



Who Benefits from Caribou Decline?

By Robyn Allan, Peter Bode, Rosemary Collard & Jessica Dempsey

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BC Office



CORPORATE
MAPPING PROJECT

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Summary

Despite federal and provincial governments' professed commitment to caribou protection and recovery, these same governments knowingly approve resource activity that destroys caribou habitat.

THE GRIM SITUATION FOR CARIBOU IN CANADA IS WELL KNOWN. For years, news coverage, magazine articles, scientific studies and reports by Indigenous nations, conservation organizations and governments have confirmed that the once abundant animals have dwindled to numbers that in many cases are too small to be sustained. Extensive forestry, mining and oil and gas activity have created landscapes that are uninhabitable for caribou.

Despite federal and provincial governments' professed commitment to caribou protection and recovery, these same governments knowingly approve resource activity that destroys caribou habitat. Why would they do so?

Who Benefits from Caribou Decline? addresses this question by focusing on the endangered Central Mountain caribou habitat in northeastern British Columbia, where scientists have identified coal mining as a key driver of caribou extirpation.

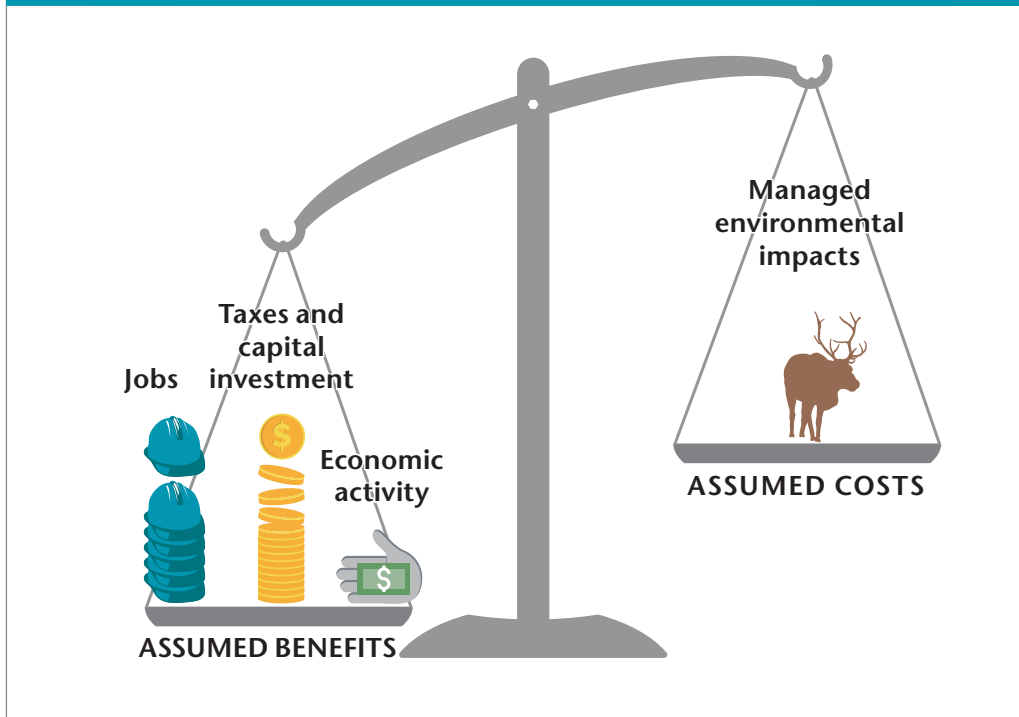
Habitat-destroying coal mining projects are approved because decision-makers believe financial and economic benefits outweigh the cost of caribou loss.¹ Project proponents submit promises of tax revenue, job creation, production activity and investment during the regulatory review process. Regulators point to these benefits as the primary justification for project approval even while risk to caribou populations is well documented in these same applications. During the assessment process regulators are assured that environmental harm can and will be mitigated, minimizing environmental cost.

The notion that benefits will significantly exceed costs is the underlying assumption in all project approvals during the past two decades, not just for the coal mines of northeastern BC. Projects appear unstoppable because of promises of huge economic returns along with assurances that environmental harm will be mitigated.

While scientists study ecological costs and document how major projects are driving caribou to extinction, and social scientists look to understand social costs and benefits projects have for regional communities, financial and economic impacts are not tracked. The broader public has no way of knowing if the promises of vast economic benefits from resource extraction are being kept.

¹ In this report we assess both financial (taxes and corporate earnings) and economic (employment and production) impacts, but often use economic impacts to represent both.

Figure A: Promised: Benefits exceed costs



The objective of this report is to examine whether the promises of financial and economic returns are being met. It does so by investigating the extent to which tax revenue, employment and production materialize as compared to the benefits that proponents, regulators and politicians promise the public.

Our study focuses on the economic impacts of three coal mines currently operating in the north-eastern region of BC: Willow Creek, Brule and Wolverine. We conducted an analysis of publicly accessible data for the companies that own these mines, including quarterly and annual reports, bankruptcy proceedings and credit rating reports. This information allowed us to quantify the economic impacts from these mines, which we consolidated into a database for the period 1999–2019. We then compared reported results against the benefits mining companies forecasted in their environmental assessment certificate applications and related technical reports.

We found that approval of these mines was based on unreasonable benefit expectations. While highly endangered caribou populations are negatively impacted, little of the economic gain promised actually materializes, and the scant benefit that is generated arrives years later than promised. As we witness herd extinction, the public may think it is allowing regulators to send caribou to their demise in return for a hefty payoff, but when it comes to coal mining in the critical habitat of endangered Central Mountain caribou, the public has been seriously misled.

**Table 1: Financial and economic promises compared to actual results:
Willow Creek, Brule and Wolverine mines, BC 1999–2019²**

	Promised	Achieved	Actual results as a percentage of promised	Overstatement of promised to actual results
Corporate tax (millions)	\$250	\$86	34%	2.9 times
Employment (person-years ³)	12,245	7,260	59%	1.7 times
Coal production (millions of tonnes)	84	31	37%	2.7 times

While highly endangered caribou populations are negatively impacted, little of the economic gain promised actually materializes, and the scant benefit that is generated arrives years later than promised.

Over the period 1999–2019, project proponents promised a total of \$250 million in corporate taxes while \$86 million was paid.⁴ Actual corporate taxes paid were 34 per cent of the corporate taxes promised. That is, promises of corporate tax revenue exceeded actual payments by almost three times. Not only were corporate tax projections aggressively overstated, corporate tax revenue did not begin accumulating until 2017, a full decade and a half later than initially predicted. Up to 2016, net corporate tax paid was zero.

Conuma Coal Resources Ltd. bought the three mines out of receivership in 2016 and reopened them. During 2017–2019, the company remitted \$86 million in corporate taxes. However, current market conditions suggest Conuma is experiencing significant challenges, with operating losses likely for 2020. If this is the case, the company would begin to receive tax refunds for corporate taxes it paid in prior years. By 2022, if Conuma is still experiencing low coal prices as weak metallurgical coal demand continues to reverberate throughout the world economy, it would not be surprising for corporate taxes paid to once again be close to, or at, zero.

When it comes to jobs, employment was only 59 per cent of that which was promised. That is, forecasted employment overstated actual employment by 1.7 times. Willow Creek, Brule and Wolverine project approval applications predicted employment at the mines based on scenarios where the mines operated steadily during their expected life cycle. In reality, consistent with mining's boom and bust nature, hiring and layoffs rose and fell as mines were opened and shuttered in response to volatile coal prices. The three mines have, on average, been shuttered almost a third of the time.

In addition to corporate tax revenue and employment, mine proponents promise economic activity. Proponents applied for the equivalent of 84 million tonnes of coal production from the Willow Creek, Brule and Wolverine mines over the period 1999–2019. However, only 31 million tonnes of coal was produced. Production was 37 per cent of the production forecasted. That is, promised production was 2.7 times greater than actual production.

2 Our detailed annual data is collected in a spreadsheet, available here: https://drive.google.com/file/d/1u_b9CaCLYHXd-EgUUca_7CddEKThz1I6/view?usp=sharing

3 A person-year is the measure of employment usually used in forecasts. One person-year of employment is a job for one person for one year. Ten person-years of employment could mean one job for 10 years, 10 jobs for one year, or some combination such as five jobs for two years.

4 All monetary values are in Canadian dollars unless otherwise indicated.

When production falls short of applied-for capacity, financial results fall short of corporate expectations. These expectations are reflected in cash flow projections which often accompany project applications and technical reports. We found that during the period 1999–2016, the companies that owned these three mines did not realize consistent and ongoing profits as predicted in their financial projections. In fact, they incurred net business losses of more than \$1 billion over that period. Our analysis of profits extends only to 2016 because Conuma Coal is a private company and much of its financial information is not publicly available.

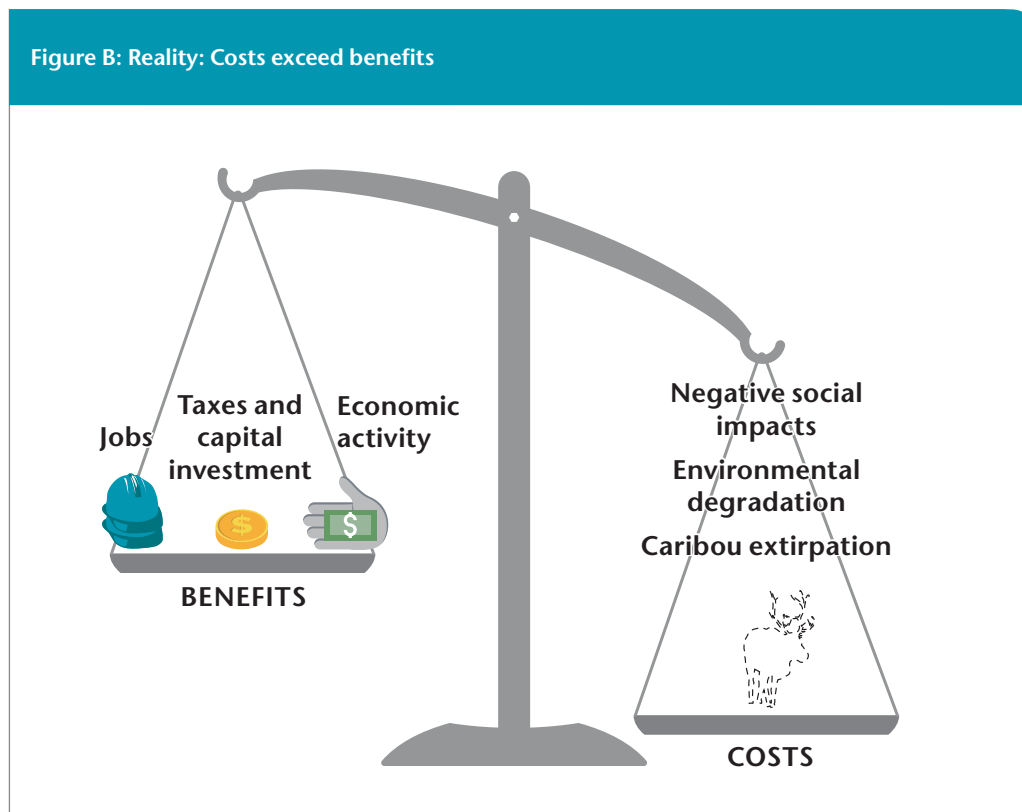
During exploration and development, BC and Canadian taxpayers subsidized these mines through flow-through shares and the federal Mineral Exploration Tax Credit. Between 1999 and 2006, these subsidies amounted to \$1.4 million.

A subsidy estimate of \$1.4 million is conservative because it does not include government expenses incurred in service to these mines, nor the implied subsidy of unfunded reclamation liabilities. Neither does it consider billions of dollars of federal and provincial government spending in support of the Northeast Coal Project. Without heavy, and ongoing, subsidization of rail, port, power, transportation and housing infrastructure that began in the early 1980s and continued well into the 2000s, the development of the Willow Creek, Brule and Wolverine mines could not have proceeded.

If the public subsidizes mining exploration and development in northeastern BC, if less than two-thirds of the employment forecasted is delivered, and if economic activity is patchy and vastly overestimated, have there been meaningful benefits from operating these mines?

During construction and operation, some local people and their families are supported by wages and salaries paid by mine operators. While we are not privy to employee information, there is

Figure B: Reality: Costs exceed benefits



We find that not only do the costs of mining activity in northeastern BC outweigh the benefits, but the public helped to fund extinction of caribou by subsidizing exploration and development.

evidence that many jobs go to workers who fly in and out of the region. Further, mines open and shut frequently. There are significant social costs that should be considered but invariably are not. These costs relate to the boom and bust nature of coal mining and its reliance on transient workforces, in turn associated with increased rates of addiction, crime, family conflicts, domestic abuse and gender violence.

For a small and select group of international investors, significant financial returns were realized from selling stocks in the companies that owned these mines; however, the majority of those who invested in these mines suffered financial losses.

Our research indicates that caribou are being sacrificed under a faulty and grossly exaggerated benefits narrative developed without any meaningful guidelines as to how the benefits should be estimated or presented. Regulators do not test the reasonableness of proponents' projections, and they fail to ensure that the benefits upon which project approval is based actually materialize.

In a perverse and disturbing outcome, we find that not only do the costs of mining activity in northeastern BC outweigh the benefits, but the public helped to fund extinction of caribou by subsidizing exploration and development.

We recommend:

1. A moratorium on new mine approvals in Central Mountain caribou habitat;
2. A public inquiry into the economic impact of all BC mines to determine their costs and benefits;
3. Legal and policy reform to ensure rigorous and realistic economic assessment of proposed projects and transparent, accountable tracking of economic impact; and
4. A full accounting of all subsidies to any industry in BC that can be linked to habitat loss and species extinction or extirpation, including for caribou.

Introduction

A whirlpool of species destruction

THE 17TH ANNUAL NORTH AMERICAN CARIBOU WORKSHOP drew hundreds of people to Ottawa in November 2018 to talk, worry, grieve, plan and share resources about caribou.⁵ The situation for caribou on the continent is grim. Many populations have gone extinct in recent decades and more are projected to be destroyed within a few generations.

At the workshop, dozens of formal presentations and testimonies shared in Indigenous talking circles attested to the catastrophic loss of caribou for Indigenous people: the loss of vital knowledge, of a family member, a way of life. On and around their nations' territories, industrial extractive development—mines, roads, transmission lines, pipelines and cutblocks that drive caribou loss—is booming.

At the workshop, Jean L'Hommecourt, a Dene woman from Fort McKay First Nation in northern Alberta, used a metaphor to capture the frustration of watching industry spread while caribou disappear: "We're in a whirlpool," she said. "It feels like we are going around and around." Development keeps spreading and caribou keep declining. Despite piles of scientific studies and dozens of ostensibly protective government regulatory instruments, caribou continue swirling toward obliteration. Why?

From 1995 to 2017, 65 environmental assessments for project approvals were conducted in Canada. All had potential negative effects for caribou. Sixty-four out of the 65 projects were approved.

