Implications of the Alberta Government Draft *Upper Smoky Sub-regional Plan* for Southern Mountain Caribou

April 2025

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Key Points

- The *Upper Smoky Sub-regional Plan*'s original purpose was to conserve and recover the threatened Redrock-Prairie Creek and Narraway Southern Mountain Caribou populations.
- Adoption of the draft *Upper Smoky Sub-regional Plan* would, however, further endanger these caribou.
- Timber cutting and other industrial developments would destroy caribou undisturbed critical habitat.
- The plan would allow Weyerhaeuser Company to continue removal of caribou biophysical critical habitat through clearcutting.
- Caribou would no longer be able to occupy their forested foothills winter ranges.
- Relegation of caribou to mountainous areas during winter would increase caribou mortality.
- The draft *Upper Smoky Sub-regional Plan* would eliminate the possibility of recovering the two caribou populations and risk their extirpation.

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Introduction

This report summarizes the implications of Alberta's *Upper Smoky Sub-regional Plan* for the Redrock-Prairie Creek and Narraway Southern Mountain Caribou populations. Sub-regional planning in Alberta was initiated to create landscape plans that enable caribou recovery (Alberta Environment and Protected Areas 2025a). Completion of these plans is a commitment in the *Agreement for the Conservation and Recovery of the Woodland Caribou* signed between the governments of Canada and Alberta (Government of Canada and Government of Alberta 2020). Woodland caribou, including southern mountain caribou, are a species at risk and designated as *threatened* in Alberta (Alberta Wildlife Act 2022) and across Canada (Government of Canada 2002). The *Upper Smoky Sub-regional Plan* provides recommendations for future industrial activities, including timber cutting and oil and gas development — it was released for public engagement by the Government of Alberta on March 25, 2025.

Woodland caribou, including southern mountain caribou, survival and recovery are dependent upon the presence of both old forests and areas undisturbed by human developments (Courtois et al. 2007; DeCesare et al. 2014; Environment Canada 2012; Environment Canada 2014; Wittmer et al. 2007). The timber harvesting scenario described in the *Upper Smoky Sub-regional Plan,* however, would clearcut virtually all the remaining winter range forest still occupied by the Redrock-Prairie Creek caribou population, and virtually all the winter range still occupied by Narraway caribou in Alberta.

In addition, the timber cutting and oil and gas provisions outlined in the sub-regional plan would not provide adequate areas for caribou that are undisturbed by human developments. By failing to provide the old forest and undisturbed critical habitats required by caribou, the sub-regional plan would not conserve or recover Redrock-Prairie Creek and Narraway caribou and would risk their extirpation (population extinction). The Redrock-Prairie Creek and Narraway caribou populations have already suffered large declines in their population size, distribution and ability to annually migrate (Alberta Environment and Protected Areas 2024; Lamb et al. 2025). They are two of the last three southern mountain caribou populations remaining on Alberta's provincial lands (Dzus 2001; Government of Alberta 2005).

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Caribou in Alberta

Alberta has two types of woodland caribou: boreal caribou and southern mountain caribou. Boreal caribou are non-migratory and live year-round in old upland coniferous forests and forested wetlands within distinct ranges in northern Alberta (Environment Canada 2012). Southern mountain caribou are migratory, spending summers in mountainous areas and winters in old coniferous forests in the foothills (Environment Canada 2014).

With a former distribution in Alberta that extended along most of the eastern slopes of the Rocky Mountains, only three southern mountain caribou populations (Redrock -Prairie Creek, Narraway, and A la Peche) remain on Alberta's provincially managed land (Dzus 2001; Government of Alberta 2005; Alberta Sustainable Resource Development and Alberta Conservation Association 2010).

Both boreal and southern mountain caribou populations in Alberta have experienced significant declines and are *threatened* due to habitat loss and habitat disturbance from industrial activities (Environment Canada 2012; Environment Canada 2014). Habitat loss affects woodland caribou by removing the old forests they require to survive (e.g., Fryxell et al. 2020; Government of Alberta 2018; Vors et al. 2010). Habitat loss results from industrial developments such as timber harvesting clearcuts, roads, pipelines and well sites. Timber harvesting clearcuts are the greatest contributor to habitat loss due to the large area that clearcuts occupy across broad landscapes (Nagy-Reis et al. 2021). In addition to causing habitat loss, habitat disturbances such as roads fragment caribou habitats and result in caribou avoidance of both disturbance features and adjacent areas (e.g., Dyer et al. 2002; Johnson et al. 2020; MacNearney et al. 2021).

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Habitat loss and disturbance also create conditions that result in excessive predation rates on caribou. Habitat loss through forest harvesting replaces old

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forests with young forests, which increases the abundance of prey species such as moose, elk and deer and thereby increases the abundance of wolves, resulting in greater predation of caribou (Fryxell et al. 2020; Serrouya et al. 2021). In addition, habitat disturbances such as roads and seismic exploration lines increase the ability of wolves to travel and hunt efficiently (Dickie et al. 2016). The Government of Alberta annually delivers lethal wolf population reductions in many caribou ranges, including the Redrock-Prairie Creek and Narraway ranges, with the stated objective of avoiding caribou extirpation until caribou habitat recovers (Alberta Environment and Protected Areas, 2024).

Southern mountain caribou annual migration between summer and winter ranges is a critical behaviour that enables their survival (Williams et al. 2021; Lamb et al. 2025). The Redrock-Prairie Creek and Narraway populations are increasingly confined to mountainous areas during winter (MacNearney et al. 2016; Williams et al. 2021), which provide poor winter habitat (Thomas et al. 1996) and elevated mortality risk (Williams et al. 2021; Lamb et al. 2025). The loss of ability to migrate due to increasing human-caused habitat loss and disturbance has coincided with caribou extirpation (or near extirpation) along Alberta's eastern slopes (e.g. Hebblewhite et al. 2010).

The Redrock-Prairie Creek and Narraway caribou populations show indications of high extirpation risk, including loss of critical habitat, collapsing distribution, and loss of ability to annually migrate to forested foothills winter range. The correlation between woodland caribou extinction risk and human-caused habitat alteration and loss is well documented (Environment Canada 2011; Fryxell et al. 2020; Johnson et al. 2015; Vors and Boyce 2009; Vors et al. 2010).

