Alberta's 'rampant industrial development' threatening wolverines: study

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KANANASKIS – Wolverines get a bad rap for being notoriously fierce and badass but the species is becoming increasingly vulnerable and under threat.

A study released last week suggests industrial disturbances along the eastern slopes of the Rockies are playing a role in the decline of wolverine numbers and distribution.

"We particularly wanted to look at how all of that really rampant industrial development was affecting the wildlife community and I wanted to dig into wolverines," said Gillian Chow-Fraser, the lead researcher for the study.

"Wolverines are super charismatic, but they are also a species at risk and we know that they are in decline on that eastern edge of the Rockies… I wanted to look at what exactly about those areas makes it a struggle for wolverines to survive there."

The paper, "Landscape change shifts competitive dynamics between declining at-risk wolverines and range-expanding coyotes, compelling a new conservation focus", was published in *Biological Conservation's* February 2022 issue. It was conducted by Alberta Environment and Parks, University of Victoria and Canadian Parks and Wilderness Society.

A non-invasive technique was to gather data. Motion-triggered remote cameras were set up in 154 locations throughout Kananaskis Country and the Willmore Wilderness adjacent to Jasper National Park over the course of five winters.

Wolverines and coyotes were detected most frequently, but other carnivores such as wolves, cougars, red foxes and lynx were detected. Because the data was collected in winter, bears were not included in the study because they were in hibernation.

Chow-Fraser said the research revealed that industrial linear features, like roads and seismic lines used for oil and gas exploration, drive competition between wolverines and coyotes.

In fact, as roads and seismic lines increased in density, she said wolverines and coyotes were three times more likely to co-occur.

"When we say co-occur, that means they were at the same place at the same camera within one week of each other," said Chow-Fraser.

"That's a pretty tight timeline. If they are at that same tree within seven days, they were probably competing for resources then at that point."

But are the badass wolverines and wily coyotes really fighting each other for space in a hard-fought competition?

Not in the typical sense of the word, according to Chow Fraser, who said this is a form of competition in which way more coyotes in these high densities of disturbed land from industrial development lead to the displacement of wolverines.

"When I say competition, a lot of people are kind of surprised, like 'oh, a wolverine you would think would definitely beat a coyote in a fight', but that's not the kind of competition that we're talking about," said Chow-Fraser.

"It's the competition for resources and space and it's looking like these coyotes are out-competing wolverines from these places with high levels of linear features because any time a wolverine shows up, a coyote is already there consuming those resources."

Chow-Fraser said this would help explain why wolverine populations are struggling in parts of their native range where linear disturbances associated with industrial development are prevalent and coyote populations are high.

"Our study suggests wolverines are being out-competed from disturbed areas because of this increased overlap with coyotes," she said.

Researchers are hoping this study and others studies in recent years will help motivate coordinated landscape management and conservation restoration work in the Rockies.

Initial steps could include minimizing seismic lines as well as restoring those not in use, something Chow-Fraser said would also benefit endangered caribou.

"Coyotes seem to be using these features and it's driving wolverines out of their native range, and then in the caribou conservation world, wolves are also using seismic lines to get into caribou habitat, and then it's creating these unsustainable predation rates on caribou," she said.

"Conservation work needs to happen to target these features and I think it's an example of how we're really rapidly tipping the odds out of favour for these more sensitive species that can't adapt to these kinds of industrial landscape changes that we're seeing in Alberta."

Wolverines, the largest terrestrial member of the weasel family, prefer to live in the most rugged and remote areas of the mountains. Naturally occur in low numbers, wolverines have low reproductive rates and need vast interconnected blocks of wilderness to survive.

They live in the northern boreal forest and mountains of western and northern North America and across northern Europe and Asia. Once found across the northern hemisphere, wolverine range and populations have shrunk dramatically over the last century, primarily due to trapping, and habitat loss and fragmentation.

Locally, researchers strongly encourage the province of Alberta to re-assess the status of wolverines. Under Alberta's Wildlife Act, wolverines are listed as 'data deficient' based on an assessment done in 2000.

Federally, wolverines have been listed as a species of special concern since 2014; however, that level of status doesn't require mandatory recovery plans.

Chow-Fraser said that since the last provincial assessment many studies have looked at the threats facing wolverines in Alberta, providing a picture of necessary management actions.

A study released last week suggests industrial disturbances along the eastern slopes of the Rockies are playing a role in the decline of wolverine numbers and distribution. DAMIAN POWER PHOTO

"That assessment was done over 20 years ago and since then we know they are doing quite poorly in the Rockies," she said.

"It would be responsible wildlife management to re-assess at this point. They are facing a threat, they're in decline, and we have a pretty good understanding of what those threats are."

Another wolverine paper recently published in Global Ecology and Conservation points to what wolverines need to survive in a rapidly changing world.

Canmore-based Yellowstone to Yukon (Y2Y) Conservation Initiative initiated, participated in, and funded the review, called "Wolverines (Gulo gulo) in a changing landscape and warming climate: A decadal synthesis of global conservation ecology research."

This sweeping study, which reviewed 156 international peer-reviewed papers since 2000, highlighted how wolverines are sensitive to people and development for multiple reasons, with roads and rising temperatures, in particular, having major impacts.

It found genetic variation is generally still strong across wolverine populations; female wolverines need snow and solitude to den to produce healthy kits; and connectivity is needed not just across landscapes, but also among researchers to understand what helps or hurts wolverines around the world.

Big protected areas and better management of connected landscapes nearby are crucial for wolverine survival, according to the study.

Jason Fisher, the paper's lead author, said this new review has several implications, particularly because wolverines and their conservation have become growing concerns, especially in western North America where their range has shrunk dramatically.

"One major takeaway from the last 20 years of research is wolverine research and conservation can't stop at political borders," says Fisher, a wildlife ecologist and adjunct professor at the University of Victoria's School of Environmental Studies.

"There also needs to be better collaboration among researchers and communication with policymakers to make better decisions for wolverines. The science shows that we already know a lot – we need to be sharing more and thinking and acting on bigger scales."

Study co-author Aerin Jacob, a conservation scientist with Y2Y and adjunct professor at the University of Northern British Columbia, said wolverines are yet another example of a species that needs large landscape conservation and transboundary coordination to thrive.

"This research underscores the need for conservation strategies that protect wildlife and ecosystems from poorly planned development and human activities," she said in a news release.

"To help species at risk of extinction, including wolverine, we need big protected areas to retain and restore existing habitat connectivity, and stop climate change, as soon as possible."

Jacob said places like the Y2Y region are strongholds for wolverines because habitats are still largely connected.

"To make sure wolverines don't lose genetic variation or go extinct from some of these places – the way animals such as grizzly bears or mountain caribou have – we have to get serious about action," she said.

The bottom line is wolverines are predictably sensitive to a number of stressors.

"Other species are too, it's just that wolverines are particularly vulnerable," said Fisher.

"Good conservation decisions for wolverines, such as protecting and connecting habitat and reducing the impact of human activities, can benefit other animals that share the same habitat."