What is feeding the whirlpool? Presumed benefits from development

From 1995 to 2017, 65 environmental assessments for project approvals were conducted in Canada. All had potential negative effects for caribou. Sixty-four out of the 65 projects were approved. The rejected project did not proceed because of water quality concerns, not concern

5 Caribou are large ungulates whose range extends around much of the northern hemisphere. Woodland caribou (*Rangifer tarandus caribou*), a subspecies of caribou, occupy a narrow and specialized niche in ecosystems. They occur at low densities in large swaths of old-growth coniferous forests and boreal peatlands, relying on vast undisturbed tracts of trees, ground lichens, grasses and sedges. Ranging from southern British Columbia and Alberta to Yukon and the Northwest Territories, woodland caribou historically had a wide distribution and occurred in large subpopulations (over 1,000 individuals). By 2000, about 30 per cent of their early 1900s range was no longer occupied. See David J. Spalding, *The Early History of Woodland Caribou (Rangifer tarandus caribou) in British Columbia* (Victoria, BC: Ministry of Environment, Lands, and Parks, 2000), No. B-100, <https://www.for.gov.bc.ca/HFD/library/Documents/bib88026.pdf>.

over caribou habitat impacts. An analysis of all these projects identified three reasons why all but one were approved: “mitigation measures are assumed to neutralize impacts; economic or public benefits are deemed to outweigh the costs of impacts; and/or claims are made that caribou are no longer in the project area and/or that the project area is already degraded.”⁶

Industrial extractive developments that cause caribou loss are assumed to create economic benefits with environmental impacts neutralized such that the benefits will outweigh the costs. Banking on predicted benefits, governments do more than approve resource projects. They direct public funds toward caribou-destroying developments in the form of various subsidies. The subsidies take many forms, but they all have the same objective of enhancing corporate financial returns to promote resource activity.⁷

Governments do more than approve resource projects. They direct public funds toward caribou-destroying developments in the form of various subsidies.

Policy-makers believe that without government subsidies, resource development would be constrained, and public benefit would be lost. There is a history of federal and provincial governments in Canada providing direct and indirect support to increase financial returns to resource extractive industries, such as mining, forestry and oil and gas, with the hope of achieving economic policy goals.⁸

A portion of the government’s subsidy support comes in the form of tax expenditures, which are tax measures designed to support business expansion. Flow-through share programs and the federal Mineral Exploration Tax Credit are the two most significant examples of tax expenditures designed to subsidize mining activity.⁹

Providing financial support to companies to increase their returns may seem like a strange role for the government to play. Why would governments use public money to increase financial returns to private companies, particularly when that financial support is implicated in the degradation of habitat?

Governments incentivize resource extraction based on the notion that when financial returns to private companies increase, those companies undertake resource projects, and once they do, they expand their business activity beyond what would occur in the absence of government support. The expanded business activity is assumed to result in benefits that trickle down to the overall economy and to society, benefits greater than the initial cost of providing the government support. But is this commonly held belief of overall economic benefit from resource extraction valid?

Our research reveals that despite expanded resource extraction activity from the incentivization of coal mines in northeastern British Columbia, the benefits realized fall seriously short of those promised. Furthermore, other academic research points to significant social costs of mining,

6 Rosemary-Claire Collard et al., “Extirpation despite Regulation? Environmental Assessment and Caribou,” *Conservation Science and Practice*, no. 4 (2020): 4, <https://doi.org/10.1111/csp2.166>.

7 This definition of subsidy comes from the federal government: Office of the Auditor General of Canada, Report 3 — *Tax Subsidies for Fossil Fuels—Department of Finance Canada* (Ottawa, ON: Government of Canada, 2019), http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201904_03_e_43309.html - hd3a. This definition is consistent with those relied upon by the World Bank, the International Energy Agency, World Trade Organization and the International Monetary Fund.

8 “Tax measures are often used to implement government policy objectives by providing assistance or incentives to particular groups of individuals, businesses or to certain types of activities. These measures, which can take the form of tax exemptions, deductions, deferrals or credits, are typically referred to as tax expenditures.” Department of Finance Canada, *Tax Expenditures* (Ottawa, ON: Government of Canada, 1996), 5, <http://publications.gc.ca/collections/Collection/F1-27-1995E.pdf>.

9 We began this study with an intention of quantifying all public subsidies contributing to caribou decline, including for forestry and oil and gas. After assessing available data — which are scant — we realized that this was a task that the government must undertake, a point we return to in recommendations.

including increased rates of addiction, higher crime rates, family conflicts, domestic abuse and gender violence, all trends exacerbated by the boom and bust nature of the sector and its reliance on transient workforces.¹⁰

Promises made, promises not kept

Scientists have proven that industrial activities, including forestry, coal exploration and mining, and oil and gas exploration, extraction and pipelines, are driving the likely extinction of the Central Mountain caribou population in our lifetime.¹¹ The coal mines currently operating in the northeastern region of BC were approved through an environmental assessment process in which substantial tax revenue, jobs and economic development were promised.¹²

Benefits are *predicted* by project proponents during project assessments, but the predictions are presented to evaluators in a way that makes them seem like a sure thing. For example, benefits are presented as single figures, not ranges of potential outcomes. The predictions are not accompanied by sensitivity analysis or alternative scenarios. Accordingly, we have elected to use the term *promises* when it comes to these projected benefits. We recognize there is no presence of a binding obligation for project proponents to deliver on the benefits they project, but proponents, regulators and politicians frequently present benefit predictions as if there is.

Adverse effects for caribou have also been predicted in project assessments, if mitigation efforts were not implemented. Proponents promised to implement them as a condition of certification. However, we know caribou habitat degradation and population declines have occurred despite assurances that populations would be protected. What about the economic benefits that were projected — did they materialize?

To answer this question, we analyzed and quantified promised financial and economic benefits and compared these against realized financial and economic impacts at three metallurgical coal mines in the Peace River region of BC, home to part of the Central Mountain caribou population. The three mines we studied were Willow Creek, Brule and Wolverine. Their locations are illustrated in Figure 1. These mines were selected because they are currently operating and their financial and economic data, for the most part, are publicly accessible.

Benefits are *predicted* by project proponents during project assessments, but the predictions are presented to evaluators in a way that makes them seem like a sure thing.

10 Some of the BC-specific research on gendered impacts includes:

Amnesty International, *Out of Sight, Out of Mind: Gender, Indigenous Rights, and Energy Development in Northeast British Columbia, Canada* (London, England: Amnesty International Publications, 2016), <https://www.amnesty.ca/outofsight>;

G. Gibson et al. with Lake Babine Nation & Nak'azdli Whut'en, *Indigenous Communities and Industrial Camps: Promoting Healthy Communities in Settings of Industrial Change* (Victoria, BC: The Firelight Group, 2017), https://firelight.ca/wp-content/uploads/2016/03/Firelight-work-camps-Feb-8-2017_FINAL.pdf;

Janis Shandro et al., "Perspectives on Community Health Issues and the Mining Boom–Bust Cycle," *Resources Policy* 36, no. 2 (2011): 178–186, <https://doi.org/10.1016/j.resourpol.2011.01.004>.

See also: Women's Earth Alliance and Native Youth Sexual Health Network, *Violence on the Land, Violence on Our Bodies: Building an Indigenous Response to Environmental Violence* (Berkeley, CA, and Toronto, ON: WEA and NYSHN, 2016), <http://landbodydefense.org/uploads/files/VLVBReportToolkit2016.pdf>.

11 Chris J. Johnson et al., "Witnessing Extinction — Cumulative Impacts across Landscapes and the Future Loss of an Evolutionarily Significant Unit of Woodland Caribou in Canada," *Biological Conservation* 186 (2015): 176–186, <https://doi.org/10.1016/j.biocon.2015.03.012>.

12 The Quintette and Bullmoose coal mines, which were built before environmental assessments were required, also promised tax revenue and jobs, as discussed later in the report.

Figure 1: Mining in the Central Mountain Caribou herd ranges



Note: Existing and approved but yet-to-be-opened coal mines in current Central Mountain caribou habitat. Herd boundaries identified by the BC government are in dark green; habitat identified by the West Moberly First Nations is in light green.¹³

We compared benefits promised against impacts delivered by identifying the economic predictions made in publicly available assessment and related technical reports, and comparing these promises against actual performance.

The scope of our detailed analysis ranges from 1999 to 2019. We also include a brief discussion of the economic impact of coal mining developments in the region that commenced in the early 1980s with the Quintette and Bullmoose mines, as part of the Northeast Coal Project. This review

13 West Moberly First Nations' study of caribou habitat delineates a larger spatial boundary than the herd boundaries identified by the BC government. According to the government's herd boundaries, Brule mine is in an area of "caribou trace occurrences" —see BC Ministry of Forests, Lands, Natural Resource Operations, and Rural Development, *Science Review for the South Peace Northern Caribou* (Rangifer tarandus caribou pop. 15 and pop.18) in British Columbia (Victoria, BC: Government of BC, 2018), 7, https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/caribou/2018_science_review_for_the_south_peace_northern_caribou.pdf. But in the Brule environmental assessment (EA), the mine was predicted to destroy the *last remaining high and moderate suitability caribou habitat* (40-65 ha) in the area, where most of the habitat is already destroyed or degraded. The proponent's EA certificate application notes that "caribou feeding habitat is found throughout the RSA [Regional Study Area], varying in elevation depending on the season. However, its suitability is markedly reduced, primarily by disturbance associated with roads and other linear access features." Other predicted impacts to caribou included direct caribou mortality on roads. See Western Canadian Coal Corp., "Section 10: Vegetation and Wildlife," in *Brule Mine EA Certificate Application* (Vancouver, BC: Western Canadian Coal, 2005), p. 10-77, <https://projects.eao.gov.bc.ca/api/document/5886e392a4acd4014b820ac6/fetch>.

was necessary since the heavily subsidized public infrastructure provided by the Northeast Coal Project set the stage for mining activity that was to follow. Without heavy subsidization financed primarily by BC taxpayers in the 1980s, none of the three operating mines we studied would have proceeded.

Evaluating actual economic impacts against predicted benefits is a complex and challenging exercise, primarily because regulatory agencies that approve resource extraction do not require companies to follow a rigorous and reliable estimation procedure or to monitor and report on the achievement of the economic benefits they predict. So, while the public is led to believe that these mining developments deliver significant benefits, there is nothing in place to ensure promised benefits are accurately estimated and delivered. The failure to ensure proper structures are in place to test the narrative of benefits exceeding costs is a fatal flaw in the regulatory process. It also sets up the possibility that projects have been approved under false pretenses.

The failure to ensure proper structures are in place to test the narrative of benefits exceeding costs is a fatal flaw in the regulatory process. It also sets up the possibility that projects have been approved under false pretenses.

From caribou to coal

Caribou are crucial to many Indigenous nations, and the Crown has a constitutional obligation to protect Indigenous rights—including the right to hunt caribou.

WOODLAND CARIBOU ARE LISTED UNDER CANADA'S ENDANGERED SPECIES LEGISLATION, titled the Species at Risk Act, and there are numerous provincial and federal legislative and regulatory instruments designed to protect them.¹⁴ Caribou are crucial to many Indigenous nations, and the Crown has a constitutional obligation to protect Indigenous rights—including the right to hunt caribou.¹⁵ Woodland caribou receive the fullest protection for terrestrial mammals, yet the outlook for caribou is bleak. In the most recent national assessment every caribou population is in some kind of danger, and more than half are listed as endangered.¹⁶ Scientific and governmental studies give robust proof that the proximate cause is land-use change stemming from extractive development.¹⁷ Logging, mining and oil and gas exploration, extraction and pipelines

14 For a full list see "Legislation for Species at Risk," Government of British Columbia, accessed September 30, 2020, <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/species-ecosystems-at-risk/legislation>.

15 In a precedent-setting BC Supreme Court case, *West Moberly First Nations v. BC Chief Inspector of Mines* (2010), judges ruled that the Crown's treaty obligations to ensure First Nations' (in this case, in Treaty 8) continued rights to hunt are not only general but extend to specific species, in this case, caribou.

16 Justina Ray, the co-chair of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the independent scientific committee that advises the Canadian government on its endangered species listings, delivered an even more alarming message at the North American Caribou Workshop in Ottawa in 2018. Her presentation was titled "All Caribou in Canada Are at Risk of Extinction." See Justina Ray, "At Risk of Extinction," *Canadian Geographic*, October 31, 2018, <https://www.canadiangeographic.ca/article/risk-extinction>.

17 Directly destroyed habitat impinges on caribou's ability to find food—particularly lichens, grasses and sedges. Forestry has a significant impact here, with clearcuts removing wide swaths of habitat and food, especially old-growth forest that contain lichens. Mines also directly destroy habitat. Caribou also tend to avoid human-dominated landscapes. And one of the most significant negative effects of industrial development for caribou is that land-use changes make caribou more susceptible to predation, largely by wolves. Linear access features like roads, seismic lines and transmission lines create corridors for wolves to travel and sightlines for wolves to more easily spot caribou. Dozens of scientific studies demonstrating these trends have been conducted; see, for example:

N. J. DeCesare et al., "Endangered, Apparently: The Role of Apparent Competition in Endangered Species Conservation," *Animal Conservation* 13, no. 4 (2010): 353–362, <https://doi.org/10.1111/j.1469-1795.2009.00328.x>;

Simon J. Dyer et al., "Avoidance of Industrial Development by Woodland Caribou," *Journal of Wildlife Management* 65, no. 3 (July 2001): 531–542, <https://doi.org/10.2307/3803106>;

Environment Canada, *Scientific Assessment to Inform the Identification of Critical Habitat for Woodland Caribou* (*Rangifer tarandus caribou*), Boreal Population, in Canada: 2011 Update (Ottawa, ON: Government of Canada, 2011), <http://publications.gc.ca/site/eng/401605/publication.html>;

Environment Canada, *Recovery Strategy for the Woodland Caribou* (*Rangifer tarandus caribou*), Boreal Population, in Canada (Ottawa, ON: Government of Canada, 2012), https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_caribou_boreal_caribou_0912_e1.pdf;

have spread rapidly across caribou habitat over the past few decades. These activities as well as their associated road and seismic networks destroy habitat and make caribou more susceptible to predation, particularly by wolves. Ultimately, like 80 per cent of the other endangered species in Canada, caribou are endangered first and foremost by habitat loss and degradation.¹⁸

The state of caribou in the Peace River region

Caribou herds in the Peace River region are no exception to this broader decline. Known formally as the Central Mountain caribou, they are considered “irreplaceable components of Canada’s biodiversity”¹⁹ and are of crucial importance to Indigenous nations, including West Moberly First Nations and Sahtu First Nations.

Central Mountain caribou were listed as threatened under the Species at Risk Act when it was enacted in 2002. But the population has declined steeply in recent years, losing 64 per cent of its numbers over the past three generations. In 2013, the last member of Burnt Pine, one of the Central Mountain herds, fell into a mining exploration pit and died. Several other herds have declined to fewer than 50 animals.²⁰ Central Mountain caribou were reclassified as endangered in 2014 and

In 2013, the last member of Burnt Pine, one of the Central Mountain herds, fell into a mining exploration pit and died. Several other herds have declined to fewer than 50 animals.

