



**Forest  
Practices  
Board**

## **Forest Roads and Grizzly Bear Management in the Kettle-Granby Area**

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*Complaint Investigation #15048*

**FPB/IRC/210**

August 2017

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# Board Commentary

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The Board investigated a complaint about the management of road densities in the Kettle-Granby area north of Grand Forks to protect the local grizzly bear population. We found that government did not make road density targets a legal requirement in GAR Order 8-373, due to industry concerns about increased delivered wood costs. Government did not complete several planning initiatives and licensees did not implement the road density targets because they were not a legal requirement. The result is that road density continues to exceed the recommended targets in much of the area despite the identified risk to the grizzly bear population.

The Board identified two strategic issues in this complaint investigation. First is the matter of the status of the grizzly bear population in the Kettle-Granby specified area. We note that the population appears to have been stable to increasing over the past 20 years, with evidence of possible range expansion, but it remains threatened. As road density increases in the specified area, the grizzly bear population will be at greater risk. However, what is missing is a grizzly bear recovery strategy<sup>1</sup> for this population. In the absence of such a strategy, there is little to guide management and operational decisions. Development of a strategy is the role of government.

Second is the matter of the voluntary road density standards appended to the GAR Order. We are concerned that road densities exceed recommended targets in the specified area and have increased in some areas, despite the policy direction established by the statutory decision maker in the order. Licensees did not follow the standards because they are not legally binding. As the Board has stated previously, the lack of approval discretion for district managers makes the implementation of any guidance in the non-legal realm dependent upon professional reliance and the responsibility of the licence holder.<sup>i</sup> In this instance, this approach has failed. Given the current regulatory structure, we believe that road density standards have been ineffective in this situation because they are outside of a legal framework.

The Board agrees with government's GAR implementation policy, which states: "Without review and monitoring, GAR actions could become out of date, irrelevant or, at worst, result in outcomes on the ground that are contrary to good forest management. As part of the commitment to continuous improvement, government staff with responsibilities under GAR should undertake periodic reviews of, and monitor, the legally established actions they have authority for to determine if the GAR Order is effectively protecting the resource value. The review and monitoring may address whether the area under the GAR Order is still appropriate and/or if the results-based response to the order (via plans and practices) are effective."<sup>ii</sup>

As a result of these findings and concerns, and in accordance with section 131 of the *Forest and Range Practices Act* (FRPA), the Board makes the following recommendations:

1. Government should confirm its population recovery objective and develop a strategy that includes a population target for the Kettle-Granby grizzly bear population unit that can be used to guide habitat management and industrial planning decisions.

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<sup>1</sup> This is referring to a strategy by the province, not a legal strategy or plan under the federal *Species at Risk Act*.

2. Government should consider revising GAR Order 8-373, in light of the recent grizzly bear research in the Kettle-Granby area and the failure to meet the road density targets through voluntary guidance. This reconsideration should weigh the benefits of road density and secure core area measures to government's recovery objectives for the Kettle-Granby grizzly bear population unit against an informed assessment of any material adverse effects on delivered wood costs.
3. Government should provide leadership to reduce the current risks to bears in the Kettle-Granby area. Government should lead local licensees and BCTS in an operational planning process for roads and timber harvesting in the Kettle-Granby specified area that protects high value bear habitat and addresses access management, such as road deactivation and regulatory road closures, while integrating with timber objectives. The Board's previous reports on access management may be helpful to this exercise.<sup>iii</sup>
4. Government should monitor the amount of open road density, secure core area, and grizzly population size and distribution over time and make further adjustments to management and legal requirements if and as needed.

In accordance with section 132 of FRPA, the Board requests that the Ministry of Forests, Lands, Natural Resource Operations and Rural Development respond to these recommendations by December 15, 2017.

# Introduction

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## The Complaint

In July 2015, the Friends and Residents of the North Fork (FRNF), a group of concerned citizens based in Grand Forks, BC, filed a complaint with the Board asserting that the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) is not protecting the grizzly bear population in the Kettle-Granby area of the Selkirk Natural Resource District, north of Grand Forks. The basis for FRNF's assertion is that government did not establish legal objectives to limit road density when it established general wildlife measures for grizzly bears under the *Government Actions Regulation* (GAR) in 2010. Instead, government opted for non-binding road density targets, which appear in an appendix to the Order as recommended management guidelines that were to be met over time, with targets set for 2013 and 2027.

FRNF is concerned that neither the road density targets recommended by biologists, nor the interim 2013 targets are being met, and that road densities are actually increasing over time, putting the grizzly bear population at further risk. It asserts that this is not consistent with government's objective to protect species at risk in section 7 of the *Forest Planning and Practices Regulation* (FPPR). An assessment of 2013 road density data by FRNF showed that road densities in the specified area exceeded the targets recommended in the appendix to the Order. The FRNF want road densities in the Kettle-Granby area reduced to the levels recommended by the best available science.

The FRNF also maintain that the Lynch Creek North area, adjacent to Gladstone Park, is an important buffer for the park and provides some of the last remaining habitat connectivity to Granby Park (Figure 1). It notes that the Kootenay Boundary Land Use Plan (KBLUP) identified the area between the two parks as a connectivity corridor for grizzly bears, linking south to the grizzly bear population in the United States. It is concerned that BC Timber Sales (BCTS) sold the rights to harvest timber in the Lynch Creek North area in 2013 and in 2016.

