



THE EXCHANGE:

Sharing Knowledge, Inspiring Solutions



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2021
EDITION 3



Alberta Regional Caribou Knowledge Partnership



Connecting Alberta's forest sector and policy makers to accessible and relevant scientific information is key to advancing woodland caribou conservation efforts across the province. To facilitate this, the Alberta Regional Caribou Knowledge Partnership (ARCKP) provides regular knowledge exchange, keeping our partners and stakeholders up to date on the research and information they need to make important forest management and policy decisions.

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What can we learn from ILM case studies?

Woodland caribou ranges interact with a wide range of resources and land users. Focusing on the impacts of just one industry or disturbance can mean missing the big picture. Integrated Land Management (ILM) is a collaborative approach to land-use planning that seeks to holistically manage competing land-uses and values on the landscape. While ILM offers numerous benefits to industrial footprint management in caribou ranges, it has been difficult to implement in Alberta. To address this challenge, the ARCKP funded a project to investigate opportunities, gaps, and/or barriers in Alberta's ILM policies, practices and legislation.

Integrated land Management (ILM) is a strategic, planned approach to manage and reduce human footprint on the landscape. It is a collaborative approach to promote responsible use of public lands by influencing human behavior and encouraging ILM as a way of thinking for all land users.

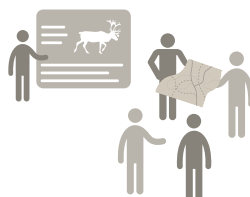
As part of the project, 14 ILM case studies were examined from Alberta and other jurisdictions. These case studies can help ARCKP partners better understand the possibilities of ILM, and what factors contribute to its successful implementation (detailed descriptions of all 14 case studies can be found in the report).

The three case studies highlighted below demonstrate successful ILM at multiple levels:



Operational

Companies voluntarily cooperate on a known project. This is usually driven by a clear business case (e.g., sharing access to a common localized area).



Tactical

Multiple companies work together on a landscape-level planning initiative. This involves anticipating future development needs on the landscape.



Strategic

A higher order planning initiative to provide guidance for landscape use. This includes who, what, where, and how much development may occur.

Case studies

Operational (company to company): Al-Pac and Gulf Surmont (2006)

To save costs and reduce their impact to caribou habitat, Al-Pac built a business case to coordinate planning and operations with Gulf Surmont. Working together, they reduced their road requirement by 47% and saved more than \$3 million. The relationship between the companies has also set a foundation for future collaboration on reclamation and research.

Contributed to success at an operational level by:

- Providing proactive, inspired leadership
- Creating a compelling business case
- Appointing a designated leader to manage the project

Key outcomes:



Reduced forest disturbance



Reduced impact on fibre supplies



Reduced approval times



Incentivized collaboration

Tactical (landscape-level planning and multiple companies): Kakwa Copton Industrial corridor plan (2009)

Thirteen resource companies and the Government of Alberta collaborated to develop the Kakwa Copton Industrial Access Corridor Plan. Through a proposed network of permanent road corridors, the plan is expected to reduce the cumulative effect of resource development in the Kakwa Copton region by up to 45% while significantly reducing access costs. Key contributors to the project's success include clear objectives with detailed roles, expectations and commitments for action from all parties.

Contributed to success at a tactical level by:

- Outlining clear and measurable objectives
- Appointing a dedicated project manager and leader (third party)
- Gaining governmental support
- Allocating time to build trust and relationships between participants/sectors

Key outcomes:



Reduced forest disturbance



Reduced impact on fibre supplies



Robust and detailed process controls



Expectation and responsibility protocols

Strategic (landscape-level land use and ILM plans): Moose Lake Access Management Plan (2021)

The Moose Lake 10km Zone Access Management Plan is the culmination of extensive efforts pursued by the Fort McKay First Nation (FMFN) since the early 2000's. It identifies management actions to support ecological integrity, exercise of Section 35 rights and traditional land uses, and well-managed development of resources in an area of particular importance to FMFN and other Indigenous groups.