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The recovery of southern mountain caribou is feasible (Environment Canada 2014) and the Redrock-Prairie Creek and Narraway populations demonstrate the resiliency of stable population growth with continued wolf culling (Alberta Environment and Protected Areas 2024; Environment Canada 2014; Environment Canada 2018).

Photo © S. Scott

"In recent years some caribou populations have demonstrated dramatic declines in range level occupancy and distribution. This has been particularly evident for the caribou populations in west-central Alberta, with large declines in distribution evident for the Redrock-Prairie Creek, Narraway, A la Peche and Little Smoky populations. In response to anthropogenic habitat change, the Redrock-Prairie Creek, Narraway and A la Peche populations are increasingly demonstrating reduced annual migration to their forested foothills traditional winter ranges (Williams et al. 2021). These populations are increasingly restricted to mountainous areas on a year around basis. Mountainous areas are suboptimal winter habitat for these caribou, and this increasingly restricted distribution contributes to elevated rates of caribou mortality."

(Alberta Environment and Protected Areas, 2024)

However, continued wolf culling will not keep caribou safe from poor winter habitat conditions in the mountains, and it will not protect caribou from catastrophic mortality events due to avalanches. And yet, the draft *Upper Smoky Sub-regional Plan* advocates continuing critical habitat loss, that will result in profound and escalating threats to the persistence and recovery of the two caribou populations.

Recovering Alberta's woodland caribou to self-sustaining levels is dependent upon conserving and restoring the intact and old forest critical habitats that provide caribou with space to move freely across the landscape to find optimal snow conditions, forage, reproduce, raise calves, and avoid excessive predation.

Undisturbed Critical Habitat: Habitat free from human-caused features such as roads, well sites and cut blocks, including a 500-metre buffer on the features, and/or fire disturbance in the last 40 years (Environment Canada, 2012). The national recovery strategy for southern mountain caribou identifies a threshold of at least 65% undisturbed habitat for southern mountain caribou winter range.
(Environment Canada 2011, Environment Canada 2014)

Biophysical Critical Habitat: The old coniferous forests that are required by southern mountain caribou to carry out life processes necessary for their survival and recovery (Environment Canada 2012; Government of Alberta 2017). *Alberta's Draft Provincial Woodland Caribou Range Plan* states that for forestry "the extent and rate of harvesting over time will be assessed to ensure there are no significant negative implications for caribou biophysical habitat."
(Government of Alberta 2017).

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The *Upper Smoky Sub-regional Plan*: Caribou Conservation and Recovery Obligations

The *Upper Smoky Sub-regional Plan* is a provincial land use plan meant to conserve and recover the Redrock-Prairie Creek and Narraway caribou populations. The plan was informed by a multi-stakeholder task force. Completion of the sub-regional plan is a commitment under the Species at Risk Act s.11 Alberta – Canada Conservation Agreement (Government of Canada and Government of Alberta 2020). Completion of a plan to address caribou conservation and recovery is specified in the federal southern mountain caribou recovery strategy (Environment Canada 2014; Government of Canada 2002) and is called for in Alberta's woodland caribou policy (Government of Alberta 2011) and Alberta's woodland caribou recovery plan (Government of Alberta 2005).

Photo © D. Moskowitz

The Redrock-Prairie Creek and Narraway caribou populations are shared with British Columbia. Redrock -Prairie Creek mountainous summer range occurs in both provinces, while the forested foothills winter range is entirely within the Weyerhaeuser timber cutting forestry tenure in Alberta. Narraway summer range is entirely within British Columbia and the population's winter range is shared by the two provinces. In addition to British Columbia's provincial requirements, the governments of British Columbia and Canada, together with Indigenous Peoples, have established the *Intergovernmental Partnership Agreement for the Conservation of the Central Group of the Southern Mountain Caribou* (Government of Canada 2020) which includes the Narraway population.

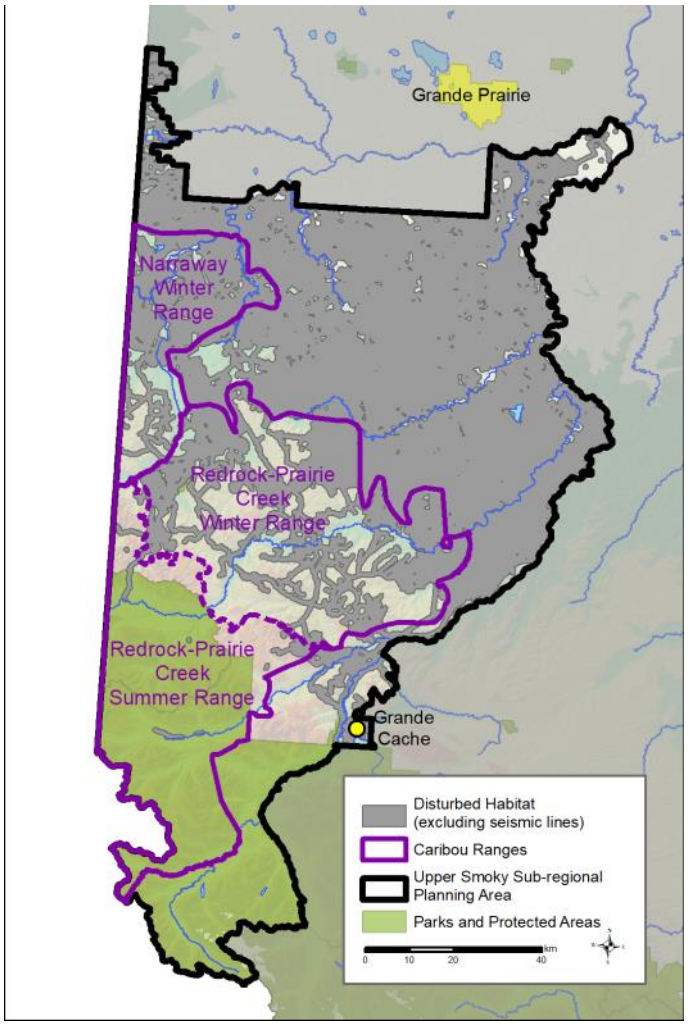
The Government of Canada completed an *Imminent Threat Assessment* (Environment and Climate Change Canada 2018) which found that Redrock-Prairie Creek and Narraway caribou are facing imminent threats to their recovery and noting "immediate intervention is required to allow for eventual recovery."