The FRNF communicated its concerns about the adequacy of measures to protect grizzly bear habitat to FLNRO and BCTS, and met with the FLNRO executive in Victoria in 2013. An assistant deputy minister and staff of FLNRO attended a field trip to the area in 2015, but the FRNF were not satisfied that any changes in forestry practices resulted and filed the complaint with the Board.

During the investigation, the Board interviewed the complainant, FLNRO and BCTS staff. The Board also interviewed Interfor Corporation (Interfor) regarding the Order and road density, as it is also active in the area.

## Background

### Grizzly Bears in the Kettle-Granby Area

Grizzly bears are blue-listed<sup>2</sup> in BC and ranked as a 'high priority' for conservation in the provincial conservation framework. There are 56 grizzly bear population units recognized in BC and the population unit in the Kettle-Granby area has been a management concern for the BC government since the 1990s because of its low population numbers and the poor population connectivity with surrounding bear populations.

The Kettle-Granby grizzly bear population appears to have increased over time, but remains within levels considered a management concern. In 1997, the Ministry of Environment undertook a grizzly bear inventory of the Kettle-Granby area, using a new method based on DNA from grizzly bear hair samples. The ministry estimated the Kettle-Granby population at 38 bears. The population was later identified by the ministry as one of nine grizzly bear populations considered threatened.<sup>3</sup> <sup>iv</sup> At the time of the 2010 GAR Order, a briefing document indicated that the population was thought to be 70, with a 25 percent margin of error.

In 2011, the Ministry of Environment reviewed the Kettle-Granby population and concluded that the numbers of grizzly bears likely increased since the 1997 inventory.<sup>v</sup> In 2012, the Ministry released a grizzly bear population status report and, based on modelling and expert opinion, estimated the Kettle-Granby population at 86 animals. In that report, the ministry states that the population objective for the nine threatened populations is recovery to prevent range contraction and ensure long-term population viability. In 2015, in cooperation with university researchers, FLNRO conducted a second DNA-based inventory of grizzly bears in the population unit and estimated that its population had increased to 87.<sup>vi</sup> In addition to an increase in numbers, bear specialists found that the distribution of bears had possibly expanded.

While the difference in population estimates from 1997 and 2015 is statistically significant, interpreting the meaning of the current estimate requires some caution, as comparing only two estimates, obtained with different sampling intensities, is not a strong measure of population trend. Although the population appears to have increased, the cause of the apparent increase is not fully understood. The current population estimate is about one-half of the area's habitat capability<sup>4</sup> that was determined to be about 165 bears based on habitat suitability and capability mapping in the mid-2000s.<sup>vii</sup> The Kettle-Granby population is still considered to be at risk.

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<sup>2</sup> The BC Conservation Data Centre assigns at-risk species and ecosystems to a red-, blue- or yellow-list depending on the conservation status. The blue-list identifies species of 'special concern'.

<http://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre/explore-cdc-data/red-blue-yellow-lists>

<sup>3</sup> The criteria used by the Ministry of Environment to determine that a population is threatened is a population that is one-half the habitat capability of the area. The Board was advised that government is developing a new protocol to evaluate population status that considers a wider range of factors that might affect the population and will apply this to re-evaluate the Kettle-Granby population.

<sup>4</sup> "Habitat Capability" is the ability of habitat under optimal natural conditions to provide a species requirements.

## Managing Access to Protect Grizzly Bears

While forestry activities such as harvesting and silviculture have the potential to impact grizzly bears and their habitat, creating access through construction of industrial roads is a significant concern for bear management.

Going back to the 1980s, studies have identified a link between roads and bear behavior and mortality. Roads create access for the public, including hunters; affect the movement and distribution of bears; influence bear behavior, body condition and survival; and contribute to fragmentation of habitat and bear populations.<sup>viii</sup>

The 1997 KBLUP Implementation Strategy identified the need to manage access—it stressed the importance of access management plans and indicated that government would undertake operational planning to determine how road density targets could be achieved. Although access management planning was identified as a priority focus in the strategy, other than access closures in two areas near Granby Park, it did not happen.

The main problem is the activity of people on the road, particularly those with guns. However, that activity is difficult to measure and regulate, so biologists use open road density (also referred to as active road density) as an indirect measure of human use and it has been shown to be a good predictor of bear survival.<sup>ix</sup> Research indicates that bear survival can be affected at road densities exceeding 600 metres per square kilometre (0.60 km/km<sup>2</sup>). The Ministry of Environment, Provincial Grizzly Bear Technical Working Group accepts this threshold, as do recovery teams in other jurisdictions including Alberta and the United States. In 2010, government adopted this road density limit for the Kettle-Granby population as a policy target to be achieved by 2027.