Contributed to success at a strategic level by:

- Ensuring integrated government departments for delivery and integrated approval process
- Establishing operational and planning alignment
- Creating a work plan with clear milestones
- Engaging in consultation with Indigenous communities

Key outcomes:



Extensive engagement with Indigenous groups and other stakeholders



Assigns clear, sector-specific limits to industrial footprint



Clearly defines what resource development is and is not allowed



Requires culturally relevant conservation and reclamation plans for all developments



Restoration of legacy seismic lines throughout the 10km zone



Implementation of a monitoring program

Moving ILM forward

The above case studies demonstrate the knowledge, creativity, and collaboration necessary for ILM, however, implementation at a meaningful scale for caribou recovery remains a challenge. While companies can realize local wins at the operational level, these efforts cannot address the landscape-level decisions that need to be made at larger scales. With diverse sectors and land users operating under different planning horizons, it is important that robust ILM at the strategic and tactical levels guide the scope for operational ILM decisions.

To learn more, including details on the other case studies, read the full ILM report: arckp.friresearch.ca

Restoration Prioritization—where and when should restoration be done?

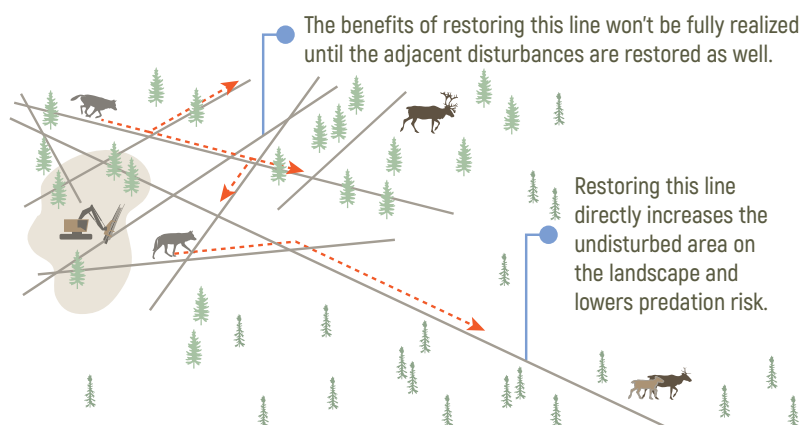
Successful restoration of legacy disturbances within woodland caribou habitat relies on a lot more than choosing the right site preparation or planting the right trees. In fact, implementation is only half the battle. There are numerous other considerations that can potentially impact a restoration project. For example, a carefully restored seismic line could remain isolated to caribou by other disturbances. A hard-won restoration project could be reversed by a future development. Restoration equipment could inadvertently destroy naturally regenerating vegetation in the effort to access another site. In short, where and when we restore legacy disturbances is just as important as how.

Planners should carefully prioritize what to restore

Woodland caribou are impacted by industrial disturbance in several ways and restoring habitat is a key component of caribou recovery. To achieve the federal recovery threshold of 65% undisturbed habitat, it is important to make every restoration effort count. There are several ways planners can increase the benefits of restoration work for caribou:

Create larger, more contiguous areas of undisturbed habitat

Consider two seismic lines, both in caribou habitat: one is closely surrounded by other disturbances, the other is the sole line in the area. Which would you restore first? While the first line is in an area that will need greater restoration effort over time, restoring the second is more likely to have a more significant and immediate benefit to caribou.



Consider whether vegetation will regenerate on its own

Not all sites need help returning to forest cover, though restoration efforts can speed up the pace. The sooner caribou experience the benefits of undisturbed habitat the better, so in some cases it may be valuable to treat disturbances despite regenerating vegetation. Planners should map existing vegetation on disturbances and consider:



Directing restoration efforts towards disturbances less likely to recover on their own (for instance, particularly wet or dry sites) can help maximize their impact on the landscape.