The *Upper Smoky Sub-regional Plan* should outline how caribou habitat will be conserved, recovered and managed to achieve caribou goals and objectives listed in provincial and federal plans, policies and legislation.

Current Condition of the Redrock-Prairie Creek and Narraway Caribou: Despite Killing Wolves, Habitat Destruction Continues

The Redrock-Prairie Creek and Narraway caribou populations experienced steep population declines as habitat loss and disturbance increased on their winter ranges. Population declines of Redrock-Prairie Creek caribou were documented beginning in the early 2000s until 2018 (Alberta Environment and Protected Areas 2024; Government of Alberta 2017). Similarly, the Narraway population decline was documented beginning in approximately 2010 and continued until 2018 (Alberta Environment and Protected Areas 2024).

Given the current extent of critical habitat destruction, delivery of annual wolf population reductions are necessary to avoid extirpation and enable recovery of the two caribou populations. Both caribou populations have stabilized as a result of the wolf culling program that began in 2015 (Alberta Environment and Protected Areas 2024). The wolf program has resulted in hundreds of wolves being culled in west central Alberta caribou ranges and dozens being culled in the Redrock-Prairie Creek caribou ranges (Government of Alberta public statements) – 42 wolves were killed in these two caribou ranges in 2022/23 alone (Alberta Environment and Protected Areas 2024). The ability of the two caribou populations to achieve stable or increasing population growth, with the support of wolf population management, demonstrates the resiliency of the populations and their ability to recover if ongoing human-caused habitat loss and disturbance ceases and habitat recovery is allowed to occur.



However, the benefits of wolf management will be undermined if undisturbed and biophysical critical habitat destruction continues. Ongoing habitat loss, as enabled by the *Upper Smoky Sub-*

Figure 1. Habitat disturbance and undisturbed critical habitat in Redrock-Prairie Creek and Narraway Southern Mountain Caribou winter ranges. Habitat disturbance depicted from long lasting human development features, including timber cut blocks, roads, pipelines and powerlines, with application of 500m buffer. Data from ABMI (2023)-Year 2021. Note: Redrock-Prairie Creek winter range boundary (dotted purple line) separates forested foothills from mountains and is identical to the boundary of Weyerhaeuser's Forest Management Area.

regional Plan, could drive these populations to a level of endangerment that eliminates the potential for recovery.

Habitat disturbance is prevalent across both caribou winter ranges. Figure 1 depicts the occurrence of habitat disturbance as of 2021 due to long-lasting industrial features, including roads, pipelines, powerlines and timber harvest cut blocks (Note: disturbance due to geophysical exploration (seismic) lines is not depicted). The occurrence of undisturbed critical habitat is scattered, with some portions of each range having no undisturbed habitat (Figure 1). Neither caribou winter range currently meets the minimum requirements for at least 65% undisturbed habitat (Alberta Environment and Protected Areas 2024). The loss of undisturbed critical habitat has undoubtedly continued since 2021.

Timber harvesting cut blocks are prevalent within each caribou winter range (Figure 2). Approximately half of the Narraway winter range is covered by harvest blocks and extensive harvesting has taken place across the Redrock-Prairie Creek winter range. None of the timber harvesting blocks depicted in Figure 2 contain forest regrowth over 80 years old – the minimum age for the onset of biophysical critical habitat (Government of Alberta 2018). Loss of biophysical habitat due to timber harvesting has continued since 2021 (Alberta Biodiversity Monitoring Institute 2023).

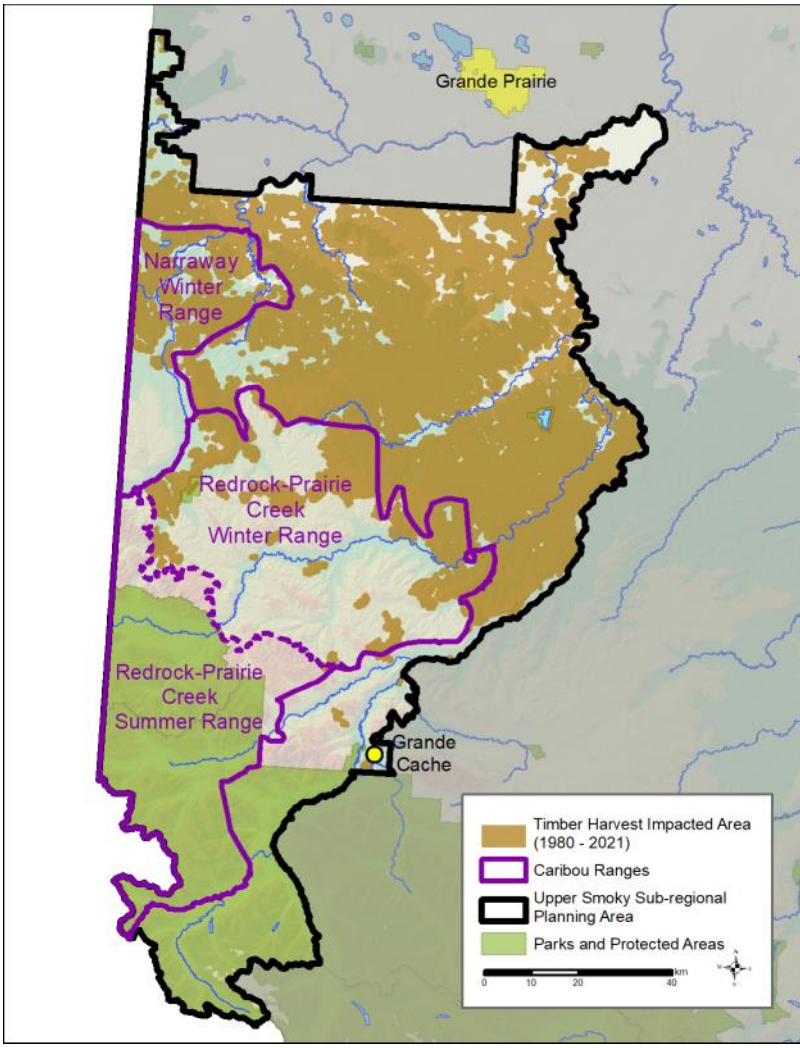


Figure 2. Timber harvest cut blocks (1980 – 2021, with application of 500m buffer on cut blocks) in Redrock-Prairie Creek and Narraway Southern Mountain Caribou winter ranges. Data from ABMI (2023)-Year 2021. Note: Redrock-Prairie Creek winter range boundary (dotted purple line) separates forested foothills from mountains and is identical to the boundary of Weyerhaeuser's Forest Management Area.