In addition to the assessment by the FRNF, there have been several attempts to measure road density in the Kettle-Granby area over time, with differing results depending on the dataset and method used. The 2011 government review of the Kettle-Granby population noted that high road density and human developments close to grizzly bear habitat could result in loss of habitat effectiveness. Using 2006 data, this review found that road densities in all areas within the Kettle-Granby grizzly bear population exceeded 0.62 km/km<sup>2</sup>. The road density assessment by the FRNF found that road density exceeded 0.60 km/km<sup>2</sup> in 59 percent of the specified area as of 2013. Researchers with the 2015 hair capture and DNA analysis study by FLNRO determined the mean road density in the Kettle-Granby area as 1.64 km/km<sup>2</sup>. In 2016, BCTS carried out its own analysis, which found that road density had gone down in some parts of the area but still generally exceeded the Order targets, ranging from 0.55 to 1.78 km/km<sup>2</sup>. This is discussed further with the FRNF assessment in the next section of this report.

## Recent Research in the Kettle-Granby Area

In addition to an estimate of the bear population, an important finding from the 2015 Kettle-Granby hair capture and DNA analysis study was that bear density declined considerably when road density exceeded 0.50 to 0.60 km/km<sup>2</sup>, even after habitat quality is removed as a factor. This finding was the result of modelling bear density with road density. It indicates that the previously recommended road density threshold is applicable to this population. The researchers determined that the mean road density in the Kettle-Granby area was 1.64 km/km<sup>2</sup>. However, the highest grizzly bear densities were concentrated in protected areas and adjacent areas with access controls where road densities were lower than average and generally lower than 0.60 km/km<sup>2</sup>. Bear densities ranged from 44.2 bears/ 1000 km<sup>2</sup> in Granby Park to 10.7 bears/ 1000 km<sup>2</sup> outside protected areas.

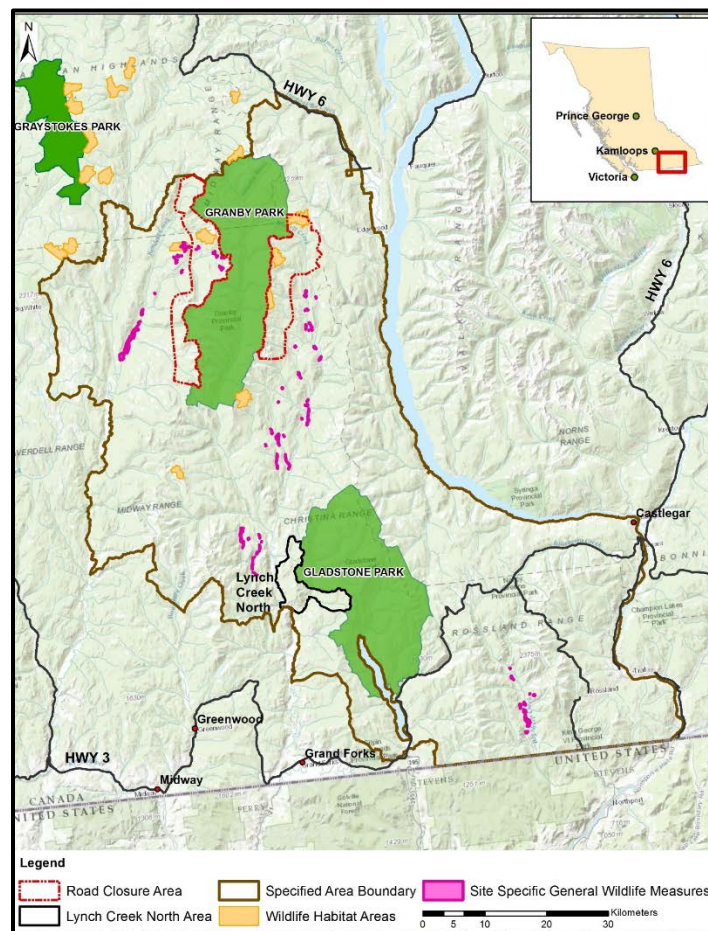
## Legal Requirements

In 2004, government designated grizzly bears as a species at risk under the *Forest and Range Practices Act* (FRPA). Section 7(1) of the FPPR states: “the objective set by government for wildlife is, without unduly reducing the supply of timber from British Columbia’s forests, to conserve sufficient wildlife habitat in terms of area, distribution of areas and attributes for those area, for (a) the survival of species at risk...” Road density and human access to open roads are considered attributes of wildlife habitat.

Licensees must specify a result or strategy in their forest stewardship plans (FSPs) that is consistent with this objective, but only if government issues a notice under section 7 of the FPPR indicating requirements for species at risk, namely, the amount of habitat, the distribution of habitat and the attributes of that habitat. However, government did not issue a section 7 notice for grizzly bears in the Kettle-Granby area because it considered a GAR Order to be a more effective, longer-term management tool.

To address the lack of protection under the FRPA regulations and other enactments, in 2010 government issued Order 8-373 under the *Government Actions Regulation* (GAR), establishing general wildlife measures for a specified area of 543 500 hectares that encompassed 2 existing parks and 14 previously established smaller wildlife habitat areas (Figure 1). The general wildlife measures restrict the timing of primary forest activities within mapped critical habitat that totals 660 hectares, and above certain road junctions; prohibit the construction of roads and trails within 50 metres of specified habitat features; and require visual buffers on main haul roads. Other general wildlife measures address coarse woody debris and wildlife tree levels; cover adjacent to avalanche tracks; stocking densities in riparian areas; non-merchantable vegetation within wetlands and riparian management areas; and herbicide use.