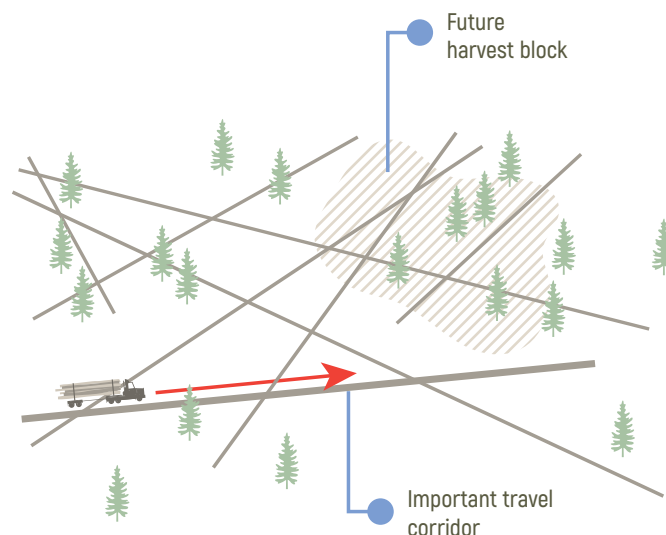
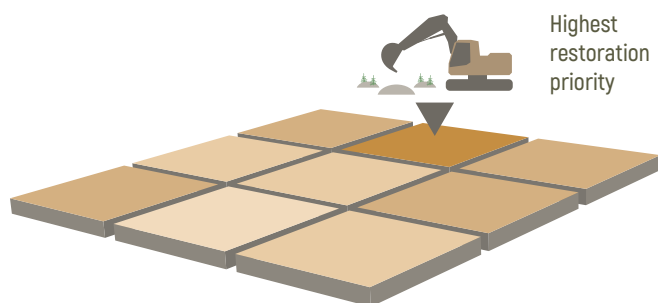
Consider the future activity of the landscape

Restoration efforts are most valuable where they can accumulate and create more contiguous areas of undisturbed habitat. Considering future access needs or the likelihood of new disturbances can help ensure restoration dollars are not wasted.

Streamlining prioritization with standard approaches

Prioritizing restoration is a juggling act of often competing landscape values and trade-offs. Luckily, some recent advancements have helped to take some of the guesswork out of prioritization.

The Alberta Biodiversity Monitoring Institute (ABMI) and Canada's Oil Sands Innovation Alliance (COSIA) developed a method to prioritize townships for restoration in the oil sands region and to maximize the "bang-for-buck" of restoration efforts. The method calculates the expected gain in undisturbed habitat (the "bang") and divides it by the density of seismic lines in the township (the "buck"). The relative rankings are then adjusted according to their resource valuation, to direct restoration efforts away from areas most likely to be redeveloped soon.



More recently, the ABMI applied this prioritization method to townships in Northwest Alberta, along with high resolution aerial imagery used to evaluate natural regeneration on disturbance features. This work is being expanded into a Caribou Habitat Restoration Information System (CHRIS) which would allow partners involved in range planning to identify and prioritize areas for restoration more easily.

These efforts demonstrate a path towards more impactful restoration efforts. While the ABMI and COSIA

method was originally developed for regions of Alberta dominated by oil and gas features, it could serve as a template for more regionalized tools. For instance, integrating anticipated harvest sequence in areas dominated by forestry. Whatever the method, taking the time to identify and prioritize areas where restoration will have the greatest benefit is key to effective caribou conservation.

Further Reading:

Pyper, M., & Broadley, K. (2019). Restoration Innovation Roadmap Phase 1: A Synthesis of Lessons Learned to Date. Prepared for Regional Industry Caribou Collaboration (RICC). May 3, 2019.

Pyper, M., Nishi, J., & McNeil, L. (2014). Linear Feature Restoration in Caribou Habitat: A summary of current practices and a roadmap for future programs. Canada's Oil Sands Innovation Alliance, Calgary, Alberta. 39p.

Alberta Biodiversity Monitoring Institute [ABMI]. 2016. Prioritizing Zones for Caribou Habitat Restoration in the Canada's Oil Sands Innovation Alliance (COSIA) Area. Prep. For Canada's Oil Sands Innovation Alliance. Alberta Biodiversity Monitoring Institute, Edmonton, Alta.

Alberta Biodiversity Monitoring Institute [ABMI]. 2017. Prioritizing Zones for Caribou Habitat Restoration in the Canada's Oil Sands Innovation Alliance (COSIA) Area. Version 2.0. Prep. For Canada's Oil Sands Innovation Alliance. Alberta Biodiversity Monitoring Institute, Edmonton, Alta.

Alberta Biodiversity Monitoring Institute [ABMI]. 2021. Collaborative Landscape Data to Support Woodland Caribou Recovery Planning in Northwestern Alberta. Prep For the Northwest Species at Risk Committee (NWSAR) and Forest Resource Improvement Program (FRIP). Alberta Biodiversity Monitoring Institute, Edmonton, Alta.