The distribution of Redrock-Prairie Creek and Narraway caribou has collapsed in the face of ongoing habitat loss and disturbance on their winter ranges (Figures 3 and 4). Both populations are increasingly restricted to mountainous summer ranges on a year-round basis. MacNearney et al. (2016), Smith et al. (2000), and Williams et al. (2021) documented the distribution decline for the Redrock-Prairie Creek population. Willliams et al. (2021) showed that the retreat of Redrock-Prairie Creek caribou coincided with

increasing habitat loss and disturbance on their forested winter range, and that caribou wintering in the mountains had lower survival in comparison to caribou that migrated to the remaining critical habitat in the forested foothills winter range. Mountainous areas are not suitable for overwintering caribou. They provide poor winter foraging conditions (Thomas et al. 1996) and expose caribou to high mortality risks, including from avalanches. In 2019 alone, avalanches killed at least 25% of the Redrock-Prairie Creek caribou population (Government of Alberta public comments; Stockfish 2022).

The caribou that still migrate to the forested winter ranges are occupying areas that remain largely undisturbed by logging, and these areas have relatively more residual undisturbed critical habitat in comparison to the rest of their traditional winter ranges (Figure 4 in comparison to Figures 1 and 2).

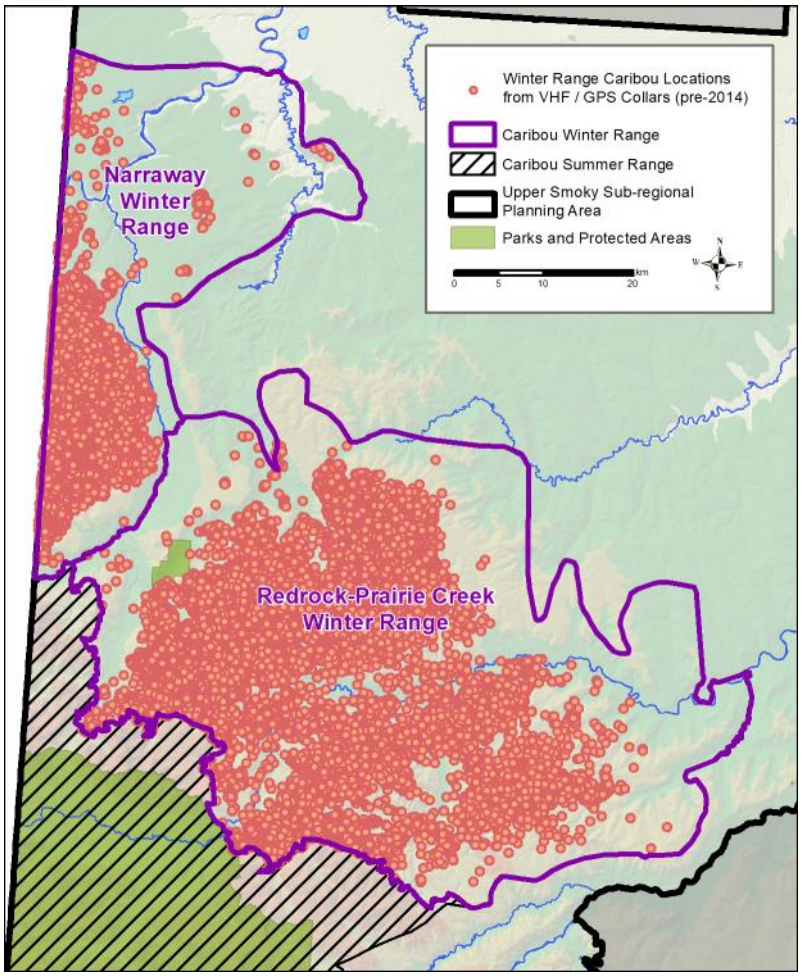


Figure 3. Redrock-Prairie Creek and Narraway Southern Mountain Caribou location points (prior to 2014) on winter ranges, from caribou radiotelemetry monitoring (Alberta Environment and Protected Areas 2025b). Notes: 1) Redrock-Prairie Creek winter range boundary drawn to separate forested foothills from mountains, which is identical to the boundary of Weyerhaeuser Forest Management Area boundary, 2) Figure does not include non-telemetry caribou location data, 3) 2014 date chosen to coincide with release of the national southern mountain caribou recovery strategy (Environment Canada 2014).