**Figure 1.** Kettle-Granby specified area for GAR Order 8-373.





Although a draft of the Order initially contained a general wildlife measure on road density, it was not included in the final approved Order. Instead, targets for road density were included as non-legal recommendations in an appendix to the Order. As an alternate approach to road density targets, the recommendations also included targets for secure core areas<sup>5</sup> that could also be used to achieve management goals. The road density targets applied to active (open) roads, but did not include non-status roads that may be active.

## Investigation Results

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To address the FRNF concern that government is not protecting bears because it did not make road density targets a legal requirement, the Board investigated three issues:

1. Why were recommended targets for road density excluded from the general wildlife measures in GAR Order 8-373?
2. What has government done to manage risk from roads to grizzly bears?
3. How are licensees implementing government's requirements and direction?

### 1. Why were recommended targets for road density excluded from the general wildlife measures in GAR Order 8-373?

The GAR allows the minister responsible for the *Wildlife Act* to establish general wildlife measures for species at risk, if necessary, to protect or conserve the species and if they are not otherwise provided for. However, the authority is limited in that it must: (a) be consistent with established objectives; (b) not unduly reduce the supply of timber from British Columbia's forests, and (c) have benefits that outweigh any "material adverse impact of the order on the delivered wood costs" of forest licensees, or undue constraint on their ability to exercise tenure rights.

Planning for GAR Order 8-373 began in 2006. Considerable consultation with licensees to evaluate potential impacts occurred between 2006 and 2009. Early drafts of the Order included road density limits that biologists in the Ministry of Environment believed were supported by scientific research and necessary to avoid significant risk to this population unit. However, given the fact that many areas in the Kettle-Granby already exceeded the road density targets, licensees would have to undertake measures to deactivate roads or otherwise address access issues in order to carry out operations, which would entail additional operating costs, at a time when the forest industry was recovering from a significant economic downturn.

Licensees initially sought a deferral of the road density requirement, asking that it be phased in over two to three years. This would provide time for industry to prepare for the operational cost increases, and allow for government to review deactivation requirements and consider whether less costly options were feasible. In the end, the road density targets were removed from the legally binding portion of GAR Order 8-373 prior to submission to the decision maker, although he was aware of and discussed the issue in his approval rationale. The targets became recommended management guidelines to be achieved over 17 years by 2027, with an interim three-year target for 2013. The Board

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<sup>5</sup> Secure core areas are defined in the Order as areas greater than 500 metres from an active road and greater than 10 hectares in size.

does not view this decision as abandoning the need for road density targets. Indeed, if such had been the intent, the targets would not have become recommendations in the non-legal realm.

In the Board's view, it was appropriate for the decision maker to consider the costs to industry of meeting the recommended road density limits, as this was a legal requirement and an important policy consideration. However, the GAR does not state that there can be no increase in operational costs before a general wildlife measure may be established; rather, it requires that the benefits of an order outweigh any material adverse impact on delivered wood costs. In terms of impacts to grizzly bears, it was clear that government biologists viewed that failing to implement meaningful measures to deal with road access and density issues would put the bears at "significant risk," and could defeat government's recovery objectives for this population unit.

The rationale accompanying GAR Order 8-373 identifies industry's concern for increased delivered wood costs during development of the Order. This concern was a factor in moving targets for road density and secure core area from the legally binding portion of the Order to non-legal recommendations in an appendix to the Order. Background documents and interviews with staff indicate that the discussions were focused primarily on the delivered wood costs.

Government's policy guiding GAR decisions recognizes that there are public benefits associated with protecting a species at risk, even where there is no direct public use of a resource, and that the weighing process will ultimately be a qualitative judgment. It also states that the rationale for a GAR Order should allow the public to understand the reasoning behind the decision and should be complete enough to be defensible.<sup>x</sup> The intent of Government's policy guiding GAR decisions may not have been fully met in this case.

## **Finding**

GAR Order 8-373 did not include the road density targets recommended by biologists in the general wildlife measures, due to concerns that licensees would incur additional operational costs if required to carry out deactivation. The decision-making record provided to the Board is not clear on how the costs and benefits were weighed, indicating that the intent of Government's policy guiding GAR decisions may not have been fully met in this case.

## **2. What has government done to manage risk from roads to grizzly bears?**

### **Regional planning**

Government began conservation planning for the Kettle-Granby grizzlies over two decades ago. In 1995, the Kootenay–Boundary Land Use Plan (KBLUP) established two protected areas, Granby and Gladstone Parks, to protect key habitat for the Kettle-Granby grizzlies (Figure 1). The plan acknowledged that these areas alone could not ensure grizzly recovery. In 1997, the KBLUP Implementation Strategy identified numerous grizzly bear management measures needed on the managed forest landbase. It indicated that a recovery strategy would be prepared under the provincial Grizzly Bear Conservation Strategy, which would identify grizzly bear management areas, establish connectivity corridors, and implement special management guidelines and road density targets. The management objective was "to provide the amount and distribution of habitat needed to allow the populations to recover in size and distribution, to the point they are self-maintaining." However, a recovery strategy was never prepared for the Kettle-Granby population.