Environment Canada, *Recovery Strategy for the Woodland Caribou, Southern Mountain Population* (Rangifer tarandus caribou) in Canada (Ottawa, ON: Government of Canada, 2014), https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/plans/rs_woodland_caribou_bois_s_mtn_pop_0114_e.pdf;

M. Festa-Bianchet et al., “Conservation of Caribou (Rangifer tarandus) in Canada: An Uncertain Future,” *Canadian Journal of Zoology* 89, no. 5 (2011): 419–434, <https://doi.org/10.1139/z11-025>;

Daniel Fortin et al., “Movement Responses of Caribou to Human-Induced Habitat Edges Lead to Their Aggregation near Anthropogenic Features,” *American Naturalist* 181, no. 6 (2013): 827–836, <https://doi.org/10.1086/670243>;

Johnson et al., “Witnessing Extinction”;

A. David M. Latham et al., “Movement Responses by Wolves to Industrial Linear Features and Their Effect on Woodland Caribou in Northeastern Alberta,” *Ecological Applications* 21, no. 8 (2011): 2854–2865, <https://doi.org/10.1890/11-0666.1>;

Dale R. Seip, “Factors Limiting Woodland Caribou Populations and Their Relationships with Wolves and Moose in Southeastern British Columbia,” *Canadian Journal of Zoology* 70, no. 8 (1992): 1494–1503, <https://doi.org/10.1139/z92-206>;

Jesse Whittington et al., “Caribou Encounters with Wolves Increase near Roads and Trails: A Time-to-Event Approach,” *Journal of Applied Ecology* 48, no. 6 (2011): 1535–1542, <http://doi.org/10.1111/j.1365-2664.2011.02043.x>;

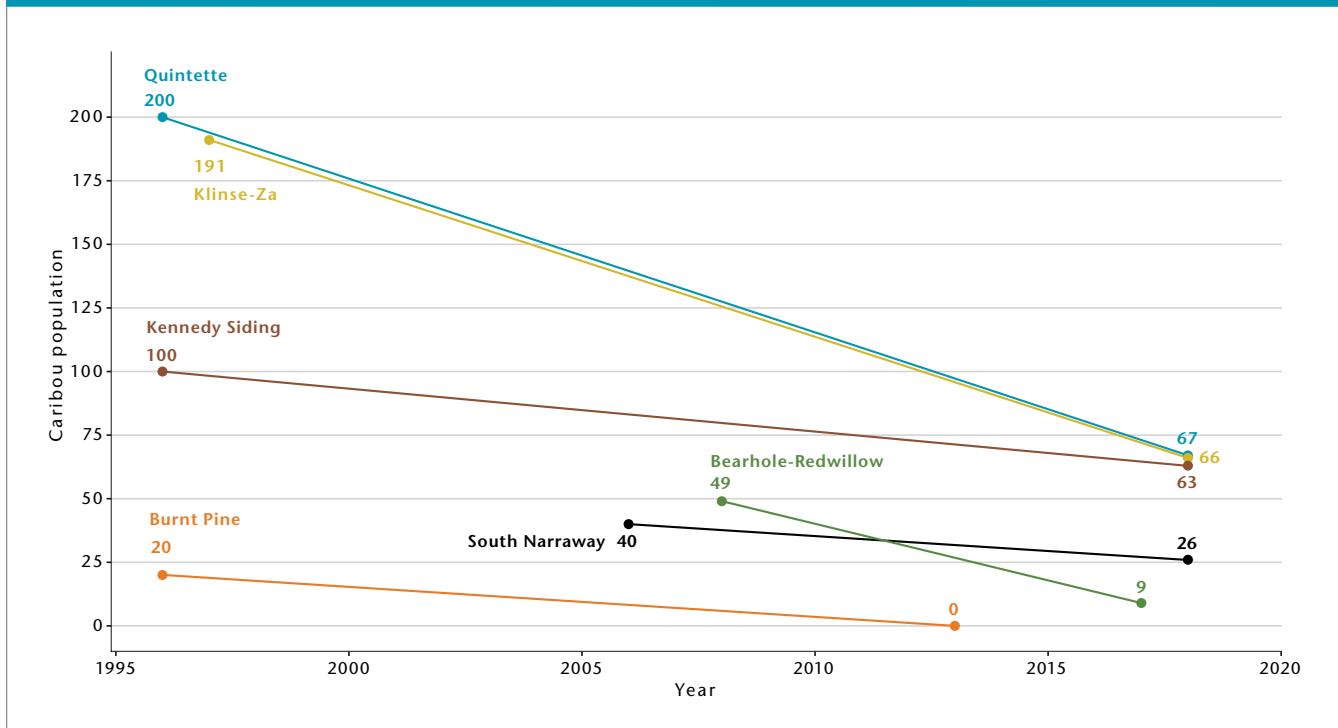
Heiko U. Wittmer et al., “Conservation Strategies for Species Affected by Apparent Competition,” *Conservation Biology* 27, no. 2 (2013): 254–260, <https://doi.org/10.1111/cobi.12005>;

18 “Legal Backgrounder: The Species at Risk Act (2002),” Ecojustice, May 2012, https://www.ecojjustice.ca/wp-content/uploads/2015/03/MAY-2012_FINAL_SARA-backgrounder.pdf.

19 Johnson et al., “Witnessing Extinction.”

20 Federal government documents summarize the situation as follows: “All subpopulations have experienced declines of about 60 per cent since the last assessment in 2002, and declines continue for all but one subpopulation, which has an unknown trend. Surveys have shown consistently high adult mortality and low calf recruitment, accelerating decline rates. Threats are continuing and escalating.” See “Species Profile: Caribou Central Mountain [sic] Population,” COSEWIC, 2014, https://wildlife-species.canada.ca/species-risk-registry/species/speciesDetails_e.cfm?sid=1266.

Figure 2: Central Mountain Caribou herds in decline (1995–2018)



are now reduced to fewer than 250 individuals,²¹ as illustrated in Figure 2.²² Recent science predicts the entire Central Mountain caribou population is likely to go extinct within our lifetimes.²³

Decades of widespread habitat degradation and loss stemming from rapid industrial development are the cause of these declines. In the 1960s, the W. A. C. Bennett Dam created a reservoir

21 COSEWIC, *COSEWIC Assessment and Status Report on the Caribou Rangifer tarandus, Northern Mountain Population, Central Mountain Population, Southern Mountain Population in Canada* (Ottawa, ON: Committee on the Status of Endangered Wildlife in Canada, 2014), https://www.registrelep-sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Caribou_Northern_Central_Southern_2014_e.pdf; BC Ministry of Forests, Lands, Natural Resource Operations, and Rural Development, *Science Review*.

22 Data for figure 2 is from the following sources:

Dale Seip and Elena Jones, *Population Status of Caribou Herds in the Central Mountain Designatable Unit within British Columbia, 2013* (Victoria, BC: Government of BC, 2013), http://www.env.gov.bc.ca/wld/speciesconservation/nc/documents/South%20Peace%20Northern%20Caribou%20Population%20Status_2013.pdf;

Dale Seip and Elena Jones, *Population Status of Central Mountain Caribou Herds in British Columbia and Response to Recovery Management Actions, 2018* (Victoria: Government of BC, 2018);

BC Ministry of Environment, *Science Update for the South Peace Northern Caribou (Rangifer tarandus caribou pop. 15) in British Columbia* (Victoria, BC: Government of BC, 2014), https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/caribou/science_update_final_from_web_jan_2014.pdf;

COSEWIC, *COSEWIC Assessment and Status Report*, Appendix 3, https://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=E6271D78-1&offset=4#app03_fn01;

BC Ministry of Forests, Lands, Natural Resource Operations, and Rural Development, *Science Review*.

23 Based on observations of disturbance, habitat change and population change from 1990 to 2012 in the Central Mountain caribou range, scientists Johnson et al. conclude that “at current rates of habitat loss and population decline, these caribou...are unlikely to persist.” See Johnson et al., “Witnessing Extinction,” 176.

that cut off a major caribou migration route.²⁴ Beginning in the 1970s, West Moberly First Nations stopped hunting caribou for food as they saw caribou disappearing. What had been a “sea of caribou,” with thousands of animals, was reduced to a few hundred by the mid-1990s.²⁵ Declines have only worsened since.

Land-use change has accelerated since the 1980s, exacerbated by the Northeast Coal Project, detailed later in the report. A cumulative effects assessment of the Peace River region from 2012 estimates that at least 67 per cent of the region is now disturbed.²⁶ Over a 22-year period from 1990 to 2012, scientists documented a 65.9 per cent loss of high-quality habitat for caribou in the South Peace region, which includes some of the Central Mountain herds.²⁷ This erosion of habitat quickened in the 2000s: one herd lost 25 per cent of its habitat in the years 2000–2010, the same decade the Species at Risk Act came into effect (in 2002).²⁸

Federal and provincial governments repeatedly profess their commitment to caribou recovery but drag their feet and delay releasing recovery strategies.²⁹ Meanwhile the provincial government moves expeditiously to approve hundreds of extractive developments, including coal mining. Upon approval of the Dillon mine, which was later expanded and renamed Brule, the mine’s owner, Western Canadian Coal Corporation, stated, “The expeditious processing of this coal permit reflects this government’s commitment to encourage mineral exploration.”³⁰

Erosion of habitat quickened in the 2000s: one herd lost 25 per cent of its habitat in the years 2000–2010, the same decade the Species at Risk Act came into effect (in 2002).

Coal mining impact on caribou

Coal mines have large direct and indirect effects on caribou and their habitat. Open-pit coal mines place a heavy footprint and can result in the loss of a large area of caribou habitat. The disturbance of high-elevation range is particularly damaging for caribou, and open-pit mines are often dug on top of mountains in the very landscape preferred by caribou.³¹ Caribou also typically have an “avoidance area” of three kilometres — possibly even four — in each direction from an open-pit coal mine’s immediate footprint.³² The loss of habitat is long-lasting. Although mine

- 24 Sarah Cox, “BC Hydro Apologizes for Bennett Dam’s ‘Profound and Painful’ Impact on First Nations at Gallery Opening,” *The Narwhal*, June 10, 2016, <https://thenarwhal.ca/bc-hydro-apologizes-bennett-dam-s-profound-and-painful-impact-first-nations-gallery-opening/>.
- 25 Mark Hume, “West Moberly First Nation Wants Drastic Steps to Save Caribou,” *The Globe and Mail*, June 10, 2013, <https://www.theglobeandmail.com/news/british-columbia/west-moberly-first-nation-wants-drastic-steps-to-save-caribou/article12466299/>.
- 26 Peter Lee and Matt Hanneman, Atlas of Land Cover, *Industrial Land Uses and Industrial-Caused Land Change in the Peace Region of British Columbia*, Global Forest Watch Canada report #4, 2012, <https://davidssuzuki.org/science-learning-centre-article/atlas-land-cover-industrial-land-uses-industrial-caused-land-changes-peace-region-british-columbia/>.
- 27 Johnson et al. “Witnessing Extinction.”
- 28 Libby Williamson-Ehlers et al., *Quantifying Behavioural Responses, Landscape Change and Habitat Loss for Woodland Caribou* (*Rangifer tarandus caribou*) *across the South Peace Region of British Columbia* (Victoria, BC: Habitat Conservation Trust Foundation, 2013).
- 29 Nigel Bankes et al., “Can Environmental Laws Fulfill Their Promise? Stories from Canada,” *Sustainability* 6, no. 9 (2014): 6024–6048, <https://doi.org/10.3390/su6096024>.
- 30 Western Canadian Coal Corporation, “Western Canadian Coal Corp. Receives Dillon Coal Mining Permit Production to Start in November,” news release, September 10, 2004. Note: Western Canadian Coal changed its name to Western Coal in 2009. Throughout the report, we refer to the company according to this timing: prior to the change as Western Canadian Coal, after as Western Coal.
- 31 Chris Johnson quoted in Floriane Bonneville, “Potential Coal Mine in B.C. Menacing Endangered Caribou,” March 29, 2017, <http://www.davidmckie.com/potential-coal-mine-in-b-c-menacing-endangered-caribou/>.
- 32 Jackie N. Weir et al., “Effects of Mine Development on Woodland Caribou *Rangifer tarandus* Distribution,” *Wildlife Biology* 13, no. 1 (2007): 66–74, [https://doi.org/10.2981/0909-6396\(2007\)13\[66:EOMDOW\]2.0.CO;2](https://doi.org/10.2981/0909-6396(2007)13[66:EOMDOW]2.0.CO;2).

Any consideration of the impacts of mining on caribou survival must also account for mining's necessary infrastructure.

operators are required by BC law to reclaim closed mines, open pits remain pits. Reclamation requirements are minimal; for example, operators are required to establish vegetation on the pit floor where "safely accessible."³³ Landscapes are arguably impossible to fully restore after an open-pit mine is dug. Mining is not a temporary disturbance.

Any consideration of the impacts of mining on caribou survival must also account for mining's necessary infrastructure, including electricity transmission lines, roads and rail lines—infrastructure that has its own negative effects for caribou, fragmenting habitat and creating linear access features that make caribou more vulnerable to predation. This infrastructure also serves other industries, and mining is only one extractive activity affecting caribou. Industrial developments have significant cumulative impacts. As a result, it is not possible to identify the precise percentage of caribou loss caused by mining. But it is widely accepted by biologists that mining has significant impacts. Scientists and government officials acknowledge the impacts of coal mining on caribou, including during the environmental assessments that companies are mandated to undergo for major project approvals.

Environmental assessment of impact on caribou is flawed

The goal of the environmental assessment process is to predict project effects and identify measures to mitigate negative effects. For coal mining in the Peace, all mines were approved with a finding of either insignificant impacts on caribou or no impacts on caribou, despite the known adverse effects of coal mining on caribou. How is a finding of no or insignificant impacts justified? There are two reasons. The first relates to ineffective consideration of the full impact while the second relates to ineffective mitigation of the impact that is identified.

Projects considered under the environmental assessment process are examined on a project-by-project basis with little to no consideration given to cumulative impacts or the compounding impacts from previous projects across time and space.³⁴ The impacts from one project may be relatively small, but the collective impact becomes large, leading to precipitous caribou declines. The limited scope of the environmental assessment review process facilitates species extirpation.

For the impacts that are identified in individual project assessment processes, proponents, consultants and the government assert that measures like revegetation, studies of caribou movements and avoidance patterns, and enforcement of speed limits mitigate impacts on caribou. There is no evidence to suggest that these mitigation measures are effective.³⁵ Rather, there

33 BC Ministry of Energy and Mines, *Health, Safety and Reclamation Code for Mines in British Columbia*, 2017, p. 10-19, https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health_safety_and_reclamation_code_2017_rev.pdf.

34 Although many EA jurisdictions, including the BC Environmental Assessment Office (EAO), require or at least encourage cumulative effects assessment, such requirements are weakly or not implemented in practice. See Collard et al., "Extirpation despite Regulation?"; A. John Sinclair et al., "Looking Up, Down, and Sideways: Reconceiving Cumulative Effects Assessment as a Mindset," *Environmental Impact Assessment Review* 62 (2017): 183–194, <https://doi.org/10.1016/j.eiar.2016.04.007>.

35 The main conclusion of the scant research on mitigation strategies commonly proposed for caribou is that their effectiveness is largely unknown; see Thora Martina Herrmann et al., "Effects of Mining on Reindeer/Caribou Populations and Indigenous Livelihoods: Community-Based Monitoring by Sami Reindeer Herders in Sweden and First Nations in Canada," *The Polar Journal* 4, no. 1 (2014): 28–51, <https://doi.org/10.1080/2154896X.2014.913917>.