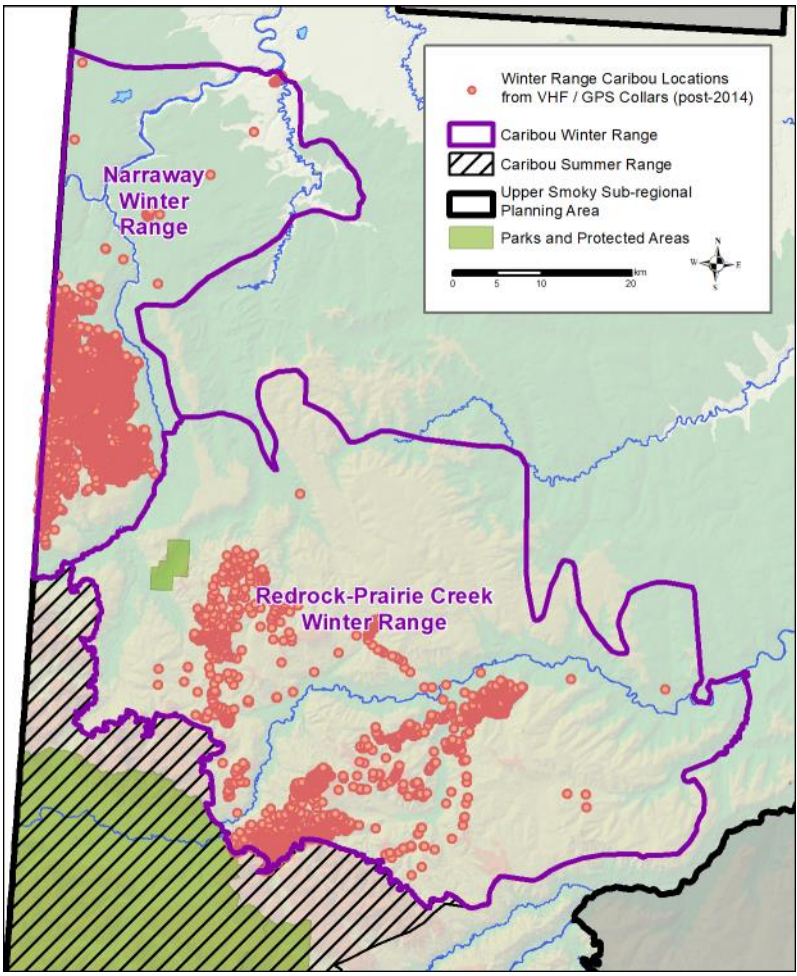


Figure 4. Redrock-Prairie Creek and Narraway Southern Mountain Caribou location points (2014 - 2025) on winter ranges, from caribou radiotelemetry monitoring (Alberta Environment and Protected Areas 2025b). Notes: 1) Redrock-Prairie Creek winter range boundary (dotted purple line) separates forested foothills from mountains and is identical to the boundary of Weyerhaeuser's Forest Management Area. 2) Figure does not include non-telemetry caribou location data. 3) 2014 date chosen to coincide with release of the national southern mountain caribou recovery strategy (Environment Canada 2014).

Implications of the *Upper Smoky Sub-Regional Plan* for Caribou – Weyerhaeuser Company Timber Cutting

Weyerhaeuser Company, an American owned forestry company, is the primary forest tenure holder within the Upper Smoky sub-regional planning area. The entire forested foothills winter range of the Redrock-Prairie Creek caribou population and the Alberta portion of the Narraway caribou winter range are contained within Weyerhaeuser's tenure.

Figure 5 depicts the full sequence of sub-regional plan timber harvesting in the two caribou winter ranges, together with the cut blocks existing in 2021. Figure 6 highlights the first three periods of planned timber harvesting (i.e., next 25 years) and cut blocks present as of 2021. **If approved as is, the draft *Upper Smoky Sub -regional Plan* would enable clear-cut timber harvesting across virtually all of the two caribou winter ranges, with the first three periods resulting in a large increase relative to the lands harvested as of 2021.**

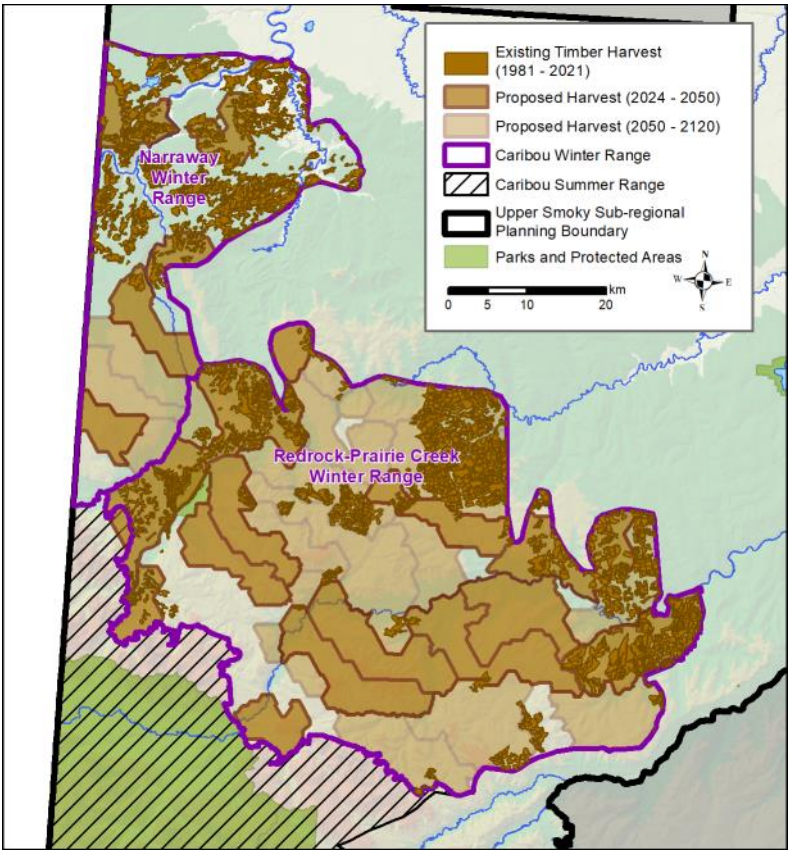


Figure 5. Existing and planned timber cutting areas in the Redrock-Prairie Creek and Narraway southern mountain caribou winter ranges (1981 – 2120). Note: Redrock-Prairie Creek winter range boundary drawn to separate forested foothills from mountains, which is identical to the boundary of Weyerhaeuser's Forest Management Area.