The 2002 Kootenay Boundary Higher Level Plan Order (KBHLPO) established legal objectives for grizzly bear habitat and connectivity corridors. Objective 5 sets provisions for maintaining mature and old forest within mapped connectivity corridors and adjacent to important grizzly bear habitat, such as high value avalanche tracks and denning sites. However, government never created all the maps referenced in the Order and necessary to fully implement the objective. A map of a general corridor extending between Granby and Gladstone Parks, south to the US/Canada border was developed, but no map was developed for the important grizzly bear habitat sites.

## **Local planning**

In 1997, government established a year-round motor vehicle prohibition on specific roads around Granby Park under the *Motor Vehicle Prohibition Regulation of the Wildlife Act*. There are also gate closures on some roads leading into the closure areas, which limit public access but allow for industrial use.

In 2007, government established 14 wildlife habitat areas (WHAs) for grizzly bears in the Kettle-Granby area, ranging in size from 330 to 588 hectares (Figure 1). At the same time, it established general wildlife measures restricting road construction and forestry practices within the WHAs. However, these WHAs were somewhat small for a wide-ranging species such as the grizzly bear, so in 2010, the Deputy Minister of Environment determined that additional measures were needed for the conservation of the Kettle-Granby grizzly bear population unit and he established the general wildlife measures for the larger area specified in GAR Order 8-373.

During development of the GAR Order, a working group of forest industry and government representatives, led by the Ministry of Environment, discussed potential issues for the Order, including road density. A 2008 information note about the draft Order, prepared for an interagency manager's committee, discussed access management tools and stated that the general wildlife measures were not to result in incremental impacts to timber supply or delivered wood costs.

As previously discussed, road density and secure core area targets were placed in an appendix to the Order and are not part of the legal requirements. However, the appendix states: "As long as meaningful measures are not in place to deal with road access/density issues, grizzly bears will be at significant risk." With this statement, and the fact that road density recommendations were included in the Order as guidance, the Board assumes that government expected licensees to voluntarily follow the guidance to address the risk.

The appendix also notes that a review of legislation associated with road closures was required to identify practical alternatives for licensees that would allow for implementation of the recommended targets. The Board found no evidence that such a review of legislation or consideration of legislative amendments occurred.

Due to the continuing mountain pine beetle infestation in the Boundary area, the district manager issued a letter in 2015 to forest licensees, stating that he expected licensees to focus harvesting on pine-leading stands impacted by the mountain pine beetle in the Boundary Timber Supply Area. The FRNF believes that pine salvage was given priority over bear conservation and, therefore, to maintain access to beetle-killed stands, government was reluctant to deactivate roads in the area. The district manager told the Board that the letter was not a directive that beetle salvage override bear conservation.

## Finding

Government has not taken adequate action to address the road density situation in the Kettle-Granby specified area. Since 1997, it identified a number of needed actions, such as recovery planning, corridor mapping, operational planning and legislative reviews, but failed to complete any of them. In 2010, government chose to address road density targets by making them recommended management guidelines rather than legal requirements, and expected licensees to implement those guidelines.

### 3. How are licensees implementing government's requirements and direction?

As previously stated, GAR Order 8-373 contained general wildlife measures that are legal requirements within the Kettle-Granby specified area. Section 69 of the FPPR states that an authorized person carrying out primary forest activities on an area must comply with each general wildlife measure that applies to the area.

A forest stewardship plan (FSP) is a planning document that describes, through stated results, strategies and measures, how a licensee will meet government objectives, including GAR Orders, while conducting its activities in an area. The BCTS FSP says that BCTS will only construct road, enter into a licence, or permit where it is consistent with the requirements specified in Order 8-373. Interfor's FSP identifies Order 8-373 and states that it will undertake to comply with section 69 of the FPPR.

While both BCTS and Interfor said that their practices are consistent with the Order's legal requirements, neither implemented the road density recommendations from the Order. The reasons given for not doing so were mainly that the road density recommendations were not a legal requirement. Interfor also identified the cost of road deactivation as a factor, because reducing road density would require closing or deactivating existing roads.

BCTS's road permits state the timber sale licensees' deactivation requirements and the road sections to which these apply. For example, one road permit states, "the intent of deactivation is to place the road in a self-maintaining state that will indefinitely protect adjacent resources at risk." It also states that any required deactivation must conform to section 82 of the FPPR. Section 82 states, in part, that a person who deactivates a road must ...

"barricade a road surface width in a clearly visible manner to prevent access by motor vehicles, other than all-terrain vehicles." The Board interprets section 82 to allow for the prevention of access to off-road vehicles where that is the management objective. That is, the section does not require licensees to maintain access for off road vehicles everywhere in the province.

Deactivation is not sufficient to protect grizzly bears and their habitat if it does not prevent access for all vehicles. In the Board's view, effective deactivation for grizzly bears requires actions that prevent all motor vehicle activity, including off-road vehicles. It could be a physical barrier, like a gate, or actual deconstruction of the road or portions of it. What is required would be site specific and depend on the terrain, usage levels and effectiveness. Studies have shown that simpler methods such as gates are often ineffective and costly to maintain over time, unless there is public acceptance and support for the road

