

Logging Scars

SOLUTIONS

Wildlands League is calling for a moratorium on logging intact forests:

- 1 Stop accessing intact, roadless forests. Setting these areas aside and protecting them will prevent future logging scars.
- 2 Restore barren logging scars in forests that have been previously accessed by clearcut logging.
- 3 Employ sound science to measure impacts and get accurate data to make effective, evidence-based decisions.

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Wildlands League exposed the massive, unaccounted for footprint of industrial logging on Ontario's public lands: Vast areas of treeless and barren "logging scars" are persisting for decades in the boreal forest. These long-term impacts imperil wildlife and counteract Canada's efforts to mitigate climate change. Now, the Doug Ford government is deregulating forestry, eliminating critical oversight and doubling down on logging. **It will only make the extinction crisis and climate challenge worse.**

Once upon a time, before a fleet of satellites patrolled outer space, relaying high-resolution images of Earth to the Internet, the only way to get a sense of humans' industrial footprint on the planet was from the window of a low-flying airplane. Trevor Hesselink has

spent many hours looking down upon northern Ontario's boreal forest from the cockpit of noisy, turboprop bushplanes. What he witnessed from above made stark impressions, ultimately inspiring "Logging Scars", a hard-hitting report on the state of this forest, released in December 2019.

In what most Canadians envision as an endless sea of boreal jack pine and black spruce, Hesselink and his colleagues at Wildlands League saw a disturbing pattern of treeless intrusions—legacies of Canada's \$21.8 billion forest industry. Flying above the vast area that serves as Ontario's final redoubt of woodland caribou and wolverines and a massive repository of stored carbon, crucial in Canada's climate change abatement strategy, exposed "logging scars"—Hesselink's term for the conspicuous web of sterile roads and rectangular roadside operating areas for heavy equipment, known as landings, overlaying the tapestry of forest.

"We've heard it over and over again: Canada's forestry is highly sustainable," says Hesselink, the Wildlands League's Director of Policy and Research. "But these forests have never sustained such heavy machinery. Maybe the way we're logging is systematically hampering their ability to regenerate."

That's a problem, especially as Ontario's Doug Ford government pledges to double down on forestry with a new strategy that guts protections for endangered species and removes

opportunities for environmental assessments and public oversight. The Logging Scars report reveals that these are essential safeguards—not excessive red tape. Ontario's reliance on heavy-handed clearcut logging, which will only grow under Ford's plan, is squandering vast areas of boreal forest and not accounting for their loss. At the same time, boreal woodland caribou continue to decline.

"It is a short-sighted strategy to boost logging beyond the limits of nature," says Dave Pearce, Wildlands League's Forest Conservation Manager. "This industry-first outlook is grossly irresponsible during a time of climate and biodiversity crises."

Hesselink demonstrates why this is a huge mistake. Before the Logging Scars report, no proven, precise figure had ever been assigned to the amount of productive forest compromised due to the usual practices of constructing roads and landings. Driving this infrastructure is the standard logging method known as "full-tree harvesting": clear-cutting timber with

immense machines, hauling of entire trees to roadside landings, and stripping unsellable branches and separating undesirable species to be abandoned as "slash"—all with at least three different sets of heavy equipment.