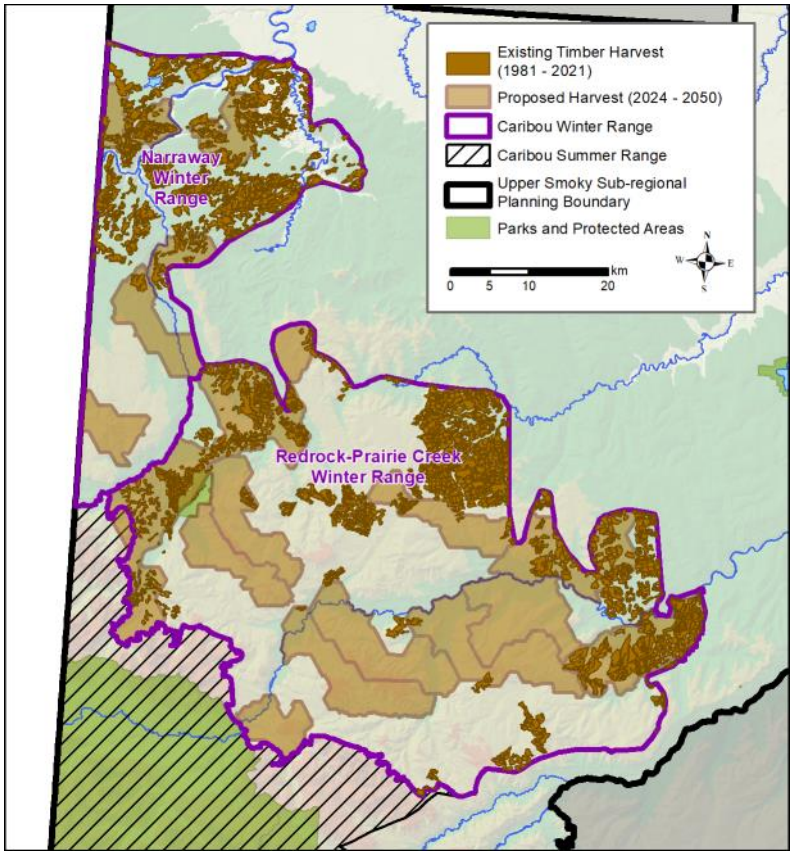


Figure 6. Existing and planned timber cutting areas in the Redrock-Prairie Creek and Narraway southern mountain caribou winter range (1981 – 2050). Note: Redrock-Prairie Creek winter range boundary drawn to separate forested foothills from mountains, which is identical to the boundary of Weyerhaeuser's Forest Management Area.

The timber harvesting described in the draft *Upper Smoky Sub-regional Plan* would result in a dramatic multi-decade destruction of biophysical critical habitat in each of the caribou winter ranges (Figures 7 and 8). The draft sub-regional plan calls for extensive clearcutting of biophysical critical habitat within each of the caribou population winter ranges. Any biophysical critical habitat remaining in the winter ranges would occur in small and isolated patches that would not contribute to caribou persistence.

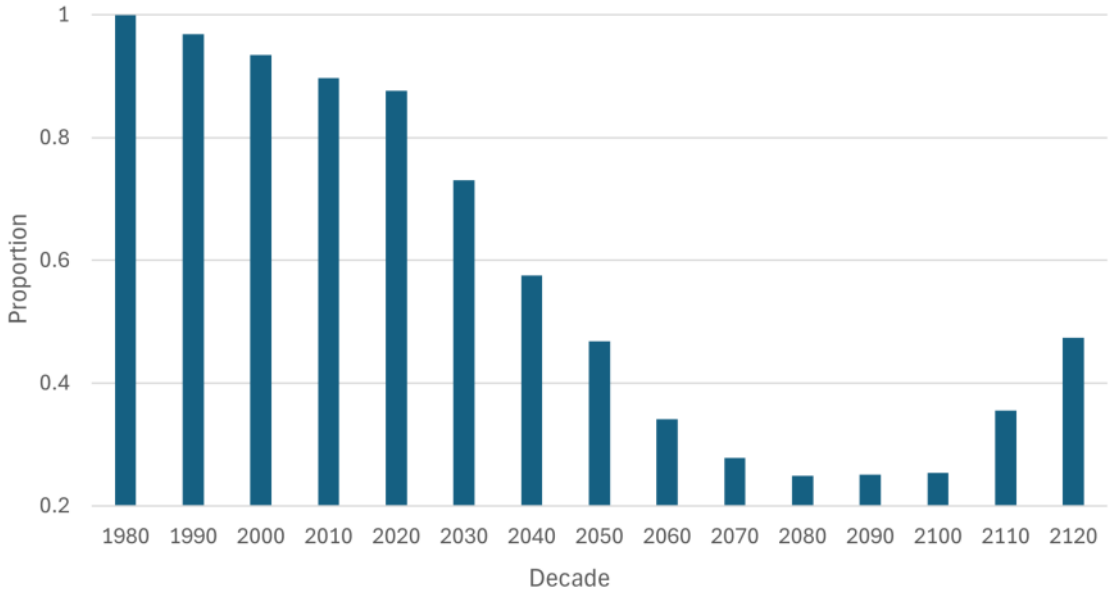


Figure 7. Proportion of biophysical critical habitat relative to amount present in 1980 in the Redrock-Prairie Creek southern mountain caribou winter range by decade (1980 – 2120). Includes timber harvest proposed in the draft sub-regional plan, and regrowth of biophysical habitat based on Government of Alberta (2018). Note: Assessment based on the Redrock-Prairie Creek winter range boundary drawn to separate forested foothills from mountains, which is identical to Weyerhaeuser's Forest Management Area boundary.

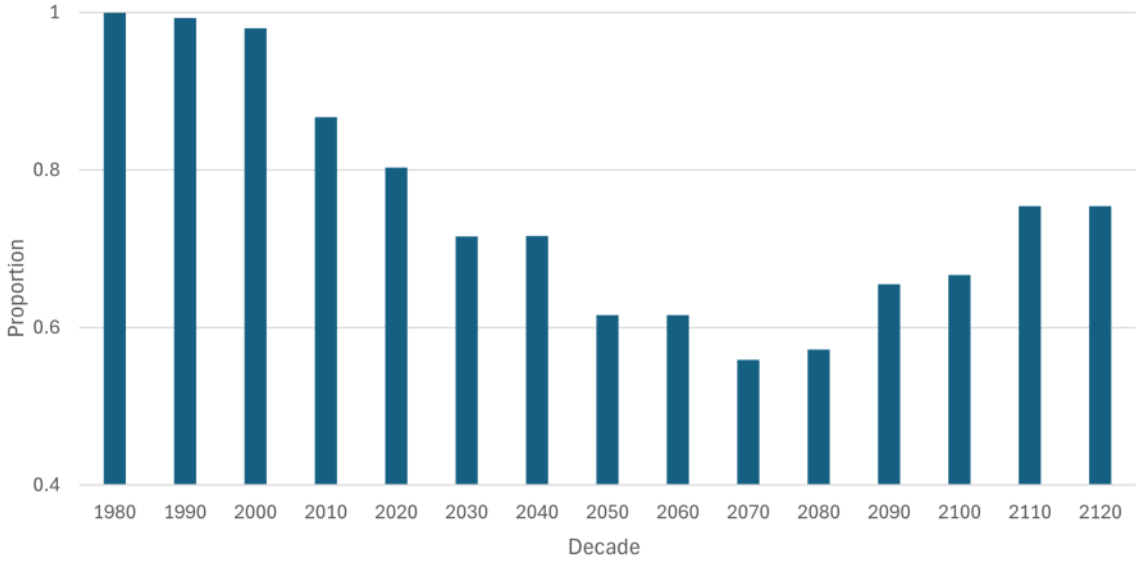


Figure 8. Proportion of biophysical critical habitat relative to amount present in 1980, in the Narraway southern mountain caribou winter range by decade (1980 – 2120). Includes timber harvest proposed in the draft sub-regional plan, and regrowth of biophysical habitat following Government of Alberta (2018).