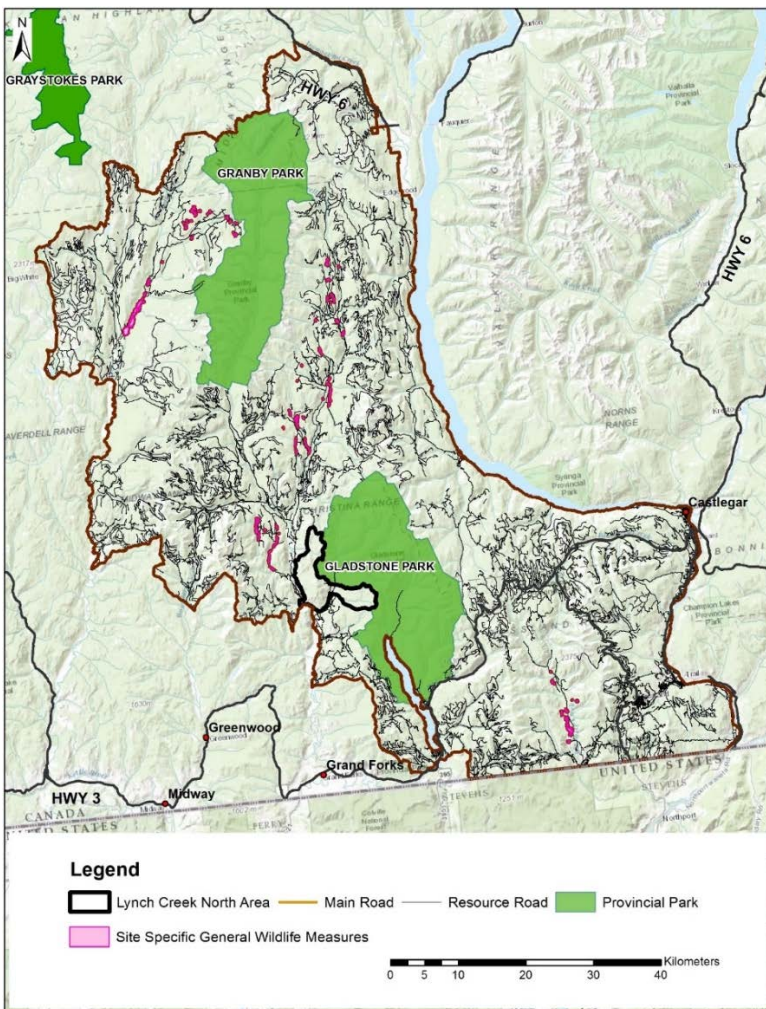
There is no legal definition of the term **deactivation**. In a 2015 special report on access management, the Board noted that there is confusion within government and industry on what is meant by deactivation. For example, roads may be identified as deactivated and still be accessible to off-road vehicles.

closures. Permanent physical barriers are more effective and less costly to maintain, but require careful resource and access management planning.

BCTS said that road densities tend to be higher in the Kettle-Granby area due to the gentle terrain and relatively low construction costs (Figure 2). During development planning, BCTS reviewed mapping of grizzly bear habitat in the Kettle-Granby area. Its intent was to protect or avoid areas containing high and moderate value spring and fall grizzly bear habitat that were not identified in the GAR Order. However, it also said that it had not been implementing the road density targets or monitoring where development was at in relation to the targets. While BCTS manages its operations in compliance with the legal measures in the Order, it considers the targets as guidance only. In general, BCTS, through its timber sale licensees, deactivates all temporary roads within and outside of cutblocks. Deactivation of permanent roads may be required in an individual timber sale licence document or may be part of BCTS's deactivation program.

Interfor said it is not actively managing or tracking road density. It deactivates all temporary in-block roads, but believes that overall there was likely a net increase in road density in its operating area.

Decision makers may have relied on forest professionals to implement the road density recommendations in the Order. The Board did not investigate the conduct of any professionals involved. In its 2013 bulletin on professional reliance, the Board concluded, "where competing interests and values are in play, it is not realistic to expect professionals working for licensees to define the public interest."<sup>xi</sup>



**Figure 2.** Existing roads in the Kettle-Granby specified area. Road source data: GeoBC.

In February 2016, BCTS conducted its own assessment of road density in the Kettle-Granby area, in response to the concerns raised by the FRNF. Using a different methodology and datasets than the FRNF study, the BCTS assessment indicated an overall downward trend for road density and an increase in secure core area since 2005. Specifically, BCTS found that active road density has gone down in 16 of the 27 landscape subunits that make up the Kettle-Granby specified area, with density in 9 subunits going up. Eight subunits met the short-term 2013 target in the Order, according to the BCTS assessment, but 19 did not.

Following the BCTS assessment, FRNF did another analysis using the BCTS methodology with 2015-2016 data and concluded that BCTS did not remove all non-active roads from the 2005 data, but did remove them from the 2015 data. They also noted that BCTS had seven percent more roads than the database FRNF used for 2005. These differences would make it appear there was a decrease in roads in 2015, when according to FRNF there was not. The FRNF assessment indicated that road density actually increased from 2005 to 2013 in all but one of the 27 subunits and that all subunits exceeded the 0.60 km/km<sup>2</sup> road density target. FRNF also found in its analysis that the amount of secure core area decreased in every subunit since 2005.

The FRNF requested that the Board conduct its own road density analysis to determine which assessment was correct. However, the Board decided not to do so because the difference in results is not critical to the Board's consideration of the investigation issues. Under either assessment, it is clear that the recommended road density targets for 2013 were not met in a significant number of the subunits, and there is no plan in place to meet the recommended targets for 2027.