There is almost no peer-reviewed scientific research that evaluates the effectiveness of mitigation measures for caribou, nor research that evaluates the validity of claims made about mitigation measures during the EA process. Another big problem compounds this uncertainty about mitigation effectiveness: we rarely know if mitigation measures are implemented. EA notoriously lacks follow-up. Government

are grounds to be doubtful. If mitigation measures worked, we would not be witnessing the extirpation of the herds within the region.

Coal mining in the Peace: The highly subsidized Northeast Coal Project

The story of coal mining in the Peace begins with the Northeast Coal Project, a huge regional development scheme that exacerbated the whirlpool of industrialization impacts throughout the region. Government optimism about the prospect of developing the Peace region's rich metallurgic coalfields grew in the 1970s. At this time, a number of constraints to development were identified, including the lack of a skilled labour force, and the lack of support infrastructure such as rail and port facilities.³⁶

Then-premier Bill Bennett and his cabinet actively marketed the narrative that significant public-sector financial support was needed to incentivize private-sector investment in coal mines, which would in turn produce jobs, tax revenue and regional growth. Government promotion of the project was aggressive and effusive.³⁷ In 1981, the Northeast Coal Project was finalized in an agreement between Denison Mines Ltd., Teck Corporation, the federal and provincial governments and Japanese steel mill interests; the Japanese interests contracted to buy 115 million tonnes of metallurgical and thermal coal over a 15-year period with an option for a further five years.³⁸

The BC and federal governments poured billions of dollars into the Northeast Coal Project. In return for the development of the Quintette and Bullmoose mines, governments funded the construction of the town of Tumbler Ridge and the Ridley Island port, in addition to the construction of a BC rail line, a 127-kilometre power line and a highway system to the mines—infrastructure with direct impacts for caribou. The total cost was \$4.6 billion in real 2000 Canadian dollars: \$2 billion for the mines and \$2.6 billion in related infrastructure. Government financed approximately 19 per cent of the investment, commercial Crown corporations covered 26 per cent and the private sector 55 per cent.³⁹

The Northeast Coal Project boosters were banking on inflated revenue and employment projections. The project was a financial failure. Instead of achieving the expected net benefit of \$0.9 billion, the Northeast Coal Project incurred a net loss of \$2.8 billion. The Japanese steel

The Northeast Coal Project boosters were banking on inflated revenue and employment projections. The project was a financial failure.

oversight of projects to ensure mitigation measures are actually implemented is often absent. See Ciaran O'Faircheallaigh, "Environmental Agreements, EIA Follow-up and Aboriginal Participation in Environmental Management: The Canadian Experience," *Environmental Impact Assessment Review* 27, no. 4 (2007): 319–342, <https://doi.org/10.1016/j.eiar.2006.12.002>.

The BC Auditor General reports that the BC EAO's oversight of certified projects is "not sufficient to ensure that potential significant adverse effects are avoided or mitigated." See BC Auditor General, *An Audit of the Environmental Assessment Office's Oversight of Certified Projects* (Victoria, BC: Government of BC, 2011), 6, https://www.bcauditor.com/sites/default/files/publications/2011/report_4/report/OAGBC-Environmental-Assessment-Office.pdf.

36 Nancy Knight, *Mega-Project Planning and Economic Welfare: A Case Study of British Columbia's Northeast Coal Project* (PhD diss., University of British Columbia, 1990).

37 See, for example, the BC government-financed promotional film, *The North East Coal Rush: Progress '82*, on YouTube under the title "The North East Coal Rush — a 1982 BC Government Film," uploaded June 23, 2016, 13:11, <https://www.youtube.com/watch?v=CxLWuNqmpXA>.

38 JHP Coal-Ex Consulting Ltd., *Summary Report on the Trend Coal Property* (Vancouver, BC: Consolidated Goldbank Ventures Ltd., 2002), accessed from SEDAR (System for Electronic Document Analysis and Retrieval), https://drive.google.com/open?id=1rxt1mGM9N_dXSS_Ay7sNsxdCNip7Mtee.

39 Thomas Gunton, "Megaprojects and Regional Development: Pathologies in Project Planning," *Regional Studies* 37, no. 5 (2003): 505–519, <https://doi.org/10.1080/0034340032000089068>. All figures related to Northeast Coal's financial impact are in real 2000 Canadian dollars.

industry carried almost half of these losses, but the provincial government also ultimately lost \$400 million.⁴⁰

The Northeast Coal Project generated 55 per cent of the jobs forecasted, and 85 per cent of the mining jobs that were created were filled by in-migrants to the region⁴¹ (Table 2). It was estimated that “the net cost of these jobs was equivalent to paying each miner a lump sum payment of Can\$1.6 million at the beginning of the project.”⁴² The unemployment rate in the region nearly doubled between 1981 and 1986.⁴³ The Northeast Coal Project made the regional economy more vulnerable to external market forces. Furthermore, a study of resource extraction in this region that focused specifically on coal mining in the town of Tumbler Ridge identified serious negative social impacts, including burdens on health and social services, high levels of family stress, increased addiction issues and violence against women.⁴⁴

Table 2: Projected and actual employment, Quintette and Bullmoose mines (Northeast Coal Project)

Employment from operations	Projected person-years	Actual person-years	Actual results as a percentage of projections	Overstatement of projections to actual results
Direct	2,053	1,520	35%	1.4 times
Indirect and induced	2,926	1,216	140%	2.4 times
Total	4,979	2,736	82%	1.8 times

The Northeast Coal Project fails forward

The Northeast Coal Project’s financial failure was a springboard for future development and also established a cycle of continuous need for public support.

Without billions of dollars in infrastructure financed by the BC government and the federal government of Canada, coal mining in the Peace River region would not have commenced, since companies indicated they would not proceed without subsidized infrastructure. Yet the Northeast Coal Project’s financial failure was a springboard for future development.

The Northeast Coal Project also established a cycle of continuous need for public support. The town, railway line and marine port were built to serve uneconomic mines, but once built the town called for jobs because it needed to attract families to fill empty houses and schools, while the provincial railway and federal port called for transportation contracts to meet an ongoing

40 \$1.2 billion of these losses fell to the Japanese steel producers, who ended up overpaying for coal because of signed contracts that forced them to pay prices far above market value. Gunton, “Megaprojects and Regional Development,” 512.

41 “The error was due to a combination of over-estimating direct employment in the mines and using too high a multiplier of 2.5 versus the post-project estimate of 1.8.” Gunton, “Megaprojects and Regional Development,” 512.

42 Gunton, “Megaprojects and Regional Development,” 513.

43 Gunton, “Megaprojects and Regional Development.”

44 Shandro et al., “Perspectives on Community Health Issues.”

need for revenue. These self-inflicted pressures combined to propel the government to ramp up its subsidization activities and incentivize the development of more mines.

Behind the mines we studied were two mining companies—Pine Valley Mining Corporation that originally developed Willow Creek, and Western Canadian Coal Corporation that developed Brule and Wolverine. Northern Energy and Mining Inc. developed the Trend/Roman mine, which we did not study for data limitation reasons. All three companies relied on the subsidized Northeast Coal Project infrastructure in order to proceed with their development plans.

Methodology

OUR GOAL IN THIS REPORT IS TO MEASURE THE EXTENT to which the economic benefits promised during project assessment are realized. For the purposes of our research we focused on Willow Creek, Brule and Wolverine mines, since we were able to track the financial and economic promises proponents made against the mines' financial and economic experience during most of their operating history.

Although these three mines have been owned since 2016 by Conuma Coal Resources Ltd., and Conuma is a private company that does not publicly release its financial information, the companies who owned Willow Creek, Brule and Wolverine prior to Conuma were public companies whose shares were traded on Canadian and US stock exchanges. Companies with publicly traded shares are required to file detailed financial information on a regular basis with securities regulators. The mines' owners, prior to Conuma, did so with sufficient disaggregation to enable the tracking of their economic experience because their operations were limited to the mines we were studying. This disaggregation allowed for a comparison of actual economic performance to what was promised when applications for regulatory authorizations were made.

To evaluate the financial and economic benefits from Willow Creek, Brule and Wolverine mines compared to the benefits promised, we:

- i) identified the predicted corporate tax revenue, employment and production benefits by reviewing the various documents associated with the mines' environmental assessment certificate applications, available from the BC Environmental Assessment Office's website, and from related technical reports prepared by mining companies, accessed through SEDAR (System for Electronic Document Analysis and Retrieval);⁴⁵
- ii) quantified the tax revenue, employment and production achieved. We obtained this information from a variety of sources including financial statements, corporate press releases and securities and exchange filings available through SEDAR and EDGAR (Electronic Data Gathering, Analysis and Retrieval system);⁴⁶ extractive entities' payments to governments, required by the Extractive Sector Transparency Measures Act (ESTMA); and court documents filed as part of creditor protection proceedings; and

45 SEDAR was developed for Canadian Securities Administrators to facilitate filings and allow for public dissemination of the information. Documents are available online from January 1, 1997, to the present.

46 EDGAR is the system of filing of submissions by companies and others who are required by law to file forms with the US Securities and Exchange Commission.

iii) compared actual corporate tax revenues, employment and production to projected corporate tax revenues, employment and production.

We also examined tax expenditures specific to mining operations such as flow-through shares and the Mineral Exploration Tax Credit. Although proponents did not discuss tax expenditure subsidies in their environmental assessment certificate applications, tax expenditures are a cost to the treasury and therefore it is reasonable to consider them in any benefits analysis.⁴⁷ The information on subsidies was found in financial reports and other documents filed with the securities and exchange commissions through SEDAR in Canada and EDGAR in the US.

During the course of the analysis it became clear that those parties who were expected to be beneficiaries of mining activity were not proving to be its beneficiaries. This raised the question of who the major beneficiaries might be, if not taxpayers, local workers or the economy.

We looked at the stock holdings of major shareholders in the various companies that owned the mines over the years. The information we relied upon for this part of the study is available, in a limited way, as part of the public record. We reviewed filings on SEDAR, EDGAR and SEDI (System for Electronic Disclosure by Insiders).⁴⁸ We also examined filings available via Companies House in England, and in court documents. For stock price data, we relied on Bloomberg.

During the course of the analysis it became clear that those parties who were expected to be beneficiaries of mining activity were not proving to be its beneficiaries.

⁴⁷ Direct subsidies include monetary payments such as grants, loans or tax preferences targeted at a sector, producer or individual, while indirect subsidies include benefits received by producers as a result of market transactions caused by direct subsidies or lax regulatory oversight. Direct subsidies relevant to this study include tax expenditures and direct investment.

⁴⁸ SEDI is Canada's online, browser-based service for filing and viewing insider reports, as required by various provincial securities rules and regulations.

Results and discussion

The environmental assessment certificate applications for the coal mines that we studied all proposed substantial benefits, but the promised benefits varied significantly.

FOR REGULATORS AND POLICY-MAKERS THE PRIMARY BENEFITS from mine development are expected to be financial and economic, including tax revenues, employment, growth and business opportunities. As this suggests, estimating economic benefits is an important part of the environmental assessment process. This responsibility is met by project proponents and included in their applications. The BC Environmental Assessment Office's guidance directs proponents to "describe any positive effects to employment and economy that are anticipated as a result of the project," but the level of detail, method of modelling or predicting, and presentation of benefits are not specified.⁴⁹

The environmental assessment certificate applications for the coal mines that we studied all proposed substantial benefits, but the promised benefits varied significantly not only in specificity but also in the models proponents employed to estimate the benefits. The analysis in environmental assessments is often not detailed, nor are the benefits presented in a consistent manner. Proponents often present predicted benefits without any explanation as to the methodology.

The first step of our research, therefore, was to identify the promised corporate tax revenue, employment and production, by mine, and aggregate these in a consistent manner.

Promised benefits by mine

WILLOW CREEK

The first mine we studied was Pine Valley Mining Corporation's Willow Creek. The mine underwent a full environmental assessment process and received its certificate in 1998. It only began operating in July 2005, seven months after Western Canadian Coal Corporation's Brule mine (which was originally called Dillon) began production.

49 BC Environmental Assessment Office, *Application Information Requirements Guidelines*, Version 1.0 (Victoria, BC: Government of BC, 2020), 45, https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/environmental-assessments/guidance-documents/2018-act/application_information_requirements_guideline_v1_-_april_2020.pdf.

Pine Valley promised in its application that:

coal production will be in the order of 900,000 metric tonnes per year with a mine life (projected from 1997 reserves) of 15 years. The number of employees required for construction will be 50 to 70 and for operation 100 to 120. Economic benefits will include capital spending of approximately \$20 million to build the mine, plant and infrastructure, total taxes payable over the projected mine life of \$57 million, employment of 2502 person years, and gross revenues of approximately \$270 million.⁵⁰

Willow Creek's economic benefits estimates were developed "by the firm of KPMG using, as a base, the feasibility report prepared by Norwest Mine Services Ltd. and the BC Input-Output Model (BCIOM) of the BC Ministry of Finance and Corporate Relations."⁵¹

In 2010, Western Canadian Coal, Willow Creek's then owner, applied for approval of major changes in the mine plan including a rate of increase of mining to 1.8 million metric tonnes per year and a more than doubling of the life-of-mine coal recovery. Western Canadian Coal promised in its application that employment would be increased to 310 person-years for 14-plus years and that corporate tax revenue would be \$3 million per year. These estimates were prepared under a different methodology than that used in Willow Creek's initial application.⁵²

BRULE

The second mine of the three we studied was Brule, which was originally called Dillon. The mine received a Mines Act permit on September 4, 2004. Because the volume of production applied for was 10,000 tonnes per year under the 250,000 tonnes per year limit that triggers an environmental assessment, the mine's owner, Western Canadian Coal Corporation, did not file an environmental assessment certificate application. Our analysis of the operating phase for Dillon therefore relies on financial, employment and production data provided in Western Canadian Coal's technical assessments.⁵³ Dillon began operating in December 2004 and was expected to operate for seven years.

An environmental assessment certificate application for expanded production to 2 million tonnes per year was filed in January 2005 and a certificate issued July 6, 2006. Western Canadian Coal accelerated the rate of mining at the site, exhausting it by October 2006, four years earlier than originally planned. Five months later Brule opened adjacent to the closed Dillon site under the authority of the Mines Act permit issued to Dillon. The Brule mine had a predicted life of 11 years. For purposes of this report, unless explicitly stated otherwise, references to Brule include Dillon because they share the same Mines Act permit.

50 Pine Valley Coal, *Willow Creek Final Project Report Pine Valley Coal Ltd.* (Vancouver, BC: Pine Valley Coal, 2002), 19, <https://projects.eao.gov.bc.ca/api/document/58869417eed3c0016f855272/fetch>. Total taxes of \$57 million include corporate, personal and BC Mineral taxes.

51 Pine Valley Coal, *Willow Creek Final Project Report*, section 8.2.

52 Western Coal, *Application to Amend Willow Creek Mine Mines Act Permit C-153*, submission to BC Ministry of Energy, Mines and Petroleum Resources, September 17, 2010, 78–79, <https://www.projects.eao.gov.bc.ca/api/public/document/5886943feed3c0016f8552cb/download/Volume%201A%20Cover%20Letter%20and%20Executive%20Summary.pdf>.

53 Weir International Mining Consultants, *Technical Report on the Proposed Dillon Mine Coal Project Prepared for Western Canadian Coal Corp.*, September 2004, p. 10–11. Available at: https://drive.google.com/file/d/1fReZsypY8AW3EziqkC7eOANs_IXY_Xp/view?usp=sharing.

