Frank Rad, who is also a trapping instructor, whether he teaches the use of bear spray, he responded that he has "never encouraged guys to carry bear spray because generally most of the guys are working diligently at the permits to carry side arms. Also, we have to dispatch the animals, so we're carrying firearms anyway... Bear spray isn't something I teach to carry in my course."

Guides and Hunters on Bear Viewing

Several guide outfitters agreed with the GOABC's belief that hunting and bear viewing need not be exclusive of one another: "We hunt in May and the first part of June. In the Kootenays, if you want to bear view, you do it in August and September when there're bears sitting in the berry patches," explained David Beranek. "We don't even see each other on the landscape. Our industry's not trying to stop the bear viewing."

Others don't feel it is a viable possibility in their territories. Darwin Cary said there is no bear viewing in his northern "neighbourhood" as the bears are more dispersed. "I mean hell, we can hardly find one when we're hunting them."

Another explained it was dangerous and difficult in his territory in the Robson Valley area. "Where I guide, I would absolutely not take somebody to view a grizzly bear in that area," Page Norton said. "I look at salmon streams on the coast, where they can be viewed from a safe distance,

there's a food source, where there's a great deal of bears that are happy and content… It's a much different dynamic than you see on the coast as far as how the grizzly bears live here. We can find grizzly bear on the salmon stream, but you might hike all day to see one… It's not like you can sit there and watch 15 grizzly bears feed side-by-side."

Further, Norton expressed concern that, being unused to coexisting with humans, bears in his area would flee people coming to view then, which would likely displace them from prime food sources such as on avalanche slides: "… that's what they're surviving on. By pushing them off, they're going to go somewhere where it's a secondary food source, those cubs are going to have less chance of surviving and likely be pushed into an area where there's a boar and they might be killed."

Heritage and Sustenance

"Coming to this tonight, I gained some empathy for some of the people who have been at the heart of the bear watching industry," said hunter Stu Rhodes at our Victoria public meeting. "I challenge the rest of you to have some empathy for those people who have grown up in a culture and a heritage of hunting in British Columbia. It's been a heritage in my family for many generations. We hunt, we put meat on the table, we tan hides, we use the animals to their fullest extent. It's part of how we live, it's part of how we work, it's how we are… For me to lose the opportunity to pursue a species that's traditionally been available to people in BC because of another fresh special interest group just doesn't seem fair to me."

"Hunting is prehistoric, it's a cultural practice in pretty much all cultures, and especially predator hunting. It's often a rite of passage in many cultures. It's also a piece of wildlife management," remarked Mike Breck. "Hunting predators you can really make a lot of friends — ranchers and farmers… Hunting is quite growing, I find, in the north portion of Vancouver Island. It's selectively harvested, organic, free range meat… I also make my own wine, and grow a lot of my own food in my garden. And it's just one of those things away from globalization, away from outsourcing, that is part of that. I hunt pretty much all species, legal, through the required methods."

D. Kootenay Livestock Association

Though we had input from only one organization from the agricultural industry, and the Board of Inquiry intends to solicit information from more, Faye Street, a representative of the Kootenay Livestock Association offered an important perspective.

"Our industry has a huge capital investment in order to produce food. We are the food producers of this province… You've heard tonight about a lot of human–bear conflict, well I want to talk about bear–domestic critters, –cows, –horses, –pigs, –chickens, –human conflict because when they come onto our private properties and destroy our properties and destroy our domestic animals, which is how we pay the bills for our capital investment. They must be kept in a common sense level where they're socially acceptable, where there is enough food for them. There's no point in having these grizzly bears by the multi-millions out there dying of starvation and getting into people's properties," Street said.

"My industry has a huge problem. We are finding now that, in the last three to five years, we have far more grizzly bears down in the valley bottoms where we have our operations, far more. I hear constantly about bears getting into the calving grounds in the spring and killing off baby calves. I hear more and more every day about bears slaughtering

cows out on the Crown ranges. That tells me there's too many bears or, as some of the people here tonight have said, they've lost their fear of humans and I agree that is huge. A healthy bear needs to be afraid of humans.