### **Lynch Creek North**

The FRNF identified the Lynch Creek North area, adjacent to Gladstone Park, as a specific area where they are concerned about BCTS activity. Initially, in 2013, BCTS sold 20 000 cubic metres of timber in Lynch Creek North, which, although predominantly pine, BCTS said was not a salvage sale. BCTS tried to use existing roads where possible and while all permanent roads associated with timber sales were deactivated, it said that this might not preclude vehicle access.

A government biologist advised BCTS that the Lynch Creek North area was not high-value grizzly bear habitat. The Lynch Creek North area is also not within what the biologist considered the key connectivity corridor between Granby and Gladstone Parks. In the biologist's opinion, the important connectivity between the parks is further north and extends beyond Highway 6 to connect with the Monashee grizzly bear population. However, FRNF made the case that any remaining bear habitat is important, even if it is not the highest quality, and the value of Lynch Creek North is enhanced by its lower road density relative to other areas.

BCTS said that overall, road density in the Lynch Creek North area likely went down since 2005. Still, its analysis shows that in the Lynch Creek North area, the active road density remains above the short term (2013) recommended targets.

In 2015, unrelated to the complaint, the Forest Practices Board conducted a full scope compliance audit of BCTS in the Boundary business area, including most of the GAR Order area and some additional areas to the west. Several cutblocks in the Lynch Creek area were included in the audit. The audit looked at all activity that had occurred, including road building, from May 2014 to May 2015. The audit found that

BCTS itself did not deactivate any roads during the audit period; however, timber sale licensees deactivated more road than they constructed.

In 2016, BCTS developed another timber sale in the Lynch Creek North area that included several kilometres of proposed new road construction. BCTS contracted a biologist to advise it on possible road deactivation sites, and informed the Board that it has recently started a planning process that will consider best harvesting practices in grizzly bear habitat and develop a deactivation plan for important areas, to be implemented in 2018. The results will be shared with other licensees.

## Finding

Licensees are not implementing the recommended management guidelines in Appendix 2 of GAR Order 8-373 because they are not legally binding. BCTS considered bear habitat in its development planning, but is not meeting the road density recommendations overall. Since the complaint was filed, BCTS has assessed road density and gathered information that is being used to guide harvesting and road deactivation planning within the specified area.

## Discussion

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Government's intent for species at risk, as outlined in section 7 of FPPR, is to protect an adequate amount of habitat with consideration for the characteristics and distribution of that habitat. Research shows that roads can impact habitat quality and suitability for grizzly bears in highly-roaded areas like the Kettle-Granby. Although the exact numbers vary, recent road density assessments show that density continues to exceed the 0.60 km/km<sup>2</sup> target.

Based on the evidence already discussed, it is the Board's view that GAR Order 8-373 will not adequately conserve habitat for grizzly bears because the legally binding general wildlife measures do not address the risk to bears from roads, and the recommended road density guidelines are not being implemented.

The grizzly bear population is already threatened and will likely continue to be, even with the recent population estimate. Risks to the bear population will continue, and could increase, because licensees are still planning harvesting in the area without a road density reduction plan. If road construction, deactivation, and access controls are not coordinated and guided by the science on grizzly bears, then opportunities to protect valuable bear habitat will be lost.

As mentioned, non-status roads were not included in the recommended road density targets yet may provide vehicle access. These roads may need to be considered in future access management planning.

Closing roads, or not building new roads, are ways to reduce road use and active road density. Legal options include closing specific roads to public use by regulation, and requiring road density limits. Physical closure options include obstructions such as gates, blocks, ditches, or berms to prevent vehicle access, physical deconstruction of a portion of the road so that it is not drivable to vehicles including off road vehicles, and removal of bridges and culverts.

There are challenges with each option. Physical obstructions can be removed or bypassed in some cases, depending on how gentle or open the terrain is. Legal access restrictions can be an important

tool, and the recent FLNRO DNA study indicates these are effective where implemented in the northern portions of the Kettle-Granby area, which have closures under the *Wildlife Act*.

The Board was told by FLNRO that the greatest challenge to access management is public and political acceptance of road closures. Stakeholder engagement and education is often necessary if existing roads are going to be closed or deactivated. Some of the road user issues to consider are:

- access for fighting wildfires
- access for silviculture activities
- access for range tenure holders in the area
- access to allow for salvage of pine-beetle killed stands
- access for public recreation

However, the priority of some of these activities, particularly salvage harvesting and public recreation, is lessened by the conservation imperative. Comprehensive access management planning is necessary to address the complexities and range of alternatives available to government and licensees, in order to meet the recommended road density targets and achieve government's objective for the Kettle-Granby grizzly bear population unit. It is the Board's opinion that access planning is primarily government's responsibility, because it affects a number of forest resource values and stakeholders. The Board has addressed the importance of access management planning and the legal tools available to restrict access in two previous special reports.<sup>xiii</sup> Many of the conclusions and recommendations in those reports are relevant to the Kettle-Granby area.

The Kettle-Granby grizzly bear population will likely remain at risk until meaningful action to reduce road use and/or road density, guided by recent grizzly bear research and coordinated access management planning, occurs. Government advised the Board that the recent research in the Kettle-Granby area will be used to decide where best to manage grizzly bear connectivity across the population unit.