The negative implications of the proposed timber cutting plan for caribou occupancy of the winter ranges would occur quickly. The first 25 years of timber cutting in the Redrock-Prairie Creek winter range would entirely overlap with the remaining occurrence and movements of caribou on the winter range (Figure 9). Timber cutting in the Narraway would overlap with the last winter range occurrence of caribou, leaving a relatively small area unharvested that caribou would almost certainly avoid due to high predation risk. **These first years of timber cutting would eliminate the ability of Redrock-Prairie Creek and Narraway caribou to exist in the winter ranges.**

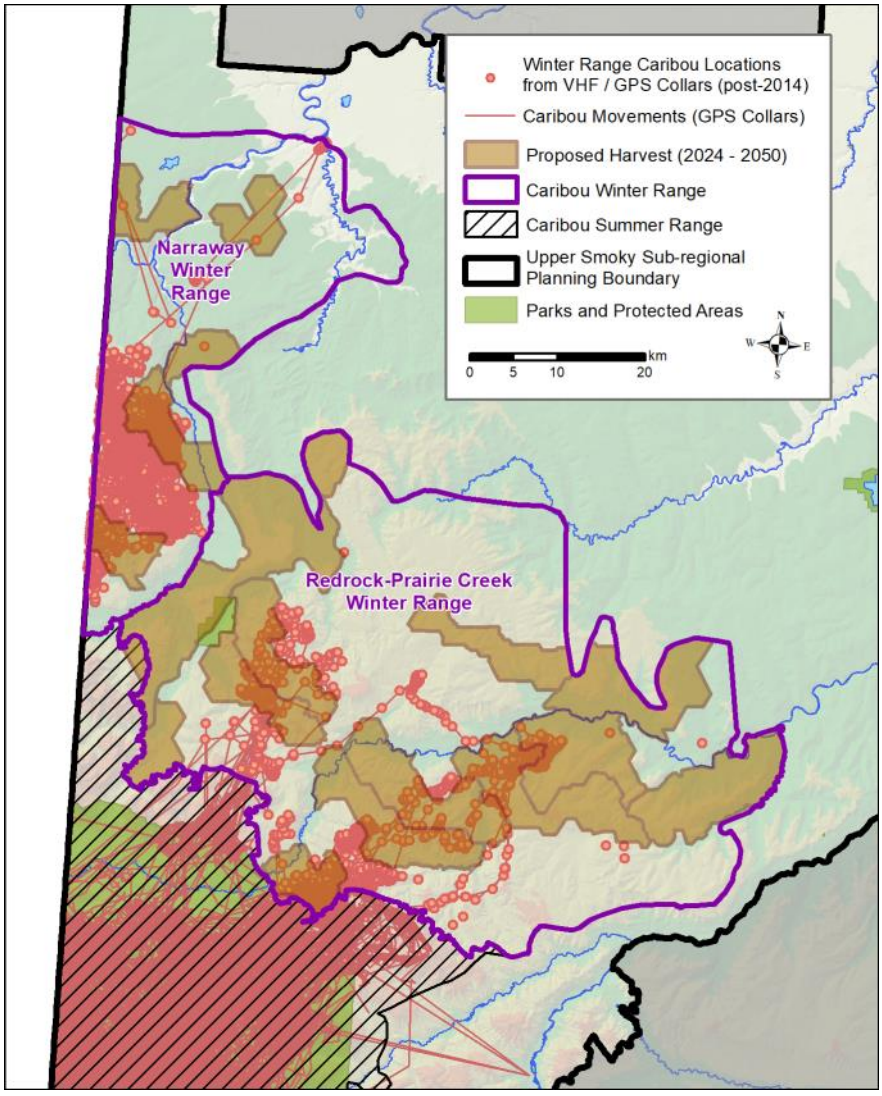


Figure 9. First three periods of *Upper Smoky Sub-regional Plan* timber harvesting on Redrock-Prairie Creek and Narraway southern mountain caribou winter ranges, in relation to caribou radio-telemetry location points and movement lines (2014 – Jan 2025) (Alberta Environment and Protected Areas, 2025b). Notes: 1) Redrock-Prairie Creek winter range boundary drawn to separate forested foothills from mountains and is identical to the boundary of Weyerhaeuser's Forest Management Area, 2) 2014 date chosen to coincide with release of the national southern mountain caribou recovery strategy (Environment Canada 2014).