"A grizzly bear can smell afterbirth from a cow for ten miles. That's the worst predation problem we have is in the spring, but also in the fall, when, as you've heard tonight from some other people, they're looking to fill up before they go in [to their dens]. The calves are bigger then, so it's not quite such a problem, but especially in some of the high mountain valleys where the cattle are out on range until early fall. I know my husband and I, a couple of years, ago lost… There were five grizzlies on one cow. Brought her down and consumed her very quickly. It's spring and fall when the biggest problems are and especially in a year when there's not enough berries, then they look for something else… That's where we're having the most problems, in the low country and the high country.

"We do have compensation now, it's a program we fought for, but it's very little and it's difficult because you have to be able to prove the kill," Street explained in response to a question from the Board. "My husband and I, for example, used to run out cattle over 20,000 acres. How the hell are we going to find that carcass and keep it until we can verify that kill by either picture or having the CO [Conservation Officer] come out to verify it? Very, very difficult. So probably the compensation that we get is, I would say, less than 5% of the kills," said Street.

"I fully support the guide outfitting industry simply because they're like us. They have a huge capital investment involved and they put a lot of money into the coffers of this province and so they need those animals where they need them and we don't want them where our cattle are.

"I would never want to see all the grizzly bears in this province be eliminated. In order to make sure that doesn't happen, let's all use common sense and keep everything at a level that we can all live with."

3. Those Opposed to Grizzly Hunting

At our public sessions, other meetings, and by email the Board of Inquiry received input from a broad variety of individuals and organizations who voiced their desire to see an end to grizzly bear hunting in BC. The reasons for this opposition reflected a range of ethical values and practical concerns and, in a large number of cases, a combination of values and specific concerns. Amongst organizations were animal welfare nonprofits such as the Association for the Protection of Fur-Bearing Animals (The Fur-Bearers), Justice for BC Grizzlies and the Wildlife Defence League as well as environmental/conservation focused groups like the North Columbia Environmental Society, BC Nature and Arrowsmith Naturalists.

Here we outline the widest held reasons people said they objected to the hunting of grizzlies, as well as some of their common concerns.

A. Ethical arguments

A small portion of the public input we received was focused on animal rights stemming from the viewpoint that all animals are creatures whose lives should be valued, and thus their right to life respected.

Some people expressed views of grizzly bears as an animal with characteristics (particularly sentience and cognitive complexity) that they believe should compel us as a society to cultivate a more compassionate attitudes towards the welfare of these animals.

A number expressed the belief that compassion is something that wildlife management in general should be evolving to include: "Violence towards non human animals is systemic in our society and, by opposing it here, we are taking a stand against it everywhere it manifests. Instead, we can usher in a new era in our government's policy towards grizzlies and other wildlife that comes from a place of compassion," said Jordan Reichert.

Vancouver public session attendee Michael Cassidy, to highlight his belief that the widespread view of wildlife as 'resources' needs to be rethought, quoted naturalist/author Henry Beston:

"We patronize them for their incompleteness, for their tragic fate of having taken form so far below ourselves. And therein we err, and greatly err. For the animal shall not be measured by man. In a world older and more complete than ours they move finished and complete, gifted with extensions of the senses we have lost or never attained, living by voices we shall never hear. They are not brethren, they are not underlings; they are other nations, caught with ourselves in the net of life and time, fellow prisoners of the splendour and travail of the earth."

Interrelated with the compassion topic was a worry expressed by several that hunting grizzly bears perpetuates human behaviour that is, in the words of a written submission from Jefferson Bray, part of a "continuum of abuse" — i.e., a negative force in the world. That while hunting for subsistence is "a natural behaviour throughout ecological systems", sport hunting to obtain a feeling of empowerment or pleasure is not something that can be rationalized with science — "kill 'em for kicks" is an example of the type of terms used by many commenters to describe their perception of the motivations of grizzly bear hunters.

Many said they felt the language used is intentionally obfuscating such issues and thus perpetuates a sort of societal self-denial. "I get so sick of hearing about sustainable numbers when referring to our iconic grizzly bears. These bears are not inventory. There is no Walmart in the woods. We are not talking about teddy bears on shelves being bought for target practice. The bears who are hunted for trophies are sentient beings, ecological warriors who have a right to live as contented within the wild places of this province," said Marianne Lawrenson.

Ronda Murdock told us: "it is a *kill* not a *harvest* as hunters and government like to frame it. This is not agriculture, this is a slaughter of a magnificent animal that the government uses in advertising 'Super, Natural British Columbia' and yet they hide the fact that they approve of the slaughter." Indeed, a large number of commenters felt that the 'Super, Natural BC' advertising campaign developed by Destination BC, the Province's Crown corporation dedicated to tourism marketing, and its use of a grizzly bear in its natural habitat were misleading to tourists.