## Conclusions

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The FRNF complained that government is not protecting the Kettle-Granby grizzly bear population because it did not include road density targets in GAR Order 8-373. The Board investigated three issues and reached the following conclusions:

### **1. Why were recommended targets for road density excluded from the general wildlife measures in GAR Order 8-373?**

Government did not include road density targets in GAR Order 8-373 due to industry concern that it would increase costs because much of the area already exceeded the recommended road density targets and deactivation would be required. The *Government Actions Regulation* requires a weighing of the public benefit of the GAR Order against any material adverse impacts on delivered wood costs. It is not apparent from the rationale for the Order or the supporting documents how the benefits of legal road density limits to grizzly bears were weighed against the anticipated road deactivation costs to industry.



## 2. What has government done to manage risk from roads for grizzly bears?

Government has not taken adequate action to address the road density situation in the Kettle-Granby specified area. Despite the strong message in the appendices of the Order about the importance of reducing road density, it has not addressed the Kettle-Granby situation in a manner that puts a priority on protecting grizzly bear habitat. Several recommended planning initiatives and a legislative review of road deactivation requirements were never carried out. Government-led research on the Kettle-Granby grizzly population unit confirmed the effectiveness of the recommended road density guidelines and access control measures, and provides more information on which to base management decisions going forward.

## 3. How are licensees implementing government's requirements and direction?

The recommended management guidelines attached to GAR Order 8-373 are not being met by BCTS and Interfor, and are not informing operational decision-making. While BCTS considered the location of bear habitat in its harvest planning, licensees generally view road density targets as non-binding and do not implement them in their planning. Road densities continue to exceed the targets in most of the Kettle-Granby specified area.

The Kettle-Granby grizzly bear population will likely remain at risk until action is taken to reduce road density and/or road use around valuable grizzly bear habitat. Something more than the current GAR Order is required. A planning process led by government to identify high-risk areas for access, explore a range of options to control access and then monitor the results may be more successful, particularly if implemented through the legal tools available to government.

## ENDNOTES

<sup>i</sup> *District Managers' Authority Over Forest Operations*, FPB/SR/52, December 2015.

<sup>ii</sup> *Government Actions Regulation: Policy and Procedures*. Revised October 17, 2008. Ministry of Forests and Range, Ministry of Environment, Ministry of Agriculture and Lands, Ministry of Tourism, Culture and the Arts. pp. 40-41.

<sup>iii</sup> *Access Management and Resource Roads: 2015 Update*, FPB/SR/49, April 2015; and *Access Management in British Columbia: Issues and Opportunities*, FPB/SR/23, December 2005.

<sup>iv</sup> Hamilton, A.N., D.C. Heard, M.A. Austin. *British Columbia Grizzly Bear (Ursos arctos) Population Estimate 2004*, Ministry of Water, Lands and Air Protection, 2004.

<sup>v</sup> Stent, P. 2011. *Kettle-Granby and Central Monashee Grizzly Bear Population Review*. Ministry of Natural Resource Operations.

<sup>vi</sup> Mowat, G., C.T. Lamb, L. Smit, A. Reid. *The Relationships among Road Density, Habitat Quality, and Grizzly Bear Population Density in the Kettle-Granby Area of British Columbia*. Ministry of Forests, Lands and Natural Resource Operations, Extension Note 120. 2017. <https://www.for.gov.bc.ca/hfd/pubs/Docs/En/En120.htm>

<sup>vii</sup> Hamilton, D. and L. Gyug. 2007. *Landscape Level Forest Management Strategy for the Boundary Portion of the Arrow-Boundary Forest District within the Kettle-Boundary Grizzly Bear Population Unit*. Final Report. Prepared for: Kettle-Granby Grizzly Bear Population Unit Working Group.

<sup>viii</sup> Boulanger, J., G.B. Stenhouse. 2014. *The Impacts of Road on the Demography of Grizzly Bears in Alberta*. PLOS ONE. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0115535>

<sup>ix</sup> MacHutchon, G. and M. Proctor. 2016. *The Effect of Roads and Human Actions on Roads on Grizzly Bears and their Habitat*. *Trans-Border Grizzly Bear Project*. [www.transbordergrizzlybearproject.ca](http://www.transbordergrizzlybearproject.ca)

<sup>x</sup> *Government Actions Regulation: Policy and Procedures*. Revised October 17, 2008. Ministry of Forests and Range, Ministry of Environment, Ministry of Agriculture and Lands, Ministry of Tourism, Culture and the Arts.

<sup>xi</sup> Forest Practices Board. Board Bulletin 14. *Professional Reliance in BC Forests: Is it really the issue?* June 2013.

<sup>xii</sup> *Access Management and Resource Roads: 2015 Update*, FPB/SR/49, April 2015; and *Access Management in British Columbia: Issues and Opportunities*, FPB/SR/23, December 2005.



**Forest  
Practices  
Board**

PO Box 9905 Stn Prov Govt

Victoria, BC V8X 9R1 Canada

Tel. 250.213.4700 | Fax 250.213.4725 | Toll Free 1.800.994.5899

For more information on the Board, please visit our website at: [www.bcfpb.ca](http://www.bcfpb.ca)