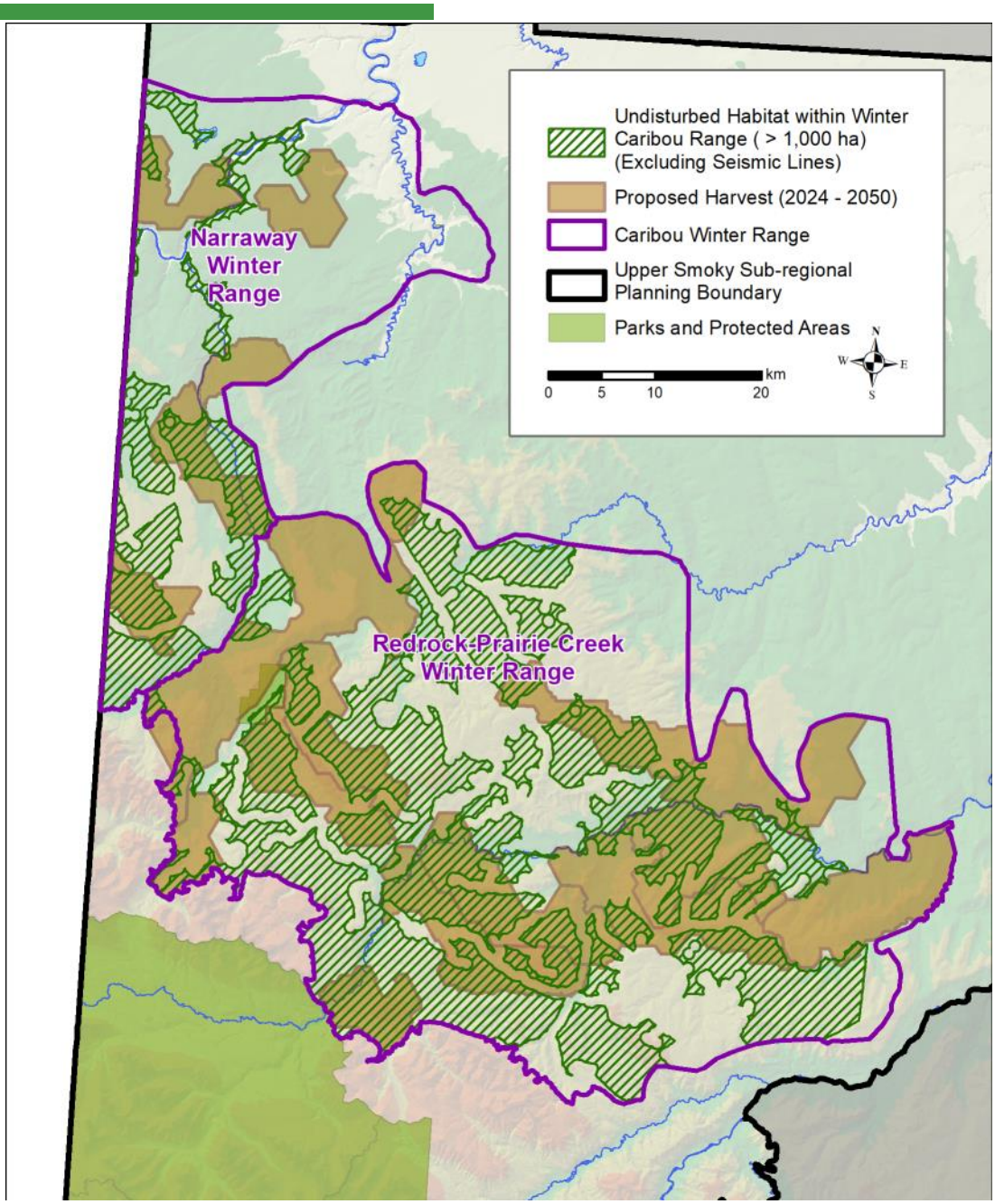


Figure 10. First three periods of *Upper Smoky Sub-regional Plan* timber harvesting on Redrock-Prairie Creek and Narraway southern mountain caribou winter ranges, in relation to current (2021) extent of undisturbed critical habitat patches (> 1000 ha.). Note: Redrock-Prairie Creek winter range boundary drawn to separate forested foothills from mountains, which is identical to the boundary of Weyerhaeuser's Forest Management Area.

The first three periods (25 years) of the timber harvesting plan would also heavily impact the remaining patches (>1000 ha.) of undisturbed critical habitat (Figure 10). The draft sub-regional plan does not provide a projection of undisturbed critical habitat for caribou, however, ecologically meaningful recovery of undisturbed habitat over the next 25 years is not credible.

Implications of the *Upper Smoky Sub-regional Plan* for Caribou: Oil and Gas Development

Oil and gas development features are relatively small in size, thus their primary impact is the creation of habitat disturbances, which reduce the amount of undisturbed critical habitat. This contrasts with the high impact that timber harvesting can have to both undisturbed and biophysical critical habitat. Despite this, the draft sub-regional plan does not describe the current availability of undisturbed critical habitat, nor does it project how much will remain under the draft plan's provisions. The *Upper Smoky Sub-regional Plan* would allow ongoing construction of new roads in the caribou winter ranges, with associated decreases in undisturbed habitat. New road construction would be allowed to an identified maximum amount, however, the listed maximum amount of roads could be exceeded if restoration is initiated on existing features, such as seismic exploration lines. Considering the long time-lag between initiating restoration and the achievement of ecologically relevant undisturbed critical habitat, the sub-regional plan would enable ongoing loss of undisturbed habitat for decades.

In addition to enabling road construction, the sub-regional plan will permit continued construction of new disturbance features (e.g. well sites) without identified limits. The plan promises to develop targets for restoration of inactive and non-productive oil and gas features; however, there is no commitment to balance new construction with restoration of existing features. As noted above, long time-lags to achieve ecological restoration would result in ongoing increases in habitat disturbance and reduced undisturbed critical habitat.

The sub-regional plan's proposal to initiate restoration of legacy geophysical exploration lines seems poorly conceived and ineffective for caribou recovery if the plan simultaneously allows new disturbances that will degrade critical habitat. Without stronger protections and meaningful limits on new development, the draft sub-regional plan would eliminate caribou from their winter ranges and hasten their extirpation.

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Ask

As currently written, the draft *Upper Smoky Sub-regional Plan* would perpetuate and intensify the very conditions that led to the endangerment of the Redrock-Prairie Creek and Narraway caribou populations. The plan would allow continued destruction of both biophysical and undisturbed critical habitat, particularly through timber harvesting. The sub-regional plan would result in the extirpation of caribou from their forested winter ranges, forcing them into mountainous areas where their survival is significantly lower, and the risks of caribou extirpation cannot be meaningfully mitigated by management actions. Survival of the caribou populations would be unlikely and recovery impossible.

To be effective, the sub-regional plan must address the root cause of caribou decline – ongoing critical habitat destruction. Schiller et al. (2025) notes that 'alleviating the initial cause of decline' which is 'often done through regulatory intervention' is a defining characteristic of successful species at risk recovery. Recovery of southern mountain caribou has been determined to be feasible (Environment Canada 2014). The draft *Upper Smoky sub-regional Plan* will, however, perpetuate the factors that caused the endangerment of the Redrock-Prairie Creek and Narraway caribou population and increase the likelihood of the populations becoming extinct.

The *Upper Smoky Sub-regional Plan* outlines the need for a "A Balanced Approach". However, in its current form, it does not strike a balance between industrial activity – particularly timber harvest – and caribou conservation and recovery. A revised plan must significantly reduce future habitat destruction, commit to restoring biophysical and undisturbed critical habitat, and ensure that recovery of these threatened populations is meaningfully adopted as an objective.

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