Studies predicted corporate taxes of \$75 million over the expected operation of Brule for the period 2004–2018.⁵⁴ The technical report for Dillon indicated that there would be 70 employees for seven years, while Western Canadian Coal’s environmental assessment application stated Brule was expected to employ 250 workers for 11 years. Brule had a capital cost of \$200 million for the open-pit mine and coal preparation plant, although the coal preparation plant was never built.

WOLVERINE

Finally, we examined the economic promises Western Canadian Coal made with respect to the construction and operation of the Wolverine mine. The company stated in its environmental assessment that “in total, it is expected that the project will generate about 260 to 300 new jobs.”⁵⁵ No tax amounts were given in the environmental assessment, but a technical report prepared for Western Canadian Coal in 2005 estimated \$123 million in corporate taxes over the life of the mine.⁵⁶

How do corporate taxes, employment and production promises measure up to reality? Our research finds that the actual benefits fall far short of those projected. In fact, taxpayers have subsidized habitat degradation in the northeastern region of BC and, therefore, caribou’s path to extinction.

Aggregate benefits delivered

CORPORATE TAXES FALL SHORT

Pine Valley and Western Canadian Coal predicted that the Willow Creek, Brule and Wolverine mines would collectively contribute \$250 million in corporate tax revenue to the provincial and federal treasury between 1999 and 2019. However, as Figure 3 illustrates, our financial analysis of the companies’ reporting shows that net corporate tax paid over this period was \$86 million.

Western Coal paid corporate taxes in 2010; however, due to operating losses in the following two years, the mines’ new owner, Walter Energy, reported in its financial statements that those taxes were refunded, taking the cumulative balance for corporate taxes paid back to zero. This means that by 2016, despite all the impact to caribou habitat over the preceding decade and a half, these companies had paid no corporate taxes, in total.

54 For purposes of this analysis we have relied on the amount and timing of taxes provided in the technical reports, since these are the figures prepared in advance of the issuance of permits; updated figures reflective of the earlier-than-anticipated closure of Dillon were not prepared by Western Canadian Coal.

55 Western Canadian Coal Corp., *Wolverine Coal Project Application Report* (Vancouver, BC: Western Canadian Coal Corp., 2001), p. 2-23, [https://projects.eao.gov.bc.ca/api/public/document/5888e549817b85ae43cf79e3/download/Application for the Wolverine Coal Project.pdf](https://projects.eao.gov.bc.ca/api/public/document/5888e549817b85ae43cf79e3/download/Application%20for%20the%20Wolverine%20Coal%20Project.pdf).

56 Western Canadian Coal Corp., *Technical Report on the Wolverine Project for Western Canadian Coal Corp.* (Vancouver, BC: Western Canadian Coal, 2005), p. 25-8, https://www.miningdataonline.com/reports/Wolverine_2005.pdf.

Taxpayers have subsidized habitat degradation in the northeastern region of BC and, therefore, caribou’s path to extinction.

Figure 3: Cumulative corporate taxes promised compared to paid (1999–2019)



Note: Cumulative corporate taxes proponents predicted would be generated from Willow Creek, Brule and Wolverine coal mines (in orange) and actual cumulative corporate tax generated from these mines (green), 1999–2019.

Conuma Coal Resources Ltd., which purchased Willow Creek, Brule and Wolverine mines out of receivership in 2016, is a private company and does not make its financial statements public.⁵⁷ We can partially piece together its tax story from filings required by the Extractive Sector Transparency Measures Act (ESTMA). According to ESTMA, Conuma paid corporate taxes in the amount of \$17.1 million in 2017, \$44.9 million in 2018 and \$24.2 million in 2019.⁵⁸

57 Conuma is a subsidiary of privately-owned West Virginia-based ERP Compliant Fuels LLC group of companies. In late 2016, US-based private equity firm AMCI Group became a 52 per cent majority owner in Conuma, increasing its ownership interest to 77 per cent in 2019. AMCI is a private hedge fund management company and there is no requirement that it make its financial information publicly available. Due to Conuma and AMCI's private status, our access to information that would allow us to conduct a full analysis of the company's financial and business operations, post purchase, has been limited.

58 ESTMA database is available here: <https://www.nrcan.gc.ca/our-natural-resources/minerals-mining/mining-resources/extractive-sector-transparency-m/links-estma-reports/18198>. Tax payments in these first years are consistent with Conuma's initial financial health. The company acquired the mines and related assets for \$42 million (significantly lower than the \$72.9 million book value of these assets at the time Walter filed for creditor protection). Further, Conuma's purchase occurred in a context of rebounding coal prices, minimal capital investment and quick return to production employing approximately 700 people by 2019. In 2019 coal prices began to decline, impacting Conuma's operating performance. We see that taxes paid in 2019 were closer to half the payment in 2018, reflecting the impact on the company of lower revenues. In 2018 and 2019, the company also paid BC Mineral Tax in the amount of \$8.8 million and \$5.3 million, respectively. For the 20 years we studied, there was net BC Mineral Tax in the amount of \$14.1 million.

The recent slump in coal prices that began in mid-2019 (discussed in the next section) means Conuma's earnings are suffering, which reduces the likelihood of the company being profitable in 2020 and therefore reduces the likelihood of corporate taxes being paid. On the contrary, since the tax system allows corporations to carry losses back for three years and recoup taxes paid, it is likely that past tax remitted, in whole or in part, will be refunded.⁵⁹

Regardless of the amount of tax refund Conuma receives in the near future, aggregate corporate tax revenues from Willow Creek, Brule and Wolverine mines fall seriously short of what was promised, and arrive much later than predicted in the assessment.

Not only does little, if any, corporate tax materialize, BC and Canadian taxpayers have subsidized the exploration and development of these mines through tax credits (tax expenditures) related to flow-through shares and the Mineral Exploration Tax Credit in the amount of \$1.4 million between 1999 and 2006.

COAL DEVELOPERS PROMISE JOBS, BUT FOR WHOM AND FOR HOW LONG?

Employment projections contained in environmental assessments are frequently in the hundreds of jobs or thousands of person-years of employment. Our research determined that the employment predictions proponents make are exaggerated. For example, Willow Creek's environmental assessment claimed that during the expected life of the mine there would be 3,767 direct person-years of employment. However, our research reveals that only 33 per cent of the projected person-years of employment from Willow Creek materialized.⁶⁰

Taking all person-years of employment at Willow Creek, Brule and Wolverine together, we find person-years of employment achieved at all three mines came in at only 59 per cent of those predicted. That is, from 1999 to 2019 mining proponents forecasted 12,245 person-years of employment, but only 7,260 person-years of employment were generated (Figure 4)—a 1.7 times overstatement of predictions to actual. Put into "jobs" terms more consistent with how person-years of employment are often characterized, while 583 jobs were promised, only 346 jobs materialized.

Figure 4 illustrates cumulative person-years of employment and shows that worker demand appeared much later than promised.⁶¹ The flattening of actual person-years of employment (the green line) in 2014 represents layoffs due to all three mines having been placed into care and maintenance when Walter Energy sought creditor protection.

There are also important questions to be asked about which workers take these jobs. As part of the case for mine approval, environmental assessments cite chronic unemployment in the Peace region. Yet mining companies often cite a lack of skilled labour as a constraining factor in production when communicating with their shareholders.

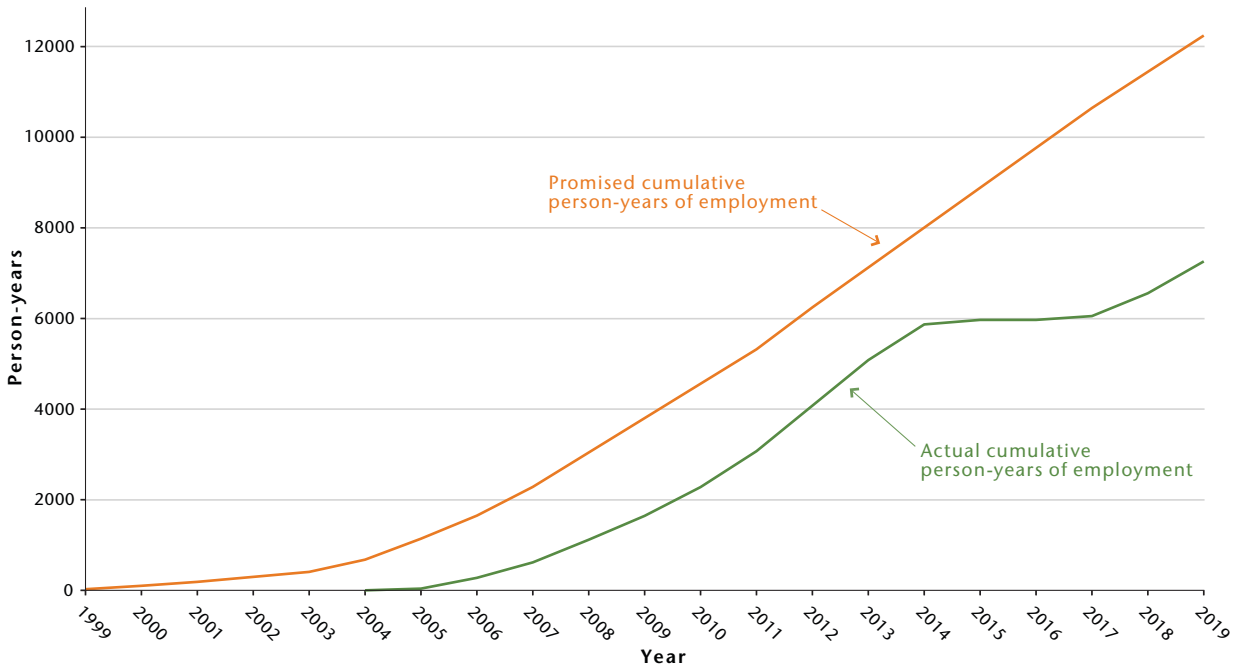
59 The current market price for the bonds issued by Conuma is 46.58 per cent below the issue price, reflecting the lack of investor confidence about Conuma being able to make future payments. See "CONUMA COA.RE 18/23 REGS Bond," Markets Insider, accessed May 15, 2020, https://markets.businessinsider.com/bonds/conuma_coal_resourcesdl-nts_201818-23_regs-bond-2023-usc2701aaa00.

60 Our research focuses on employment numbers, not employee taxes paid. Proponents do not typically estimate employee taxes in their submissions and it is not required by the regulator; therefore, while it is a benefit, it is not one that explicitly influences decisions.

61 Projects are typically approved under a given timeline and then various company-driven delays result in much slower rates of development.

Taking all person-years of employment at Willow Creek, Brule and Wolverine together, we find person-years of employment achieved at all three mines came in at only 59 per cent of those predicted.

Figure 4: Cumulative person-years of employment promised compared to actual employment (1999–2019)



Note: Cumulative person-years of employment that proponents stated Willow Creek, Brule and Wolverine mines would deliver (in orange) and actual person-years of employment from the three mines (in green), 1999–2019.

For example, when seeking regulatory approval, Western Canadian Coal promised job creation to address employment needs in the region.⁶² Yet Western Canadian Coal's 2008 *Annual Information Form* claimed, "Productivity has been constrained in part by the harsh weather conditions in the 2007–2008 winter months and by the shortage of skilled operators and tradesmen. The Company has major ongoing efforts to overcome the impact of skilled labour shortages (endemic to the industry and to northeastern British Columbia), including intensive recruiting efforts and training programs."⁶³ In 2011, Walter Energy expressed a similar concern.⁶⁴

While environmental assessment applications insist that new projects provide jobs for unemployed locals, the reality is that these positions are often filled by workers coming from elsewhere. The resource extraction sector in BC is increasingly reliant on non-resident, fly-in/fly-out workers who typically work in block shifts and reside in work camps adjacent to existing communities.⁶⁵ In 2012 Northern Health estimated that there were 1809 work camps in their delivery area, with

62 Western Canadian Coal Corp., *Wolverine Coal Project Application Report*, p. 2-23.

63 Western Canadian Coal, *Annual Information Form* (Vancouver, BC: Western Canadian Coal, 2008), accessed on SEDAR, 13, https://drive.google.com/file/d/1LzhbrlZGdcwwxeA_2da7yCk-u7g1jPFS/view?usp=sharing.

64 Walter Energy, *10-K Annual Report Pursuant to Section 13 and 15(d)* (Tampa, FL: Walter Energy Inc., 2010), accessed on SEDAR, 23, <https://drive.google.com/open?id=1DFx0R7UGSPpyzb18jCjx5J3-FhpVfNjc>.

65 Laura M. Ryser et al., "New Mobile Realities in Mature Staples-Dependent Resource Regions: Local Governments and Work Camps," *Environment and Planning C: Politics and Space* 35, no. 3 (2017): 500–517, <https://doi.org/10.1177/0263774X16668171>.

The mining sector
is highly gendered
and racialized.

most being in the Peace River Regional District, which is the broader regional district within which our study is situated.⁶⁶ While we do not have access to statistics for the extent to which Willow Creek, Brule and Wolverine mines rely on non-resident labour, recent journalism suggests many of them do.⁶⁷

The mining sector is also highly gendered and racialized.⁶⁸ Released in 2019, the National Inquiry into Missing and Murdered Indigenous Women and Girls concluded that Indigenous women face “significant barriers” to participating in the extraction industries due to “work environments that are often hypermasculine and hypersexualized” and where Indigenous women face “elevated rates of workplace racism, sexual harassment, and violence.”⁶⁹ While we do not have statistics for the three specific mines, in Canada, men make up over 80 per cent of the mining labour force, with no change since 2002.⁷⁰ The long, multiday “block” schedules of an increasingly fly-in/fly-out labour structure tend to be less accommodating to people with daily caring responsibilities, perpetuating the male-dominated nature of the sector.⁷¹

Employment in the mines we examined has also fluctuated enormously over the mines’ lifespans. Mines in the northeastern region of BC are opened and shuttered frequently, reflecting the widely acknowledged boom and bust nature of the coal industry (Figure 5).

Cumulatively, the three mines we examined — Willow Creek, Brule and Wolverine — have been operational for a total of 29 years and 5 months and non-operational for 13 years and 7 months.⁷² On average, they have been closed almost a third of the time, despite having promised in their project applications that they would operate—and employ people—steadily during their expected life cycle. For example, Willow Creek’s environmental assessment estimated 1,542 person-years of employment over 15 years.

66 These camps are in the Northeast Health Service Delivery Area, and it is unknown which camps are currently active, scheduled for future development or retired sites. See Northern Health, *Understanding the State of Industrial Camps in Northern BC: A Background Paper* (Prince George, BC: Northern Health, 2012), <http://Inginnorthernbc.ca/images/uploads/documents/UnderstandingStateofIndustrialWorkCamps-NorthernHealth-Oct2012.pdf>.

67 Renee Bernard, “Northern B.C. Desperate to Avoid COVID-19 Outbreaks in their Communities,” *CityNews*, March 29, 2020, <https://www.citynews1130.com/2020/03/29/northern-b-c-desperate-to-avoid-covid-19-outbreaks-in-their-communities/>.