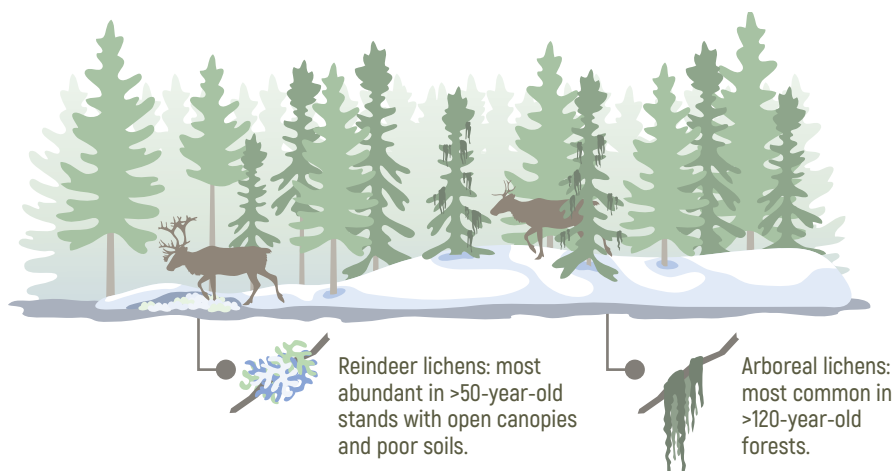
Lichens: conserving a critical caribou winter food

Woodland caribou are uniquely adapted to old conifer forests and peatlands. Old conifer forests are often rich with lichens, which are a vital winter food source for woodland caribou. This means conservation of areas with high lichen abundance is a key consideration for caribou management. However, lichens can be highly sensitive to disturbance, contributing to the many complexities and challenges of managing caribou. A recent report from West Fraser synthesizes the current knowledge of lichen management in caribou habitat and some site-specific harvest strategies to protect this critical resource.

When should we plan for lichen on the landscape?

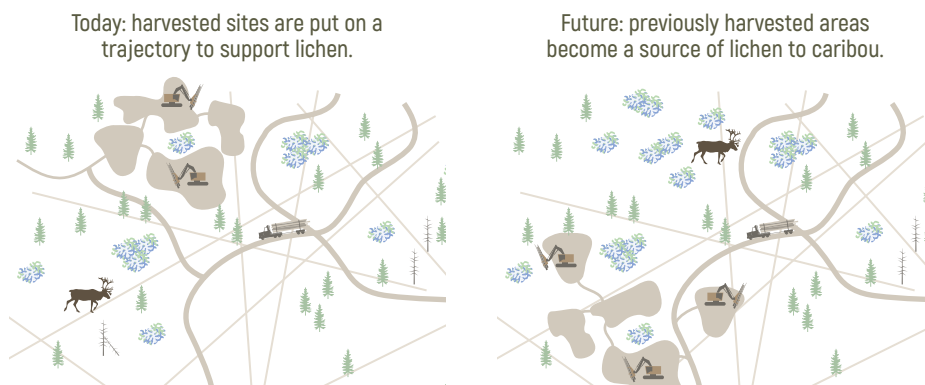
Not all lichen is created equal. Caribou prefer shrubby, branching lichens known as “reindeer lichens”. If you’ve ever found a soft, white carpet underfoot while exploring the boreal forest, then you know these lichens well. During the winter, caribou scrape away snow to feed on the lichen hidden below. While less favoured by caribou, lichens hanging from trees (i.e., arboreal lichens) can also be a critical food source when winter conditions make it difficult to dig through the snow.

When harvesting an area, there are several strategies available to conserve existing lichen and/or encourage future lichen growth. For instance, thinning the forest canopy can create light levels that promote lichen cover over feathermosses. Choosing the appropriate strategy for a given harvest site means asking some key questions:



Is the site within current or possible future caribou range?

If the site is not currently used or projected to be used by caribou, then planners can focus on other conservation values. However, **it is still critical to consider the future harvest sequence of the landscape.** Choices made today can put the site on a trajectory to support lichen many decades into the future.



McLoughlin, G., S. Odsen, and M. Pyper. 2021. Lichen Management in Woodland Caribou Habitat: A summary of the research and the opportunities to sustain woodland caribou winter forage. Report. West Fraser – Hinton Wood Products. Hinton, AB.

Can the site support lichen over time?