Val Murray of Justice for BC Grizzlies told us that she wrote to Destination BC asking: "Don't you think that this is a conflict here, to be advertising these incredible bears and

then having people killing them at the same time?" She said that in a response letter, the Manager of Corporate Communications told her that Destination BC capitalizes on the impact of grizzlies that creates that strong emotional connection to nature that gives potential visitors a sense of urgency to experience it.

B. Ecological Concerns about Grizzly Hunting

Concerns about the ecological impacts of grizzly bear hunting were also very commonly voiced. Some examples:

"Wildlife managers ignore the laws of nature. In nature, animals take the weak and sick, but hunters take the large and strong, disrupting the natural healthy predator-prey dynamics," Murdock wrote, adding: "American author, philosopher, scientist, ecologist, forester, conservationist, and environmentalist Aldo Leopold said: 'A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community; it is wrong when it tends otherwise'."

Hunters unopposed to grizzly hunting who say they care about wildlife conservation fail to recognize the paradox therein, said Chris Dagenais. Namely, that if you argue for hunting as a sustainable mode of sustenance, but still include a biodiversity-ensuring giant like the grizzly bear in your cross-hairs, you actually undermine the very sustenance for which you advocate.

"Grizzlies face so many challenges: lack of forage and salmon, fragmented habitat and endless human ingress..." said Jacklyn Hohmann. "They're not overpopulated; neither are they an invasive species; rather they are an indigenous species that had been here for eons before us and who are now struggling to survive in this rapidly changing world..."

Numerous meeting attendees expressed the view that continuing to hunt grizzly bears in the absence of certainty about the size of grizzly populations and the quality of their habitats was irresponsible at a time when the Earth is considered to be experiencing a major, some argue mass, extinction event due to human impacts, and when megafauna such as the grizzly are known to play a key role in ecosystem function.

Several people also felt BC has a special ethical responsibility: "to sustain its grizzly bears on as wide a range of their previous distribution as is possible. The bear is iconic animal on a world scale and we are responsible to the rest of the world to maintain it in a suitable environment," Ken Farquharson told us.

"Over the fifteen years since the moratorium [on grizzly bear hunting] has been overturned by Premier Campbell's government, we have lost about 5,000 grizzly bears on our landscape. That was just fifteen years ago. Those bears can live up to 25 years. There's at least 1,200 of those bears that were female, some fertile, and some mothers with tiny cubs," said Barbara Murray.

C. Political Problems

Many of the people who identified as opposing BC's grizzly bear hunt expressed concern and frustration about how they see politics as skewed in favour of a minority and unrepresentative of wider public sentiment on the issue. Some expressed respect for government scientists but qualified it as not applying to bureaucrats. Indeed, various people gave anecdotes they felt indicate that political motives are leading to biased policies or management decisions, or to poor enforcement.

Hohmann said: "Our government tells us that the hunt is carefully managed and that they are ensuring the continued existence of grizzly bears but the truth is that they are hand-in-hand with the BC Wildlife Federation and the Guide Outfitters Association of BC, both of which make political contributions to elected officials to ensure for their own interest that the status quo trophy hunting remains unchanged."

Barry Brandow Sr., a guide outfitter from the West Kootenay region, in business for over 30 years, recounted his belief that wildlife managers are "relentlessly pressured by their political masters to create hunting opportunity and that can only happen when wildlife population inventory tactics are used that have no connection to reality". He said he saw a disconnect between what he observed (in terms of declines in black bear and mule deer population) with the public positions taken and decisions made by government staff with regards to hunting those two species. "Most of the stakeholders that recreate on our mountains and harvest/extract resources… have a long history of championing their own interests and with few exceptions will not abide responsible management that speaks for the grizzly, that restricts human presence, be it road closures, reduced hunting opportunity or restrictive logging practices and an expansion of park boundaries," he wrote.

Numerous people expressed a view that the government should not continue the grizzly bear hunt in the face of not only the opposition of many scientists but polls indicating that a large majority of BC's citizens oppose trophy hunting.