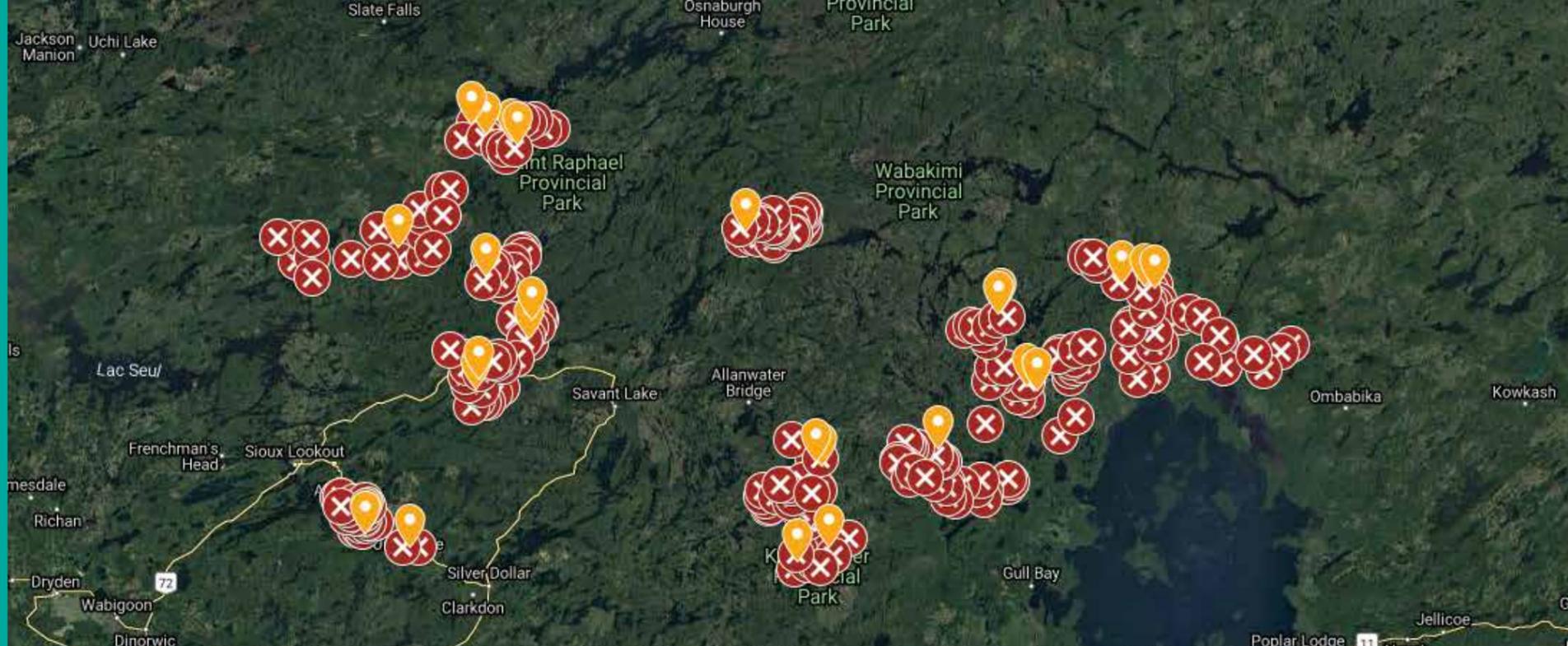
Hesselink wondered just how much forest land had been sacrificed. His preliminary estimates using government aerial photography for Ontario Crown (public) lands suggested losses of 10 to 15 percent per area cut. That shocking number kicked off a three-year, comprehensive study focusing on 27 clearcuts of varying age in northwestern Ontario, in the vicinity of Wabakimi Provincial Park. He made more calculations and ground-truthed the results with fieldwork, gaining better perspective with an aerial drone. On average, the footprint of roads and landings occupied 14.2 percent of the logged areas studied. Tree regeneration was stunted by gravel surfaces, compacted soils, erosion and piles of unwanted wood and processing wastes, even after 35 years. Projected across the province, Ontario may have forfeited 650,000 hectares of productive boreal forest to logging scars, an area equivalent to 10 times the size of the City of Toronto.

"It appears that industry and government have instead assumed that it's such a small thing, it's no big deal," says Pearce. "But really, that massive area translates to two to three years of average wood supply."

See For Yourself

Industry dismisses Wildlands League's Logging Scars research, claiming the analysis focused on isolated incidents. But the truth is, the non-profit organization has catalogued over 290 sites where logging scars are visible in the boreal forest, revealing the true impacts of industrial logging on public lands over the past four decades. As long as the forest industry keeps on clearcutting with massive full-tree harvesters, logging scars will keep appearing all across Canada. Society suffers for this wasteful approach to resource management—as do Canada's threatened populations of boreal caribou. Industry and government are in denial, ignoring the crucial role of intact forests on combatting climate change.

Visit loggingcars.ca and peruse our new, user-friendly Google Earth viewer to examine the legacy of clearcut logging in the boreal forest. Help us shine a light on this widespread problem of deforestation from logging scars in Canada.



“Everyone has been believing in a myth,” adds Janet Sumner, Wildlands League's Executive Director. “It's false, with dangerous consequences for everything from long-term economics and sustainability to Canada's plan to mitigate climate change and the conservation of endangered species. We must put an end to clear-cut logging in the intact boreal forest until the government and industry can demonstrate a method that's truly sustainable.”

“Logging scars” are the lingering footprints of industrial clearcut logging, represented by barren landscapes and measured as the percentage of disturbance per area harvested. The visible boundaries of individual clearcuts allowed Hesselink “to create a spatial ratio of barren logging scars to regenerating forest.” In this manner, logging scars ranged from 10.2 to 23.7 percent for the 27 clearcuts analyzed.

Access to raw data was easy—or so Hesselink thought, starting out. He relied on forest resource inventory imagery, commissioned by the Ontario Ministry of Natural Resources and Forestry (MNRF) in 2011. These air photos, fundamental to forest management planning, allow the viewer to count individual trees. Despite the high resolution of imagery, Hesselink was astounded by the lack of information on logging roads contained in Land Information Ontario, a digital database of geographic information, when he paired this dataset with the photos. One-third of forest access roads in the areas studied were unaccounted for; of those included, many were inaccurately plotted. Using geospatial software, “I had to go along and correct almost every road segment for my samples, to make it align with the air photo,” he says. “That, combined with adding all the missing roads, turned out to be a colossal extra undertaking.”