68 Adam Bond and Leah Quinlan, *Indigenous Gender-Based Analysis for Informing the Canadian Minerals and Metals Plan* (Akwasasne, ON: Native Women’s Association of Canada, 2018), https://www.minescanada.ca/sites/default/files/indigenous-gender-based-analysis-cmmp_.pdf.

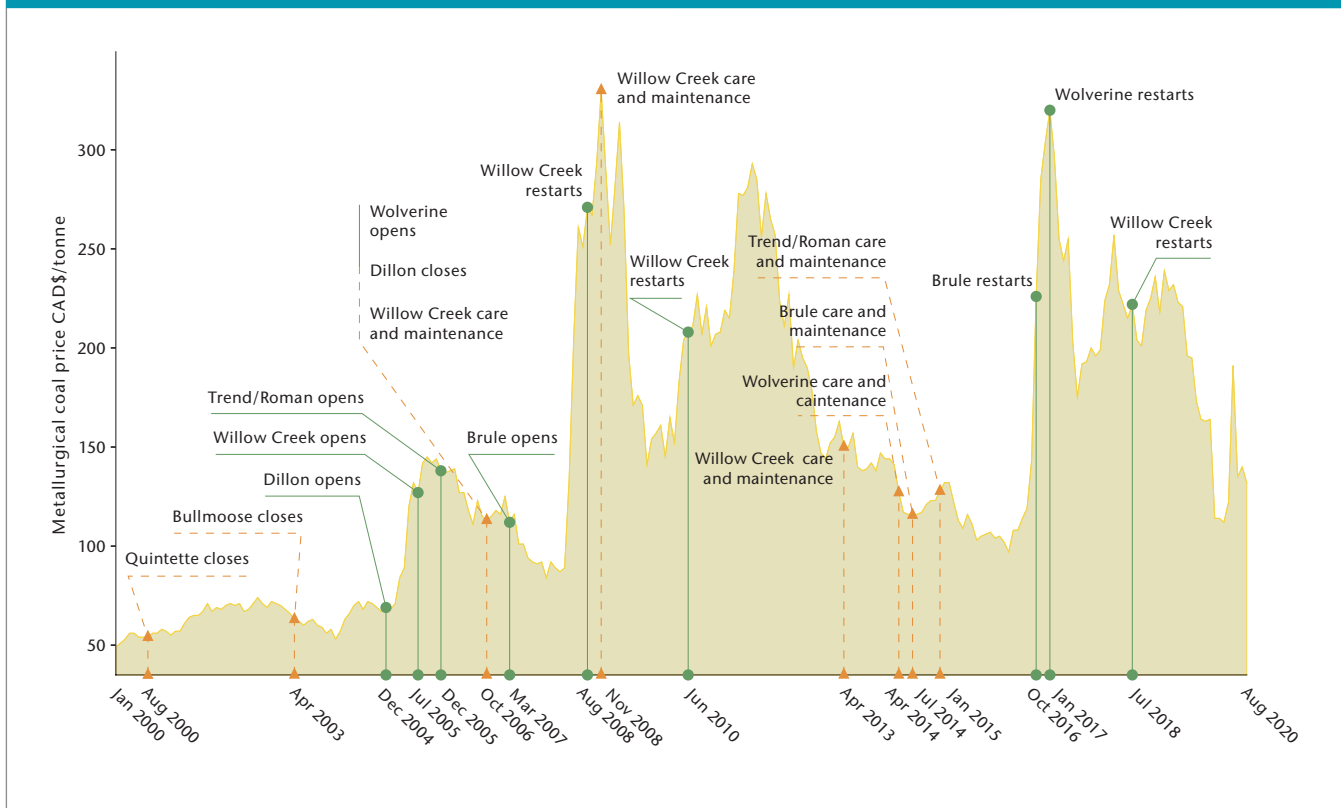
69 National Inquiry into Missing and Murdered Indigenous Women and Girls, *Reclaiming Power and Place: The Final Report of the National Inquiry into Missing and Murdered Indigenous Women and Girls*, Volume 1a (Ottawa, ON: Government of Canada), 593, https://www.mmiwg-ffada.ca/wp-content/uploads/2019/06/Final_Report_Vol_1a-1.pdf.

70 “Labour Force Characteristics by Industry, Annual (x 1,000),” Table 14-10-0023-01, Statistics Canada, accessed August 15, 2020, <https://doi.org/10.25318/1410002301-eng>.

71 See Ginger Gibson and Jason Klinck, “Canada’s Resilient North: The Impact of Mining on Aboriginal Communities,” *Pimatisiwin: A Journal of Aboriginal and Indigenous Community Health* 3, no. 1 (2005): 115–141. A policy report for the Native Women’s Association of Canada recommends that different labour schedules could increase the participation of Indigenous women in mining, as would efforts to dismantle the systemic racism and sexism in the industry.

72 Willow Creek was open from July 2005 to October 2006, August 2008 to November 2008, June 2010 to April 2013, and July 2018 to present (December 2019): open in total for five years nine months, and closed for eight years seven months. Wolverine was open from October 2006 to April 2014 and January 2017 to present (December 2019): open in total for 10 years five months and closed for two years nine months. Dillon/Brule was open from December 2004 to October 2006, March 2007 to July 2014 and October 2016 to present (December 2019): open in total for 12 years four months and closed for two years three months.

Figure 5: Northeastern BC mine activity and metallurgical coal prices (January 2000–August 2020)⁷³



Despite widespread knowledge of coal price volatility and thus mine operating volatility, employment projections did not contemplate any mine closure during the 15-year period. Willow Creek began production in July 2005, but by October 2006 it had entered care and maintenance. It restarted production in August 2008 but was shuttered again in November 2008. In June 2010 it reopened only to close in April 2013. After Conuma Coal purchased the mine out of receivership, it was reopened in July 2018. Workers experienced three sets of major layoffs in less than a decade.

Boom and bust comes at a cost.⁷⁴ In the northeastern region of BC, community health impacts from mining include family stress, violence toward women and addiction issues during both boom *and* bust periods. In boom periods, health and social services are strained with an increase in pregnancies, sexually transmitted infections and mining-related injuries. In bust periods, there is a growth in mental health issues like depression and anxiety, even as health and social services recede as the population moves elsewhere to find employment, leaving those behind with less support.⁷⁵ Studies conclude that the commitment of the BC government and companies to the health of mining communities is “falling short.”⁷⁶ There is growing research documenting

Boom and bust
comes at a cost.

⁷³ Source: Coal prices Statistics Canada; events SEDAR and Province of BC.

⁷⁴ Researchers point to social costs of mining industries, including increased rates of addiction, crime rates, family conflicts, domestic abuse and gender violence. See, for example, Gibson and Klinck, “Canada’s Resilient North”; Sanjay Sharma and Susan Rees, “Consideration of the Determinants of Women’s Mental Health in Remote Australian Mining Towns,” *Australian Journal of Rural Health* 15, no. 1 (2007): 1–7, <https://doi.org/10.1111/j.1440-1584.2007.00842.x>.

⁷⁵ Shandro et al., “Perspectives on Community Health Issues.”

⁷⁶ Shandro et al., “Perspectives on Community Health Issues,” 185.

negative impacts from precarious fly-in/fly-out arrangements for workers themselves, and also for communities and families.⁷⁷

Negative impacts from mining development and operation tend to fall along gendered and racialized lines, and in particular on Indigenous women.⁷⁸ An Amnesty International study on the ongoing resource extraction boom in northeastern BC, where the mines in our study are located, found relationships between increased resource extraction, industrial camps and violence against Indigenous women.⁷⁹ “Work camps, or ‘man camps,’ associated with the resource extraction industry are implicated in higher rates of violence against Indigenous women at the camps and in the neighbouring communities.”⁸⁰

An Amnesty International study on the ongoing resource extraction boom in northeastern BC found relationships between increased resource extraction, industrial camps and violence against Indigenous women.

THE ENGINE OF REGIONAL ECONOMIC GROWTH SPUTTERS

The third part of our analysis examined the “engine of economic growth” narrative contained in proponent project applications. We catalogued predicted mine production output and measured that against production delivered. Only 37 per cent of the production capacity applied for and approved by regulators was reached in the period 1999–2019. With actual production far below productive capacity, economic activity anticipated in project applications would correspondingly be compromised.

As Figure 6 illustrates, production started much later than predicted due to producer-related delays. Market conditions led to shutdowns, with production stopping while mines were under care and maintenance.

We also examined corporate profit and loss performance in an effort to illustrate the boom and bust nature of the industry and determine whether coal mining in northeastern BC could be characterized as profitable. We found that during the period 1998–2016 the companies that owned the three mines suffered an aggregate net loss of \$1 billion.⁸¹ Although it would be helpful to know the financial performance of Conuma Coal, this information is not publicly available, and therefore a quantifiable understanding of profits and losses ends with Walter Energy seeking bankruptcy protection. Limited information that is available on Conuma’s performance only enables an understanding of the company’s profit and loss trend.

If the public treasury and the regional and provincial economies do not benefit in any meaningful way from coal-mining-related habitat destruction, and if mines underperform during the majority of their operating history and typically seek creditor protection, are there any beneficiaries of these mines?

77 Kerry Carrington and Margaret Pereira, “Assessing the Social Impacts of the Resources Boom on Rural Communities,” *Rural Society* 21, no. 1 (2011): 2–20, <https://doi.org/10.5172/rsj.2011.21.1.2>; Stefan Hajkiewicz et al., “The Relationship between Mining and Socio-Economic Well Being in Australia’s Regions,” *Resources Policy* 36, no. 1 (2011): 30–38, <https://doi.org/10.1016/j.resourpol.2010.08.007>.

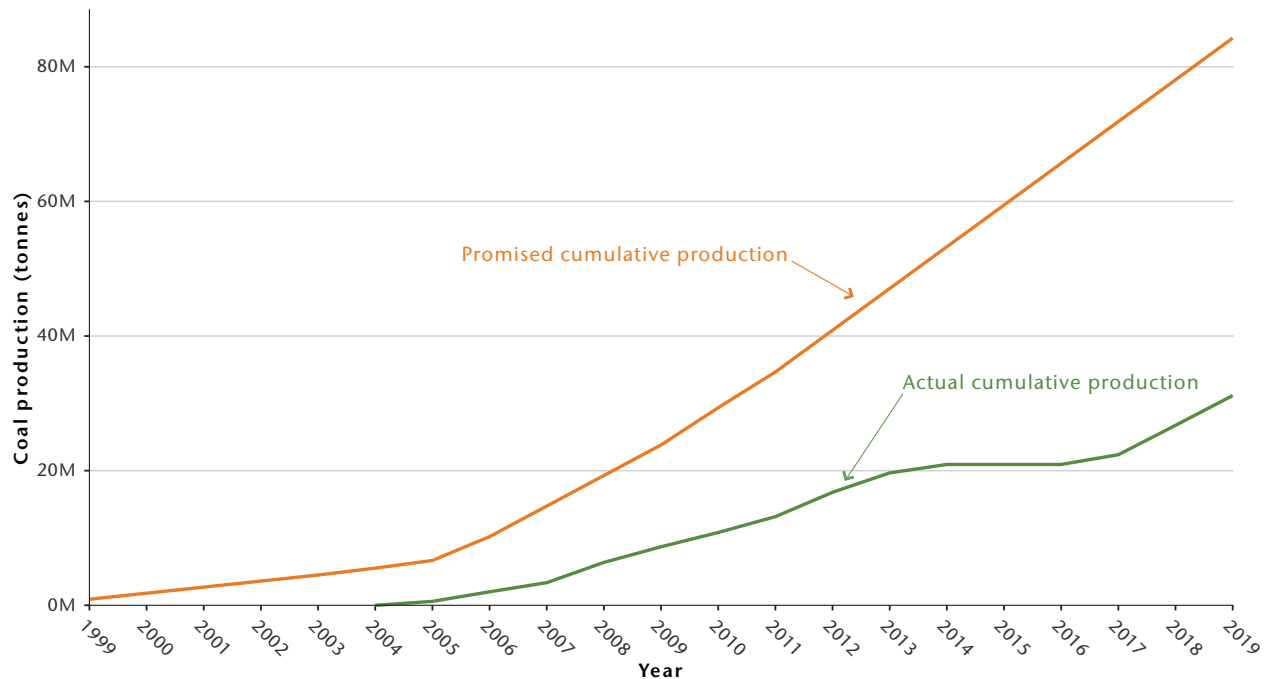
78 Women’s Earth Alliance and Native Youth Sexual Health Network, *Violence on the Land*.

79 Amnesty International, *Out of Sight, Out of Mind*.

80 National Inquiry into Missing and Murdered Indigenous Women and Girls, *Reclaiming Power and Place*, 593.

81 We reviewed decades of financial statements for the mining companies responsible for Willow Creek, Brule and Wolverine. They were profitable in only four of them. Pine Valley (Willow Creek’s developer) and Walter Energy (which bought all three mines from Western Coal) both entered creditor protection. When companies seek creditor protection, it means that workers face unexpected layoffs, and the businesses that supply these companies face delays or non-payment of sales, leases and/or loans.

Figure 6: Cumulative production promised compared to actual production (1999–2019)



Note: Cumulative production based on approved capacity compared to production delivered at Willow Creek, Brule and Wolverine mines, 1999–2019.

WHO DOES BENEFIT? A SELECT GROUP OF SHAREHOLDERS

The potential for significant financial returns to investors from stock value appreciation is not discussed in environmental assessments. Yet significant financial benefits can accrue to shareholders who capitalize on the opportunity for stock market gain if their timing is such that they successfully sell their shareholdings for more than they paid.

Stock price data indicate that the potential for significant financial benefit existed for shareholders of Pine Valley Coal (the developer of Willow Creek), Western Canadian Coal (subsequent owner of Willow Creek and developer of Brule and Wolverine) and Walter Energy (owner of all three mines beginning in April 2011) if shareholders acted to sell their shares at the right time.

Financial gains can be realized by investors as long as a company is a going concern. When a company seeks creditor protection (as was the case with both Pine Valley and Walter Energy), there are no financial gains. There are winners as stock values rise, and there are losers as stock values fall, but the net impact is a loss because stocks become worthless.

This was the case for the three mines we studied, since companies who owned them ended up seeking creditor protection. Although it is not possible to undertake a full evaluation of the financial returns or losses received on a shareholder-by-shareholder basis, we were able to identify a few major beneficiaries.

The story of shareholder benefit starts with Western Canadian Coal's purchase of Pine Valley. The shares of Pine Valley—the original owner of Willow Creek—rose from 23 cents a share in the fourth quarter of 2003 to a high of \$6.89 in the fourth quarter of 2004 and then began to decline in value. By October 2006, the Toronto Stock Exchange (TSE) suspended share trading as Pine Valley's financial difficulties caused it to seek creditor protection. The shares were selling for 18 cents a share in the fourth quarter of 2006 and were eventually delisted from the TSE.

In July 2007, Cambrian Mining, one of Western Canadian Coal's major shareholders, bought Pine Valley's Willow Creek mine and processing plant out of receivership. Cambrian then sold the mine and plant to Western Canadian Coal. Instead of investing in a processing plant at its Brule mine as Western Canadian Coal promised the government it would do as part of the approval for the Brule mine, Western Canadian Coal reopened the Willow Creek processing plant and processed Brule mine production at that facility.