"The only thing I really want to add to the trophy hunting conversation is that… one of the reasons why it gets people fired up and probably the biggest frustration I see is that it's such a slap in the face of democracy," said Lesley Fox, executive director of the Fur-Bearers. So — ethics aside and whether we eat the meat, whether it's a livelihood, whether their numbers are sustainable — at the end of the day that's all irrelevant. If we've elected a government that is supposed to represent the people, when you have 91% of the public saying we don't want this… Our democracy and our government isn't listening to the people."

Other commenters alleged the government was guilty of various other things ranging from disinterest to inaction and even colonialism in the Great Bear Rainforest.

"Under tribal law, the Wuikinuxv, Heiltsuk, Nuxalk, Kitasoo/Xaixais First Nations, the alliance of Haida, Gitga'at, Metlakatla, and others, have banned the hunt in their territories… It's under a lot of duress that the BC government continues to operate the hunt in their territories. For the BC government to undermine this law is basically for them to exert a deeply problematic act of colonialism, perpetuate systemic racism, and compromise truth and reconciliation. I don't think that's mincing words at all."

D. Economic Considerations

Some people at our hearings expressed frustration as to why the Province wasn't facilitating a switch from hunting to bear viewing, since they believed the economic benefit of hunting to be much less significant and sustainable. Many mentioned how a bear could be 'shot' with a camera an infinite number of times. Widely cited was a 2014 study — **The Economic Impact of Bear Viewing and Bear Hunting in the Great Bear Rainforest of British Columbia** — by the Stanford University-affiliated Center for Responsible Travel (CREST) that showed how much more money is generated by grizzly bear viewing than by hunting in the Great Bear Rainforest. The cost of managing the hunt was also mentioned by various, with a couple echoing what Katherine MacRae of the Commercial Bear Viewing Association (CBVA): "...One BC government wildlife biologist told authors of the CREST report that 'we spend an inordinate amount of time and resources on grizzly bear management and regulations compared with other species in the province because it is a politically charged hunt... I would say for sure that it's a net loss'..."

Vicky Husband spoke of a recent trip to Africa, where she learned that "in Botswana, they protect 30% of their land base. In Zimbabwe they protected 26.6%. They're really focused on protecting the wildlife, and they started with hunting... big game hunting, but they've moved into tourism. When we look at Canada, we protected 9.4% of our land base in Canada, and **BC has protected about 15.3%**, I just looked at the most recent numbers. In Botswana, 45% of the jobs in northern Botswana are tourism based." If less economically advanced countries can make such a transition, she said, so can BC.

E. Bear Viewing Industry

Via written comments as well as at our public meetings, we heard from a number of people involved in the bear viewing industry. They spoke not only of the economic potential but of their view that grizzly bear hunting was not something that could be conducted in concert with viewing in a way that was not detrimental to bear well-being. They also talked about their work to ensure bears are not adversely impacted by bear viewing.

The CBVA's MacRae said there are a total of 60 different operators who view bears in British Columbia, including a few in the interior of the province. Where the 2014 CREST report found that bear viewing in the Great Bear Rainforest in 2014 had a total economic value of $15 million (including all spending by bear viewing clients), she said that in 2016 the CBVA did an audit with 16 operators and found that bear viewing brought a total of $13 million in direct bear viewing revenue, not including other spending. "To date, hunting numbers from the guide outfitters and from BC Wildlife have not been given to us... so we have not been able to do a comparative study."

She also argued that while studies show that managing the grizzly hunt is expensive for the BC government, commercial grizzly bear viewing is "almost entirely self regulated" through the CBVA.

Grizzly viewing is now at or close to capacity in the province, and its expansion is constrained by the hunting of grizzly bears, the MacRae said. Hunting hurts viewing, she said, citing a comparative study on wolves in the United States that found that "hunted populations will not allow for viewing to increase, whereas when those populations aren't hunted, the viewing populations, and the viewing opportunities skyrocketed".

Further, the CBVA has put together protocols for sustainable viewing, whereby humans and grizzly bears can be in the same vicinity, with "a neutral impact" on the bears, she said. Thus hunting and viewing cannot coexist, she said, because bears who are viewed have learned to see humans as non-threatening and are easily hunted. "Bears that are viewed will then be killed, because they are not scared, and they are not running away."

Citing 2006 research that found that one third of tourists who engaged in bear viewing would not have come to British Columbia if there were no bears to view, MacRae said the province was missing an opportunity: "Grizzly bear viewing is a key driver for eco-tourism in BC and, with bear viewing at capacity in the province and little room to expand, the province is likely to lose millions of dollars in revenue."