Similar discrepancies occurred when historical Landsat satellite imagery (available on public platforms such as Google Earth) became necessary to consult to fact-check the age posted in Ontario's forest inventory for individual clearcuts in the study area. MNRF logging data was up to 11 years off. “It was very poor information to work with,” says Hesselink. “As the basis of forest management in Ontario then we have a lot of room for improvement.”

University of Toronto forestry professor Jay Malcolm is amazed at Hesselink's attention to detail. “It's a stunning piece of work,” Malcolm says. “His ability to process that information

manually is incredible. He's careful and painstaking and fundamentally accurate.”

Malcolm winces slightly at Hesselink's use of the term “deforestation” to describe logging scars. “In the industry they would call it a ‘regeneration delay,’” Malcolm notes. “The question is, to what extent is logging infrastructure affecting wood volume and carbon? When you put a rotation cycle on the forest, it becomes a matter of saying, how long will the delay last? It's more deforestation than we thought and Trevor shows that after 30 years, it's still not coming back. We don't know how long it will take to come back.”

The Logging Scars report makes two dire predictions: if current clearcutting levels continue, the extent of logging scars will balloon to 890,000 hectares by 2030, which is about the same area as Wabakimi, Ontario's second-largest provincial park; and within the same time period, Hesselink calculated it will cost the atmosphere 41 megatonnes of carbon dioxide equivalent in mitigation, seriously skewing Canada's reported values under international climate change protocol.

“The industry is in denial,” says Sumner. “There's a belief that forests are completely renewable but the reality is the industry is leaving the roots, treetops and limbs they can't sell along the roadsides, where it smothers and inhibits regeneration on at least 14 percent of the landscape. We suspect this is playing out across Canada and that our carbon accounting is way off.”

In a prepared statement, the Forest Products Association of Canada (FPAC), a national advocacy group for Canada's wood, pulp and paper industry, describes Hesselink's findings as “misleading.” The Logging Scars report “overlooks the innovative, sustainable and inclusive nature of Canada's forest sector in the 21st century, and it does not acknowledge the positive solutions-based role we're playing across the board,” wrote Derek Nighbor, FPAC President and CEO. The statement did not provide specific examples of how the timber industry is monitoring and mitigating losses to productive forest due to logging, however. Nighbor simply stated that “road areas and non-regenerated landings are significantly lower today.”

The cursory dismissal irks Tom Clark, a Muskoka-based ecological consultant who has conducted provincially-mandated independent audits of public forests across Ontario for 20 years,



The Fallacy of Mass Timber

Engineered timber products are touted as a carbon-neutral alternative to building materials like concrete and steel. However, this mindset ignores critical variables contributing to the actual carbon footprint of industrial forestry. This Logging Scars project highlights just one aspect of the real-world complexity of life-cycle analysis of wood - putting an estimated cost of 119 kilograms of unmitigated carbon dioxide against each cubic metre of wood sourced from this area.



as well as comprehensive assessments of certified forests through the Forest Stewardship Council, a global certification standard. “I’ve seen a lot of roads,” says Clark. “I don’t see a lot that are growing back, at least in the near-term.”

Clark contends that FPAC is missing the point when it comes to achieving sustainable forestry. Under the current forest management system, stands are deemed “free to grow” within about a decade of logging, thus reducing longer-term scrutiny. “If the model says one thing but the cumulative losses are actually much higher, then it means you’re going over the landscape much faster than you think,” notes Clark. “Ignored impacts lead to problems.”

If industry and government want to dismiss Hesselink’s findings, Clark says they must provide evidence to back up their claims. “This is a public forest,” he insists. “Trevor’s research is legitimate. It shouldn’t be swept under the rug.” The public, stakeholders, indeed all of us, deserve a proper response.

The University of Toronto’s Jay Malcolm alludes to a critical outcome of the Logging Scars study: the persistent impacts of clearcut logging on tree growth. This time lag is a key implication of Hesselink’s discoveries, exposing false assumptions in Canada’s forest carbon measuring system that could have huge impacts on the nation’s efforts to mitigate climate change.

To meet its obligations under the United Nations Framework Convention on Climate Change, Canada’s National Forest Carbon Monitoring, Accounting and Reporting System establishes the balance of forest carbon emissions (from natural disturbances like fire) and removals (in the form of stored carbon in forest products and regeneration). This model predicts Canadian forestry operations remove greenhouse gases from the atmosphere, putting this figure at 20 megatonnes of carbon dioxide in 2016.