Western Canadian Coal's purchase of Willow Creek at a favourable price helped support the underlying value of Western Canadian Coal's shares. However, the volatile nature of the coal industry and the global economic crisis in 2008 took its toll, and its share value, not surprisingly, reflected this with huge price swings.

Western Coal's largest shareholders in 2010 were UK-based hedge fund Audley Capital and its manager and largest shareholder, Julian Treger. Treger resigned from Western Coal's board of directors in September 2010 and in the following two months negotiated the sale of Western Coal to US-based Walter Energy at a price of \$11.50 per share.⁸² In exchange for their shares in Western Coal, Audley Capital and Treger received US\$770 million in cash and Walter Energy stock. Less than a year later, Audley Capital and Treger liquidated their Walter Energy shareholdings at a premium price,⁸³ according to legal documents filed in the aftermath of this controversial share sell-off.⁸⁴

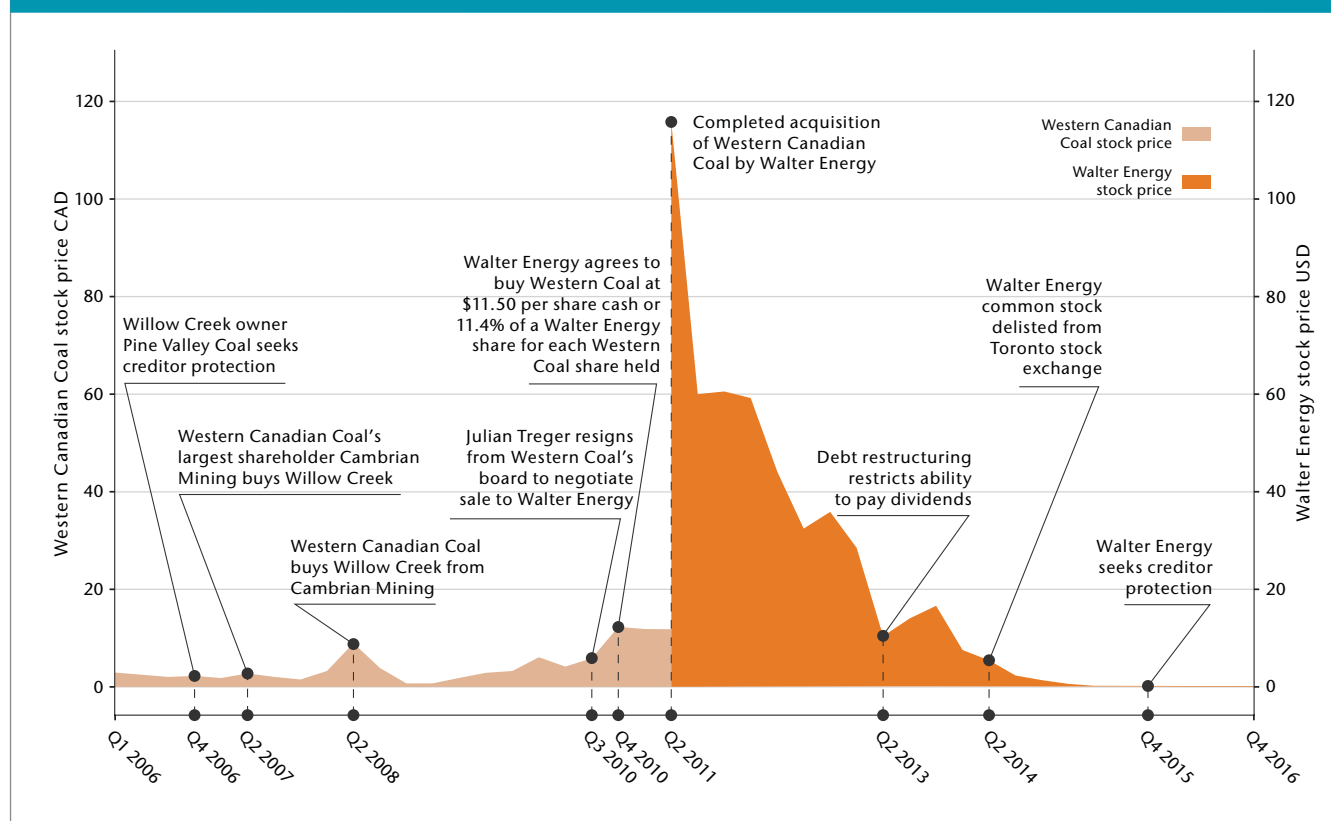
The majority of Western Coal's shareholders did not benefit from the sale of Western Coal to Walter Energy. Many shareholders elected to accept Walter Energy shares in payment for their holdings of Western Coal shares when Walter took over on April 1, 2011. Over the two-year period between Q2 2011 and Q2 2013, Walter's shares fell from US\$115.80 to US\$10.40. In December 2015, Walter Energy filed for creditor protection with the company's stock effectively becoming worthless. These stock price fluctuations and major events are summarized in Figure 7.

82 Western Coal Corp., "Western Coal Announces Resignation of Board Member," news release, September 23, 2010, <https://www.newswire.ca/news-releases/western-coal-announces-resignation-of-board-member-545533722.html>.

83 On Sunday, July 17, 2011, Treger sent a "Private & Confidential" letter to the Walter Energy board claiming the company was worth twice its trading value and urging its sale. The next day, Treger made the letter public. An increase in Walter's stock price followed. Audley sold 300,000 shares of Walter Energy's common stock (33 per cent of Treger's holdings) between that Monday, July 18, and Thursday, July 21. By the end of October 2011, Audley had sold nearly all of its remaining holdings in Walter Energy. See Business Wire via The Motley Fool, "Walter Energy Cites 'Serious Omissions' in Audley Capital Proxy Statement," AOL, March 25, 2013, <https://www.aol.com/2013/03/25/walter-energy-cites-serious-omissions-in-audley-ca/>.

84 Walter Energy took Audley Capital to court over the matter. *Walter Energy, Inc v. Audley Capital Advisors LLP et al.*, Supreme Court of Alabama 1131104 (2015), 2, <https://cases.justia.com/alabama/supreme-court/2015-1131104.pdf?ts=1424451605>.

Figure 7: Western Coal and Walter Energy stock price (2006–2016)⁸⁵



In August 2016, the BC Supreme Court approved Conuma Coal's bid to purchase the Willow Creek, Brule and Wolverine mines and related assets from Walter Energy for \$42 million.⁸⁶

As stated earlier, Conuma Coal is a private company, so there are no publicly available reports on its financial performance since the company is not required to provide them. However, financial statements filed by Walter Energy during the bankruptcy proceedings indicate that the \$42 million paid for the acquisition was far lower than the \$72.9 million book value of these assets at the time Walter filed for creditor protection.⁸⁷ Conuma also took the opportunity to significantly leverage those assets. In April 2018, Conuma raised US\$225 million in debt consisting

⁸⁵ Data source: Bloomberg.

⁸⁶ William E. Aziz, Third Affidavit, Supreme Court of BC No. S-1510120, August 9, 2016, <https://assets.kpmg/content/dam/kpmg/ca/pdf/creditorlinks/walter-energy/first-third-affidavit-of-william-e-aziz-sworn-august-9-2016.pdf>; KPMG, Eighth Report of the Monitor, Supreme Court of BC No. S-1510120, January 12, 2017, 18, <https://home.kpmg/content/dam/kpmg/ca/pdf/creditorlinks/walter-energy/eighth-report-of-the-monitor-january-12-2017.pdf>.

⁸⁷ KPMG, Pre-Filing Report of the Proposed Monitor, Supreme Court of BC, December 6, 2015. <https://home.kpmg/content/dam/kpmg/pdf/2016/05/pre-filing-report-of-the-monitor-dec-6-2015.pdf>. Our analysis of the book value of Conuma's purchase was based on the terms of the bid submitted by Conuma, excluding the assets and liabilities not acquired. KPMG, Fourth Report of the Monitor, Supreme Court of BC No. S-1510120, August 11, 2016, 6–9, <https://home.kpmg/content/dam/kpmg/ca/pdf/creditorlinks/walter-energy/Fourth-Report-of-the-Monitor-August-11-2016-FILED.pdf>.

of a US\$25 million credit facility and a US\$200 million bond issue.⁸⁸ The bond issue has a fixed annual 10 per cent coupon rate, payable semi-annually and due for repayment May 1, 2023.⁸⁹

What did Conuma do with the proceeds from the bond issue? In 2018, Conuma used US\$33 million to pay off debt, likely incurred to buy the mines.⁹⁰ The same year, US\$110 million was paid in dividends to US shareholders.⁹¹ These shareholders included the US-based private hedge fund AMCI Group, which at that time owned 52 per cent of Conuma.⁹² Conuma retained relatively little of the proceeds from the bond issue to support corporate operations. In 2019, Conuma paid US\$115 million from free cash flow (cash available to the company) in dividends for a total distribution to shareholders of US\$225 million over two years.⁹³

Continuing losses due to low coal prices could see the shuttering of one or more of the company's operating mines along with layoffs. Meanwhile, caribou habitat continues to degrade.

Placing US\$200 million debt on Conuma's balance sheet, along with an annual interest payment of US\$20 million, put strain on the financial operations of the company. Plummeting coal prices have further strained the company's finances. On March 26, 2020, S&P lowered its credit rating of Conuma to CCC+ from B and gave it a negative outlook due to liquidity concerns.⁹⁴ On October 28, 2020, Moody's downgraded its credit rating of Conuma to B3 from B2 due to weaker operating results and increased debt.⁹⁵

On October 21, 2020, the Canada Enterprise Emergency Funding Corporation—Ottawa's lender of last resort—announced that it had lent Conuma \$120 million underscoring Conuma's compromised financial situation.⁹⁶ It appears that if Conuma had not advanced US\$225 million to its shareholders as dividends, there would have been no need for the company to go cap in hand to Ottawa.

As mentioned above, operating losses could see the return to Conuma of some or all of the corporate taxes it has already paid. Continuing losses due to low coal prices could see the shuttering of one or more of the company's operating mines along with layoffs, repeating the negative consequences of the bust phase of the business cycle. Meanwhile, caribou habitat continues to degrade.

88 In 2018, Conuma repaid US\$25 million of the US\$200 million debt it raised out of free cash flow. Incurring a total of US\$225 million in debt, including the US\$25 million credit facility, fundamentally changed the operating dynamics of the business as a whole.

89 "Conuma Coal Resources 10.00% 2023-05 USD," investopoli.com, April 19, 2018, <https://www.investopoli.com/en/bonds/conuma-coal-resources-usc2701aaa00/>.

90 "Rating Action: Moody's Assigns B2 CFR to Conuma Coal," Moody's, April 17, 2018.

91 Ibid.

92 AMCI owned 52 per cent in 2016, increasing to 77 per cent in 2019.

93 Private communication.

94 "Conuma generated earnings and cash flow below our expectations in 2019, and we estimate the company's liquidity position is constrained. Lower average metallurgical coal prices, as well as rail and port disruptions that negatively affected sales and cash flow were notable headwinds. The company has a negligible cash position (C\$7 million as of Dec. 31, 2019) and limited availability under its US\$25 million credit facility. We now consider the company to be vulnerable to near-term unexpected cash outflows." See "Conuma Coal Resources Limited Issuer Credit Rating Lowered To 'CCC+' From 'B' On Liquidity Concerns; Outlook Negative," S&P Global, March 26, 2020.

95 "Rating Action: Moody's downgrades Conuma Resources' rating to B3; stable outlook," Moody's, October 28, 2020. https://www.moody's.com/research/Moodys-downgrades-Conuma-Resources-rating-to-B3-stable-outlook-PR_435010?cid=7QFRKQSZ021

96 Canada Enterprise Emergency Funding Corporation, "Approved Loans". <https://www.ceefc-cfuec.ca/approved-loans/>

Subsidizing extinction

Conclusions and recommendations

GOVERNMENT AND MINING ADVOCATES CLAIM THAT MINES' BENEFITS outweigh impacts, including those to endangered caribou populations. Through the regulatory process, the public is promised that the environment is being adequately cared for and that the benefits—taxes, jobs and production—will make any environmental degradation worth it. Our study shows that these assumptions do not hold true.

In sum, few of the forecasted economic benefits materialize from coal mines in Central Mountain caribou habitat. Only \$86 million of the \$250 million in tax predicted to flow from the three coal mines we examined was generated, and current prospects are that Conuma will file for refunds of corporate taxes it has paid. Only 59 per cent of forecasted employment materialized, and jobs were unstable, as the mines were closed on average for nearly one-third of the time. Production at the mines fell short by 63 per cent of the approved capacity, suggesting regional economic growth far below what was expected. The scant benefits that do materialize arrive years later than promised and while the public waits, highly endangered caribou populations continue to be negatively impacted by these mines.

A small pool of international investors who bought and sold their shares in the companies that owned these mines, and a few private investors who leveraged the value of assets bought out of receivership, seem to be the only significant beneficiaries of caribou-destroying development.

Our study was not focused on identifying the negative social costs of mining in Central Mountain caribou habitat, but evidence of such costs, often on gendered and racialized lines, is accumulating in academic and policy literature. And while the commonly circulating narrative is that these projects provide local jobs for rural communities, the broader trend in resource extraction is “fly in, fly out,” and women have yet to gain inroads in employment in the sector. Fewer than one in five employees have been women for the past two decades.

Meanwhile, caribou continue on their crash course to extinction. The public may think it is allowing regulators to send caribou to their demise for a payoff, but in the case of coal mining in the critical habitat of endangered Central Mountain caribou, the public is hardly being paid, and where it is, that payment is far overdue. Furthermore, the provincial government is subsidizing extinction—and the government is doubling down on these subsidies. In 2019 the provincial

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government made two mining-sector-specific tax credits permanent.⁹⁷ Support to the sector expanded in the 2020 budget, including new staff to accelerate mining applications, and millions to industry organizations, to their delight.⁹⁸ Returning to Jean L’Hommecourt’s metaphor, these subsidies feed the whirlpool of resource extraction dependency.

Labyrinthine public accounting of benefits

We reached the above conclusion after painstaking research and scrutiny. Undertaking this work involved four researchers with expertise in economics, accounting, finance and environmental policy digging through environmental assessment documents and technical reports to find projected benefits, carefully examining financial statements, tracking down bankruptcy filings, consulting the tax code, locating press releases and presentations reporting on jobs created and lost, and then double- and triple-checking our work across these esoteric documents. And, ultimately, we were only able to access the information we did because Pine Valley, Western Canadian Coal and Walter Energy were publicly traded companies.

Companies report detailed financial information to their shareholders, while members of the public are kept in the dark, shut out from accessing reliable, transparent financial information from the government.

Determining whether companies are delivering the benefits they forecast in exchange for extracting public resources like coal should not be a labyrinthine endeavour. If the government is akin to a company that holds capital, like coal, in which all members of the public are shareholders, the government should be accountable to its “shareholders.” Companies report detailed financial information to their shareholders, while members of the public are kept in the dark, shut out from accessing reliable, transparent financial information from the government. Such access to information is fundamental if informed decisions are to be made.

The current situation is irresponsible. Regulators rely on social and economic benefits estimated by proponents when recommending project approval. Everyday British Columbians and Indigenous nations rely on these estimates in their own deliberations about whether or not to support projects. Yet with all the decision-making power these estimates hold, British Columbians are not kept informed about whether they are realized. There are no monitoring requirements nor standards within the regulatory process to determine whether the benefits forecasted materialize over the life of the project. Accountability is desperately needed. If decisions are made based on promised economic and social benefits, these benefits must be rigorously, transparently and independently tracked, reported on and debated.