Indeed, numerous people working in, or who were supporters of, the bear-viewing industry mentioned how common it is for tourists to be shocked and dismayed to learn of the grizzly bear hunt. One example of this input:

"While it is true that my business is growing right now, I do fear there may be a backlash against my business and against other tourism in BC... No matter where they are from, the majority of our guests are in disbelief when they learn that the trophy hunting of our bears is allowed in the majority of our parks and protected areas," wrote Eric Boyum. "In 2009, during one of our tours into a BC park, I caught a legal BC resident hunter, illegally setting a bait trap for a grizzly bear kill. I confronted him, reported it to authorities, and two years later he was convicted," he told us. "My guests were shocked and horrified, as this hunter had planned to poach one of the very bears we had spent the day looking for in a beautiful estuary. Two of my guests were emotionally distraught at the potentially dangerous situation they had been in that day.

"A Provincial wildlife manager from up north recently told me that bear viewing and bear trophy hunting are compatible. This is simply not true. My guests do not believe this is true and will not accept that. Just ask the guests that were with me on the day we caught the poachers," said Boyum.

The Board of Inquiry also received input from Julius Strauss, the owner of Grizzly Bear Ranch, who said his bear viewing operations have been directly impacted by a hunting season extension. The government made the decision to extend the spring hunt in West Kootenay Area D by 10 days while "Grizzly Bear Ranch, an important local stakeholder, was not consulted and has suffered as a result. This hunting extension came despite a petition from local residents opposing such a move. The petition was signed by several hundred residents of Area D.

"Grizzly Bear Ranch tried to continue to view bears in Spring 2015 but two unfortunate incidents involving the interaction of guests/guides and grizzly trophy hunters underlined the fact that the hunting and viewing of grizzly bears in the same area at the same time is not compatible."

This left the business "forced to cancel its spring bear viewing season for 2016" and as a result it "suffered a direct loss of $60,000. This move has pushed Grizzly Bear Ranch into the red, threatening the demise of the entire operation, which brings in $400,000 a year in direct revenues" and employs 10 people. This loss, Strauss said, would also impact businesses in the nearby towns "in an economically depressed area of the West Kootenays".

"While recognising that the present laws permit grizzly hunting in BC, Grizzly Bear Ranch is specifically requesting [a] closing date of June 1st for grizzly hunting in Hunting Zones 4–27 and 4–29 in the West Kootenays," he said.

In a meeting with the MFLNRO Resource Management Director for the region, Strauss said he was told "that such a measure could be put to the hunters in the ministry's regular Hunter Advisory Committee meetings but that, even if it adopted without objection, this measure would not come into effect until 2019 at the earliest". Strauss said he continued to try to convince government but "despite meetings with Ministers Bond (Tourism) and Thomson (FLNRO) and assurances that measures will be taken, there have been no concrete steps taken to afford Grizzly Bear Ranch any relief from the extended grizzly hunting season. All the signs are that the season will remain unchanged for 2017."

Another who spoke at a public meeting was Dean Wyatt, the owner of the province's "original grizzly bear viewing lodge", which celebrated its 20th anniversary in 2016. Knight Inlet Lodge has in this time hosted 35,000 tourists from 41 countries, Wyatt told us. The lodge has generated over $400 million in spinoff benefits, has made over $30 million in direct expenditures in the Candle River/Comox Valley and has a payroll of over $10 million, he said. In addition, Wyatt said that he and his wife have spent, with in-kind and cash, close to $1 million on science. "We have our esteemed Dr. Melanie Clapham here, who's done peer reviewed papers on the bears. We have probably the longest continually studied grizzly bear population in British Columbia, in Glendale Cove."

"This is an industry that the Wildlife Branch will tell you does not exist… There is not one individual who works for the wildlife department in the Province, in MFLNRO, who is involved in wildlife viewing, not one. There is no one and there is no voice for us to be heard anywhere, in spite of everything we have done… The government is telling us, 'You don't need us. You guys have done it on your own'…"

When asked by the Board whether it was necessary to regulate the industry to make sure that bear viewing continues to be neutral to the bears and doesn't have negative impacts, Wyatt responded:

"When we started bear viewing, I paid a lot of money to hire probably one of the best bear–human guys available in North America to write us a management plan on how to view bears with the least impact from humans. We put that plan together, we submitted it to the government, and the government has used that at a template for us so that we have a quota. We're only allowed to take so many people, at certain times of the day, so that we allow the bears to have access to 60% of the time with no human interaction at all," he said.