Lichens are sensitive to local conditions, including soil moisture and nutrients. Rich, moist sites dominated by feathermosses are unlikely to support lichens, and strategies intended to restore lichen cover are more prone to backfire and promote shrub growth instead. Sites with more moderate moisture and soil nutrients can support lichen over a variety of timescales, depending on the goal and harvest strategy used.

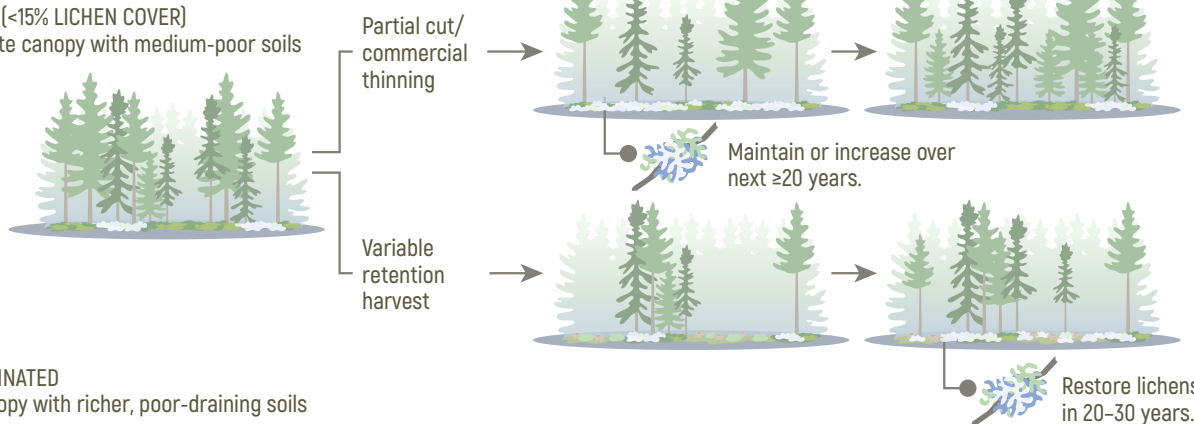
OPTIMAL (>15% LICHEN COVER)

open canopy with poor, well-drained soils



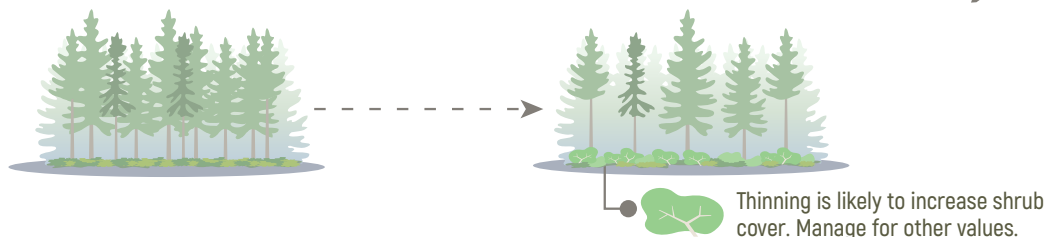
MODERATE (<15% LICHEN COVER)

intermediate canopy with medium-poor soils



MOSS DOMINATED

closed canopy with richer, poor-draining soils



What is the goal for the site?

Depending on the site conditions, lichens may remain dominant over time or be gradually overtaken by feathermosses as part of a successional sequence. Planners should ask: should lichen on this site be conserved for use by woodland caribou today? Should lichen on this site be maintained or restored for use by woodland caribou in the future? On what timescale? These questions can help planners choose whether to harvest the site and which techniques to use, like partial cut/commercial thinning or variable retention harvest.

Once these landscape-level choices and considerations have been made, there are a series of site-specific decisions that can be made as well. Should a stand be thinned? Is site preparation helpful or harmful? And what are the impacts of herbicides on lichen? Future issues of The Exchange will explore some of these site-specific strategies in more depth. By ensuring caribou have ready access to lichen throughout the harvest sequence, planners can help create a more robust caribou conservation strategy.

WHAT IS THE ARCKP?