However, the Canadian model essentially ignores logging infrastructure, implying that roads and landings “exert no distinct carbon impact,” explains Hesselink. That’s because Canada relies on fuzzy, low-resolution satellite imagery that makes it impossible to visualize logging scars. Its protocols also reflect the prevailing assumption of full renewal of trees in clearcut areas. While the carbon model has the capacity to account for such losses, it currently does not. The impact of this fundamental oversight is astounding: according to Hesselink’s

projections, Ontario’s annual area loss of productive forest—and carbon removal—is more than seven times greater than the reported rate of forestry-incurred deforestation in all of Canada.

“It’s a huge gap in reporting,” says Malcolm. “Basically we need finer scale imagery to accurately report what we’re doing. There’s no excuse, the imagery is out there.”

The manner in which trees grow, pulling greenhouse gases from the atmosphere and storing it in wood fibres, imposes a steep, exponential curve of lost opportunity to mitigate climate change as long as the forest industry continues to scar virgin forests with clearcuts. “We’re adding more and more disturbed landscapes over time,” Hesselink explains. “The obvious first step is to stop the loss. Don’t go into any roadless areas and make more logging scars. Then try and reclaim what is possible in the already accessed forests over time.”

Malcolm contends the forest industry relies on the widely believed myth that wood is carbon-neutral to continue to expand operations into untouched forests, where greater profits can be made through harvesting larger timber. Hesselink’s research, along with other recent studies investigating the carbon debts accrued through logging, are shedding new light on the truth. Logging Scars reveals the cost of diminished forest renewal from roads and landings. Furthermore, there are significant greenhouse gas emissions associated with industrial logging. “Canada is rapidly becoming one of the last places in the world with significant areas of intact forest,” says Malcolm. “So they’re increasingly valuable. To my mind there’s no doubt we should have a moratorium on cutting primary forest.”

Today, anyone with Internet access can experience Hesselink’s revelation: It’s as easy as opening Google Earth and zooming in on the green scarf that cinches Canada’s midriff, from Quebec to northern British Columbia. Pick an area in Ontario northwest of Lake Superior and you’ll see the same network of scars that caught Hesselink’s attention through aircraft windows; or scroll to northern Alberta, where Rocky Mountain foothills take on the mottled appearance of computer chips, reflecting seismic lines and oil well pads interspersed with clearcuts and farm fields, all carved into the boreal forest.

“Every Canadian should examine our country by satellite,” says Hesselink. “People take it for granted that this land will come

back, that it will look like it once did. You can see why sensitive species like caribou are in so much trouble.”

Logging scars are much more than just a cost of doing business. For Malcolm, it’s evidence that we’re “mining the forest,” a dangerous, antiquated attitude as the Ontario government prepares to push forward with a new forest sector strategy promising to cut red tape and remove barriers to accessing wood, aiming to double the current annual harvest. “There’s a lingering attitude of having a surplus of resources and not that many boots on the ground to check up on the results,” observes Malcolm.

The Logging Scars report is a moment of reckoning for industry, government and the general public—emphasizing climate change and the extinction crisis, the two greatest environmental challenges of our time. “If we are to address climate change then we must be honest about our carbon emissions, all of them, including those from forestry,” says Sumner.

“Canadians need to know what is going on in our forests,” Sumner continues. “Wildlands League is committed to finding out. We must keep asking questions and demanding solutions. If we hope to solve climate change and biodiversity loss, then we must start with sound science and accurate data.”

Counting Caribou

Boreal caribou, elusive ungulates with creamy white neck, are indicators of healthy boreal forests. “They are endemic to Canada and unfortunately they’re winking out on our watch,” says Anna Baggio, Conservation Director for Wildlands League. “Caribou don’t reproduce like cottontails. They need time and space.”

Caribou only thrive in intact landscapes extending across millions of hectares—putting the species on a collision course with Canada’s resource sector. The species is slow to reach reproductive maturity and its young are sensitive to predation. “Every time industry opens

up another intact forest with roads, more habitat is lost and degraded and it becomes easier for predators to pick-off caribou,” Baggio says. “The true cost of logging roads has never been clearer: Huge swaths of forest remain barren long after the feller bunchers, trucks and loggers leave. Instead of plowing into virgin forests for more 2x4s and toilet paper and leaving logging scars behind, we must ask ourselves how we can make room for one of the country’s iconic wildlife species.”

To see more investigations like Logging Scars you can donate through wildlandsleague.org.

Wildlands League’s registered charity number is 11878 2317 RR0001.



Photo: R. Thiessen

Wildlands League is a not-for-profit charity working to protect public land and water since 1968. We are policy experts, negotiators and communicators standing up for wildlife and standing with communities. We tackle irresponsible development that threatens precious rivers, lakes and wildlife habitat. We create solutions and hope. We give voice to Canada’s irreplaceable nature to make sure at least half of the country is protected for all children, the climate and for the planet.