"And I think that as an industry, if we adopt those principles, and adhere to those principles, we'll be fine, because the government has the mechanism already in place, and asks for the obtaining of back country rec [recreation] permits or licences of occupation, and in that you have to submit bear management plans, and those bear management plans have to be sustainable. The government has a template to work with, it's just a matter of the government has to give us the opportunities to use them, because we're already regulated…

"We take great pride in what we do with our science. We take great pride in the fact that we have put together an organization, with the CBVA, of proper viewing techniques, proper training techniques, and proper low impact opportunities to view grizzly bears, because we can coexist. The problem is never the bears."

F. Human Attitudes: Charlie Russell

A well known grizzly bear 'whisperer' appeared at one of our public meetings. Charlie Russell is a naturalist who became so determined to understand bear behaviour and trust towards humans that he ended up living among grizzly bears in Russia.

Mr. Russell told us he grew up near Waterton Lakes National Park in Alberta as the son of a guide outfitter turned wildlife filmmaker and author, and how early on he saw there was more to grizzly bears than people were prone to thinking. "What I saw in particular was an animal that wanted to get along with us. It wanted to be social with us, but we, because of our hunting culture, couldn't allow this... All the stories that we talked about around the campfire and believe me, I listened to many of them, was all about violence and how horrible these animals are. I started to realize that... we have to create the animal falsely to feel good about killing it."

He said he spent 20 years as a bear-friendly rancher ("making the bears feel comfortable around his place") and became increasingly fascinated by grizzly bears, eventually giving up ranching to become a bear viewing guide. He later "decided to quit using my clients as guinea pigs and do... v study on what it would be if you could build trust and what that trust would mean... I couldn't find a place that would allow me. Everyone in North America was trying to keep bears fearful so when I said I was going to do it the opposite way and see what would happen if they weren't fearful, they wouldn't allow me to work.

"It was a fluke, but I got the most amazing place to study in Kamchatka, Russia. I was there for 10 years... It was unbelievable... when you act, you have manners around these animals and you don't have fear and you start propagating trust... what I found when these animals started trusting me was that female bears were bringing their cubs for me to baby sit while they got some freedom. They did this for years and years with every set of cubs they had because once they decided they could trust you, they can."

G. Harmonization of Efforts

The Board of Inquiry received input from (and learnt of the work of) a surprisingly large number of people and organizations interested in the well-being of grizzly bears. Amongst attendees of our public meetings, several mentioned how those concerned should find ways to complement each others' efforts and not duplicate the enormous amount of work being done. Some also had experience with the political aspect.

Willow Grove Foundation director Andrew Wright spoke of meeting with an advisor of Stephen Harper's. "...We were talking about conservation issues. She said 'we love the current situation because every environmental group is arguing for this, that, and the other. As long as you're all singing from different song sheets we can just say it's too complex to do anything'."

A couple urged others who oppose grizzly hunting to be more organized and vocal. "I think you've really got to have a concerted lobby. You're up against a lobby," said former politician Ian Waddell. "...The public opinion polls that were cited found, what, that 80, 90% of British Columbians would ban trophy hunting? But we still have trophy hunting. Because they have a better lobby. And that's what you've got to face and why you've got to get your lobby to be better than their lobby..."

B

Photo by Jim & Doria Moodie

Appendix B: List of Submitters

The following individuals have made public oral or written submissions to the Board of Inquiry. In addition, a number of people have spoken to us about their views on the future of grizzly bears. These include some First Nations individuals, former politicians and retired public servants. They have chosen to make their views known privately to the Board of Inquiry. We have respected those decisions.