Who we are, and what we do

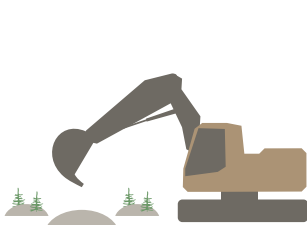
Woodland caribou are a cultural and ecological icon of Alberta's forests. However, they are also a threatened species, and represent a significant conservation challenge. In response to this challenge, and to the additional challenge of managing woodland caribou across different ecosystems, the Government of Alberta and the province's forest sector formed the Alberta Regional Caribou Knowledge Partnership (ARCKP). Together, we are committed to finding on-the-ground solutions that balance forestry activities with woodland caribou conservation.

- » The ARCKP is an association of fRI Research and funded by the Forest Resource Improvement Association of Alberta (FRIAA) through the support of 12 forestry companies in Alberta.
- » Together, these partners have contributed over \$1 million per year for five years to address region-specific knowledge gaps in woodland caribou ecology.
- » A steering committee with government and industry representatives oversees allocation of the funding and guides the operation of the partnership.

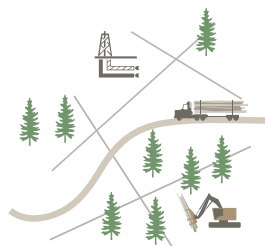


To advance conservation and produce relevant, on-the-ground solutions, it's important to ask the right questions. That's why we draw on expert knowledge to identify solutions for the working landbase, including identifying knowledge gaps and priority areas in research, applications, policy, and knowledge exchange.

The ARCKP has four focal areas that currently guide our work:



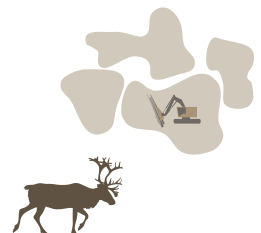
Restoration



Integrated Land Management

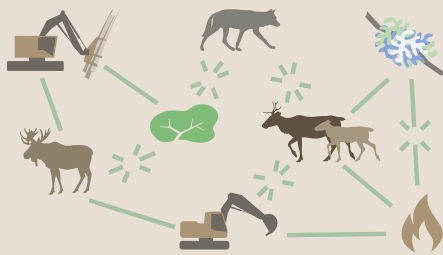


Silviculture and Harvest Systems

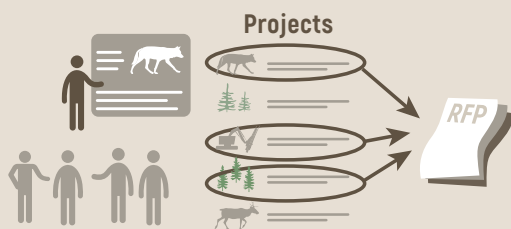


Harvest Planning

We collaboratively identify knowledge gaps by consulting with government, industry, and a wide range of stakeholders.



Through multi-sector meetings and workshops, our technical subcommittee reviews and prioritizes research topics and projects for the ARCKP to fund.



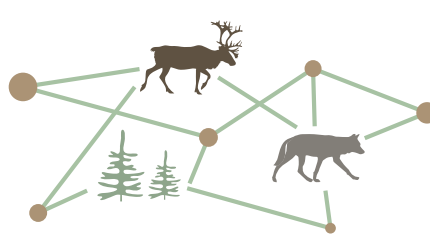
We then invite experts and researchers to submit Expressions of Interest for projects. Selected projects are delivered with close collaboration with the partners.



We create a forum for industry and government to discuss research outcomes, alternative practices, and implementation options.



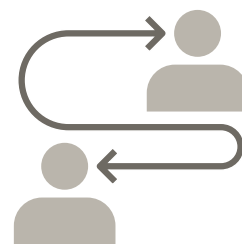
The ARCKP is committed to knowledge sharing and getting important knowledge into the hands of practitioners. This publication is the first of many to come and aims to:



Connect you to accessible and relevant scientific information.



**Keep you informed on ARCKP
work and projects.**



Facilitate stronger research outcomes and increased opportunities for knowledge sharing and collaborations.

We are excited to watch these important research, communication, and implementation initiatives unfold.

**You can stay current on our latest updates
by following this newsletter.**

Have questions about the ARCKP? Contact our network coordinator Kristy Burke at kristy@fuseconsulting.ca or visit arckp.friresearch.ca.



The ARCKP is funded by the Forest Resource Improvement Association of Alberta



ARCKP Partners



For more information or to contact the ARCKP, visit arckp.friresearch.ca