It is not only accountability and transparency that are lacking, but also a rigorous, defensible, standardized means of predicting benefits in the first place. The disjunct between promises and reality is so wide because the regulatory approval process accepts pie-in-the-sky projections. In the environmental assessment process companies do not have to reference how similar existing projects performed; benefit predictions do not have to be based on precedent. Further, there is

97 The BC Mining Flow-Through Share Tax Credit provides a non-refundable BC income tax credit to individuals who have purchased flow-through shares from a BC mining company. The tax credit is worth 20 per cent of mining expenditures that the mining company flows through to the individual. The Mining Exploration Tax Credit is a refundable BC income tax credit for eligible individuals and corporations conducting grassroots mineral exploration in BC and is worth 20 per cent or 30 per cent of qualified mining exploration expenditures. The government’s decision to make these credits permanent aimed to create more certainty and incentives to invest in BC’s mining industry. See Bruce Ralston, “New Government Actions Will Help B.C.’s Mining Sector Thrive,” BC Gov News, February 1, 2019, <https://news.gov.bc.ca/factsheets/new-government-actions-will-help-bcs-mining-sector-thrive>.

98 Association for Mining Exploration of BC, “AME Responds to B.C. Budget 2020,” AME News Releases, February 18, 2020, <https://amebc.ca/releases/ame-responds-to-b-c-budget-2020/>.

no required standard or method for benefit estimates and their presentation, and companies can employ models that are recognized as faulty.⁹⁹

Falsely rosy futures

The relationship between volatile coal prices and the idling of mines is well recognized. Yet none of the benefit cases prepared in support of environmental assessment certificate applications contemplate such a scenario. Instead, they present a falsely rosy outlook for how the industry performs. They predict years of consistent, continued strength in the market, aggressive production and upward-trending prices that trigger tax revenue, stable employment and strong output. Such a scenario has never been the experience for coal mining in BC's northeast.

Ignoring the expected bust cycles in coal mining increases the projected benefits from these mines; it creates projections of overestimated production levels and therefore overestimates tax revenue and employment. Companies project mine profits, taxes and labour demand based on sustained high coal prices that are not supported by expected or actual performance.

Idle coal mines generate significant costs to society and the economy, costs not reflected in the projections offered to regulators by project proponents. These costs include, but are not limited to, negative social consequences such as increasing rates of depression, anxiety, domestic violence and family breakup. Shuttered mines mean layoffs, operating losses, tax refunds and reduced economic activity. They very often lead to companies seeking creditor protection, resulting in losses to creditors such as suppliers, lenders and investors.

Unstable results from coal mining's cyclical nature have significant implications for caribou. Because mines are placed in care and maintenance, rather than closed, as companies anticipate a turnaround in market conditions, reclamation activity is put on hold. Habitat is negatively impacted longer than was anticipated when authorizations were granted. The longer that mining activity is paused rather than stopped, the longer habitat remains unremediated and unavailable to caribou. The only impact from mining that might be characterized as constant is the negative impact on habitat, since during both the boom and bust phases of the business cycle, habitat is degraded with much of it destroyed.

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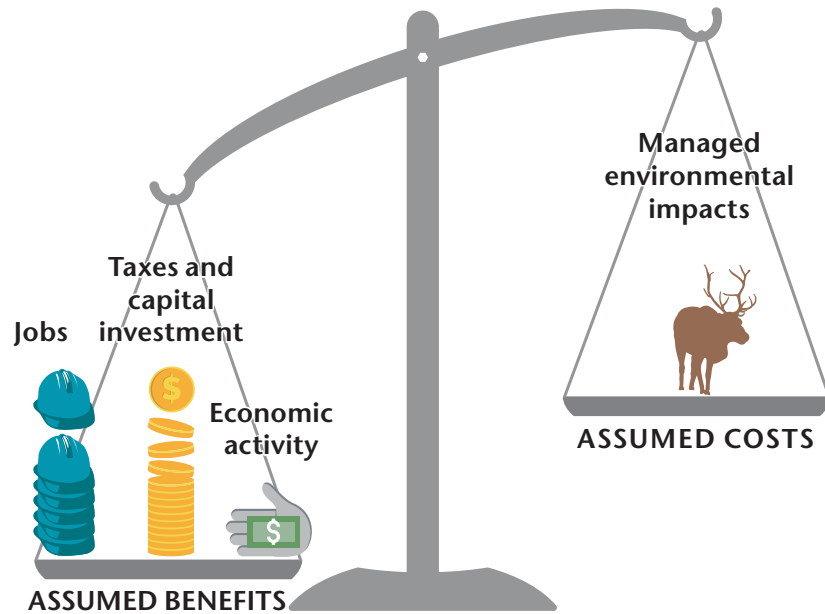
Benefit prediction models: Proponent's choice

Tax revenue, employment projections and production impact are also chronically exaggerated because proponents rely on flawed benefit prediction models. The Willow Creek environmental assessment predicted benefits estimated by the BC Input-Output Model (BCIOM), which in turn relied on a discounted cash flow model for the project,¹⁰⁰ while the benefits for Brule and

99 Robyn Allan, *An Economic Assessment of Northern Gateway*, submission to the National Energy Board Joint Review Panel, January 2012, <https://www.robynallan.com/uploads/2012/02/Economic-Assessment-of-Northern-Gateway-January-31-2012.pdf>; Roderick Campbell, *Select Committee into Certain Aspects of Queensland Government Administration Related to Commonwealth Government Affairs* (Canberra City: The Australia Institute, 2014), <https://www.tai.org.au/sites/default/files/TAI%202014%20Queensland%20Senate%20Inquiry%20submission%20FINAL.pdf>.

100 The Willow Creek EA states that the "BCIOM can be used to assess the economic significance of specific changes in activity within the BC economy. Conceptually, the model is a simplified mathematical representation of relationships among industries and commodities within the economy. When activity in one industry changes, the model will estimate how that change impacts demand and supply for

Figure 8: Promised: Benefits exceed costs



Note: The promised distribution of costs and benefits from resource extraction in caribou habitat, where benefits are substantial and any environmental costs are mitigated.

Input-output models are prone to serious exaggeration of economic benefits, since they treat all impacts as benefits and double-count potential employment.

Wolverine appear to have been derived directly from cash flow estimates of capital costs and employment complement related to production levels for the respective projects. The fundamental problem with both these approaches is that they are based on a scenario of constant and aggressive output at profitable prices, ignoring the well-documented and widely understood boom and bust tendency within the metallurgical coal sector.

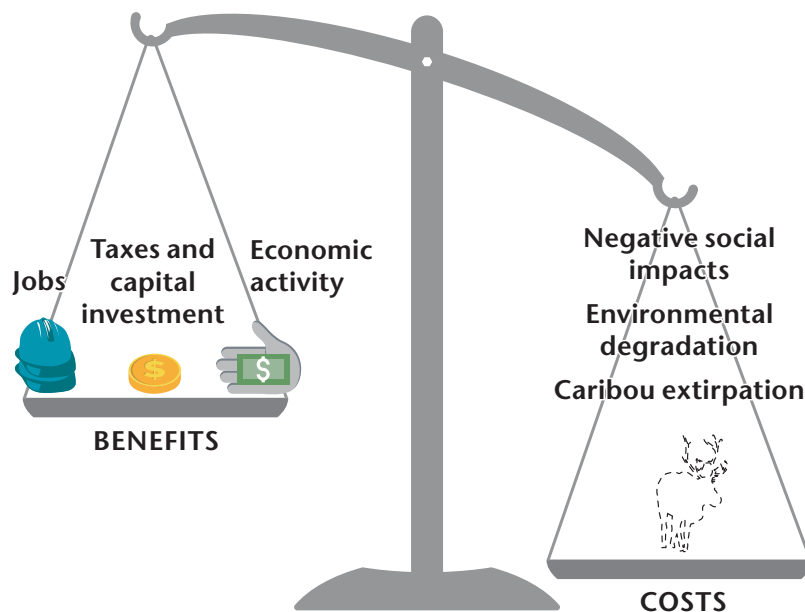
Input-output models particularly grossly overestimate the positive impacts of projects because of the multipliers generated in the model, and because the model is incapable of identifying, let alone estimating, costs. The multipliers calculated by BCIOM are derived at a point in time, which means that by design the model is incapable of addressing the boom and bust nature of the coal industry. It is widely understood by professional economists that input-output models are prone to serious exaggeration of economic benefits, since they treat all impacts as benefits and double-count potential employment.¹⁰¹

But there is nothing in the environmental assessment certificate application to indicate to the reader the risks inherent in relying on an input-output framework, even though it is generally

related industries. Although the relationships within the economy are simplified, the model itself is highly complex involving 216 industries and 627 commodities. Since the level of detail provided by the BCIOM was not required for the Willow Creek Project, the assessment undertaken utilized the economic multipliers inherent to the model to estimate the aggregate impacts of the project on a few key economic variables." See Pine Valley Coal, *Willow Creek Final Project Report*, section 8.2.3.

¹⁰¹ See, for example, Allan, *An Economic Assessment of Northern Gateway*, and Campbell, *Select Committee into Certain Aspects of Queensland Government Administration*.

Figure 9: Reality: Costs exceed benefits



Note: The actual distribution of costs and benefits from coal mining in Central Mountain caribou habitat, where benefits are far less than what is promised and the costs are degraded habitat and a species headed to extinction, along with negative social impacts.

recognized that risks of any model relied on to predict future scenarios should be specified within a report that employs them. And despite the numerous flaws in input-output analysis, estimates based on these models continue to be accepted by regulators, as was the case in the recently approved coal mine in Central Mountain caribou habitat, Murray River coal mine, approved in 2017 but yet to be opened.¹⁰²

Not all proponent applications relied on input-output analysis. It is unclear what models were relied upon for Brule and Wolverine; however, cash flow statements were included in technical reports that provided the estimates for tax revenue. That is, benefits were presented by proponents in support of Brule and Wolverine environmental assessments with no explanation as to the methodology relied upon. This absence of information to test the veracity of the benefits claims is another serious failure in the regulatory approval process.

Economic benefit projections wield significant power, but the current economic assessment of projects is a sham. The decision to build and operate a coal mine in northeastern BC should instead be based on the realities of mine operation, including an expectation of operating challenges, shutdowns and the likelihood that companies will seek protection under the Companies' Creditors Arrangement Act.

This absence of information to test the veracity of the benefits claims is another serious failure in the regulatory approval process.

102 HD Mining International, *Application for an Environmental Assessment Certificate for Murray River Coal* (Vancouver, BC: HD Mining, 2014), <https://iaac-aeic.gc.ca/050/documents/p80041/100715E.pdf>.

The way forward

This report's aim was to investigate the powerful benefits narrative that justifies approval of projects causing caribou loss. An image for this narrative is found in Figure 8. Huge economic benefits are promised from mining projects along with environmental impacts that are mitigated. Benefits are believed to significantly outweigh costs.

This powerful narrative drives government decision-making. But the power of this narrative goes beyond the confines of the environmental assessment certificate application process; mining development relies on communities and citizens of BC believing the balance of benefits from these developments outweighs their costs. Without this belief, these companies' social licence to proceed would be in jeopardy.

Our research proves this narrative to be a myth with respect to coal mining in Central Mountain caribou habitat. Figure 9 illustrates the reality.

Based on our findings, Willow Creek, Brule and Wolverine coal mines should not have been approved. The government's decision to do so was irresponsible and put caribou at further peril.

The lessons learned in this case study raise questions about — and likely have relevance for — other mines and other sectors, such as forestry and oil and gas. How are other mines in BC performing as compared to the benefits promised? To what extent is the government subsidizing oil and gas developments that negatively impact caribou or other endangered species? Are other resource sectors underperforming on their public economic return? Do other jurisdictions require transparent reporting of economic and social benefits? Further, given the gendered nature of impacts, to what extent are subsidies and benefits gendered; that is, do men tend to directly benefit more from resource extraction than women? To what extent are benefits distributed on racialized lines?

Answers to these questions by government and researchers should be a priority, informing further conversations about the regulatory and extractive processes in BC, and the false narrative that feeds this whirlpool of development approvals. Given the lack of financial transparency discussed above, and the different corporate structures in other sectors, another methodology will be needed to investigate answers to these questions.

Ultimately, addressing this situation requires something much more comprehensive than tinkering with the environmental assessment certificate application process.¹⁰³ Below we recommend four steps in the way forward to more informed, publicly transparent and accountable decision-making for extractive developments in the province.

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103 Many organizations have put forward crucial recommendations. For example, a 2018 report by the Native Women's Association of Canada lays out recommendations necessary to reduce the negative impacts of mining on Indigenous women (Bond and Quinlan, *Indigenous Gender-Based Analysis for Informing the Canadian Minerals and Metals Plan*). As well, the University of Victoria Environmental Law Centre recently called for a public inquiry into BC's mining regulatory system as a first step toward a needed overhaul; see "The Urgent Need to Modernize BC's Mining Regulation," March 8, 2017, <http://www.elc.uvic.ca/fix-mining-regulation/>.

We need:

1. A moratorium on new mines in Central Mountain caribou habitat

Given the paltry economic performance of the mines we studied, their impact on caribou and the evidence of negative social impacts, a moratorium on new mine approvals should take place in Central Mountain caribou habitat.

2. A public inquiry into the economic impact of all BC mines

British Columbians and First Nations deserve thorough accounting of our collective capital investments. To understand economic impact, the government should undertake an independent public inquiry of all existing mines with a view to fully evaluating their costs and benefits. This inquiry would form the basis for a necessary public conversation over what returns and risks the public wants to incur when approving mining developments.

A moratorium on new mine approvals should take place in Central Mountain caribou habitat.

3. Legal and policy reform to ensure rigorous and realistic economic assessment of proposed projects and transparent, accountable tracking of economic impact

Proponent benefit projections should be based on standardized, independently verified best practices that recognize costs and benefits and incorporate a realistic interpretation of business realities. Once a project is approved, companies should regularly and transparently report their performance against their promises. If companies fall short of or exceed their promised benefits, they should provide explanations with a view to informing future regulatory decision-making.

4. A full accounting of all subsidies to any industries linked to habitat loss and species extinction or extirpation in BC, including for caribou

Our research project set out to identify public subsidies leading to caribou decline but was not able to identify the full scope of subsidies; the financial data we had access to only allowed us to identify and quantify flow-through shares and the Mineral Exploration Tax Credit. In line with international treaties signed by Canada that call for the phase-out of subsidies linked to biodiversity loss and climate change, subsidies that incentivize species decline and biodiversity loss should be catalogued and beneficiaries identified. Once this information is available, it can inform subsidy elimination and/or redirection.



This report is part of the Corporate Mapping Project (CMP), a research and public engagement initiative investigating the power of the fossil fuel industry. The CMP is jointly led by the University of Victoria, Canadian Centre for Policy Alternatives BC and Saskatchewan Offices, and Parkland Institute. The initiative is a partnership of academic and community-based researchers and advisors who share a commitment to advancing reliable knowledge that supports citizen action and transparent public policy making. This research was supported by the Social Sciences and Humanities Research Council of Canada (SSHRC).

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