FIRST NAME	LAST NAME	ORGANIZATION
Cameron	Allan	Northeastern BC Wildlife Fund
Mary	Andrews	
David	Beranek	Guide Outfitters Association of BC
John	Bergenske	Wildsight
Malcom	Booth	
Jack	Boudreau	
Eric	Boyum	Ocean Adventures Charter Company
Trish	Boyum	Ocean Adventures Charter Company
Barry	Brandow	
Jefferson	Bray	
Mike	Breck	
Anthony	Britneff	
Lynne	Brookes	Arrowsmith Naturalists
Murray	Brown	
Gosia	Bryja	
Tim	Burkhart	Yellowstone to Yukon Conservation Initiative
John	Butt	
Kelly	Carson	

FIRST NAME	LAST NAME	ORGANIZATION
Darwin	Cary	
Michael	Cassidy	
GB	Chief	
Janet	Cho	North Shore Black Bear Society
Lana	Ciarniello	Homalco Wildlife Tours
Melanie	Clapham	Brown Bear Research Network
Pierce	Clegg	
Josh	Cook	
Chris	Darimont	Hakai-Raincoast Applied Conservation Science Lab at the University of Victoria
Bruce	Davies	
James	Demchuk	
Janet	Dysart	
Tom	Ethier	BC Ministry of Forests, Lands and Natural Resource Operations
Denise	Everett	
Bob	Faiers	East Kootenay Trappers Association
Ken	Farquharson	
Kaeleen	Foot	

FIRST NAME	LAST NAME	ORGANIZATION
Ron	Foot	
Lesley	Fox	The Fur-Bearers
Nicole	Gangnon	Kicking Horse Resort's Grizzly Bear Refuge
	GOABC	Guide Outfitters Association of BC
Deborah	Greaves	
Rod	Guimont	
R.	Gunther	
Mark	Hall	East Kootenay Wildlife Association
Anthony	Hamilton	BC Ministry of Environment
Joan	Hendrick	
Jacklyn	Hohmann	
Vicky	Husband	
Art	Johnson	
Leslie	Kennedy	Pet Connection Magazine
Tim	Killey	
Joanne	Kirkland	
Tommy	Knowles	Wildlife Defence League
Clayton	Lamb	
Jim	Lawrence	
Marianne	Lawrenson	
David	Lawrie	
Alexander	Lee	
Sonja	Leverkus	Northeastern BC Wildlife Fund
Hugh	Livingstone	
Jody	Lownds	Columbia Environmental Society
Louise	Ludlum-Taylor	
Sandy	MacDonald	
Katherine	MacRae	Commercial Bear Viewing Association
Allen	McEwan	
Tracey	McIntyre	

FIRST NAME	LAST NAME	ORGANIZATION
Bruce	McLellan	BC Ministry of Forests, Lands and Natural Resource Operations and IUCN Bear Specialist Group
Melanie	Merkley	
Ben	Miller	
Paul	Morgan	
Ronda	Murdock	
Barbara	Murray	
Val	Murray	Justice for BC Grizzlies
Miriam	Needoba	
Daniel	Norton	
Page	Norton	Guide Outfitters Association of BC
Shawn	O'Connor	Homalco Wildlife Tours, Homalco Nation
Cheryl	Olsen	
Gerry	Paille	BC Wildlife Federation
Ross	Peterson	
Emily	Pickett	Vancouver Humane Society
Michael	Proctor	Trans-Border Grizzly Bear Project
Frank	Rad	East Kootenay Trappers Association
George	Ramell	
Jordan	Reichert	Animal Alliance Environment Voters Party of Canada
Stu	Rhodes	
Chris	Rich	
Charlie	Russell	
Calvin	Sandborn	University of Victoria Environmental Law Centre
Gillian	Sanders	
Christine	Schneider	
Jamie	Scott	
Joe	Scott	Conservation Northwest
Neil	Shearer	Ocean Adventures
Kevin	Smith	Maple Leaf Adventures
Sharen	Smith	Prince George
Dustin	Snyder	Spruce City Wildlife Association

FIRST NAME	LAST NAME	ORGANIZATION
Cas	Sowa	
Julius	Strauss	Grizzly Bear Ranch
Faye	Street	Kootenay Livestock Association
Neil	Thompson	
Delma	Vail	
Ian	Waddell	
Kristen	Walker	Applied Animal Biology Faculty, University of British Columbia
Randy	Wallach	
Don	Wilkins	Habitat Conservation Trust Foundation
Linda	Williams	
Don	Willimont	
Ainslie	Willock	Canadians for Bears and the Get Bear Smart Society
Elizabeth	Wilson	
EC	Witengfor	
Mark	Worthing	Sierra Club BC
Andrew	Wright	Willow Grove Foundation
Dean	Wyatt	Knight Inlet Lodge
Jesse	Zeman	BC Wildlife Federation

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grizzlybearfoundation.com

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