

THE

Silviculture Innovation Program

A program of the

BULKLEY VALLEY

RESEARCH CENTRE

Smithers, BC

Alana Clason (alana.clason@bvcentre.ca)



Bulkeley Valley
Research Centre

About the SIP

British Columbia's **Old Growth Strategic Review** identified innovative silvicultural practices as tools to help address forest resiliency, ecosystem health and climate change adaptation (Recommendation #12). The province directed funds to the Bulkley Valley Research Centre (BVRC) to design and implement the Silviculture Innovation Program (SIP).





Innovative silviculture

Innovative silviculture creates a framework for stewarding multiple values at the stand and landscape scale.

This includes social, technical or systems innovation where forests are managed as complex, adaptive systems. The stewardship of multiple values can occur throughout rotation in the practices applied and/or approaches taken.

SIP Practices Theme Areas



**Partial
Harvest**



**Intensive
Silviculture**



**Fire and
Silviculture**



Silviculture Innovation Program

- Improve knowledge on innovative silviculture systems through **extension** and **research**.
- Responsive to gaps in:
 - Knowledge
 - Knowledge access
 - Knowledge translation
 - Knowledge exchange



SIP Priority Areas

1. Identify Research and Extension Gaps
2. Extend Current Knowledge
3. Co-Create Knowledge
4. Build and Support Community



Bulkley Valley
Research Centre

**Silviculture
Innovation
Program**

The SIP Team

Leadership Team

Alana Clason



Kira Hoffman



Andrew Snetsinger



Jodi Axelson



Program Team

Laura Stanton



Tyreen Kapoor



Ingrid Farnell



Strategic Advisory Group

Danielle Ignace, Dennis Macdonald, Francis Johnson, Garnet Mierau, Jennifer Gunter, Lisa Wood, Janelle Hale, Joe Dolling, Tara Bergeson, Dominik Roeser

Key Activities (So Far):

1. Grants
2. SIP Exchange (SIPex)
3. Extension Needs Assessments and Analysis
4. Extension Resources
5. Ongoing Research



Key Activities (So Far):

1. Grants

2. SIP Exchange (SIPex)

3. Extension Needs Assessments and Analysis

4. Extension Resources

5. Ongoing Research



Purpose & Overview

SIP grants support operational research and implementation of innovative silviculture projects. They fund critical activities in knowledge creation and knowledge sharing of innovative silviculture.

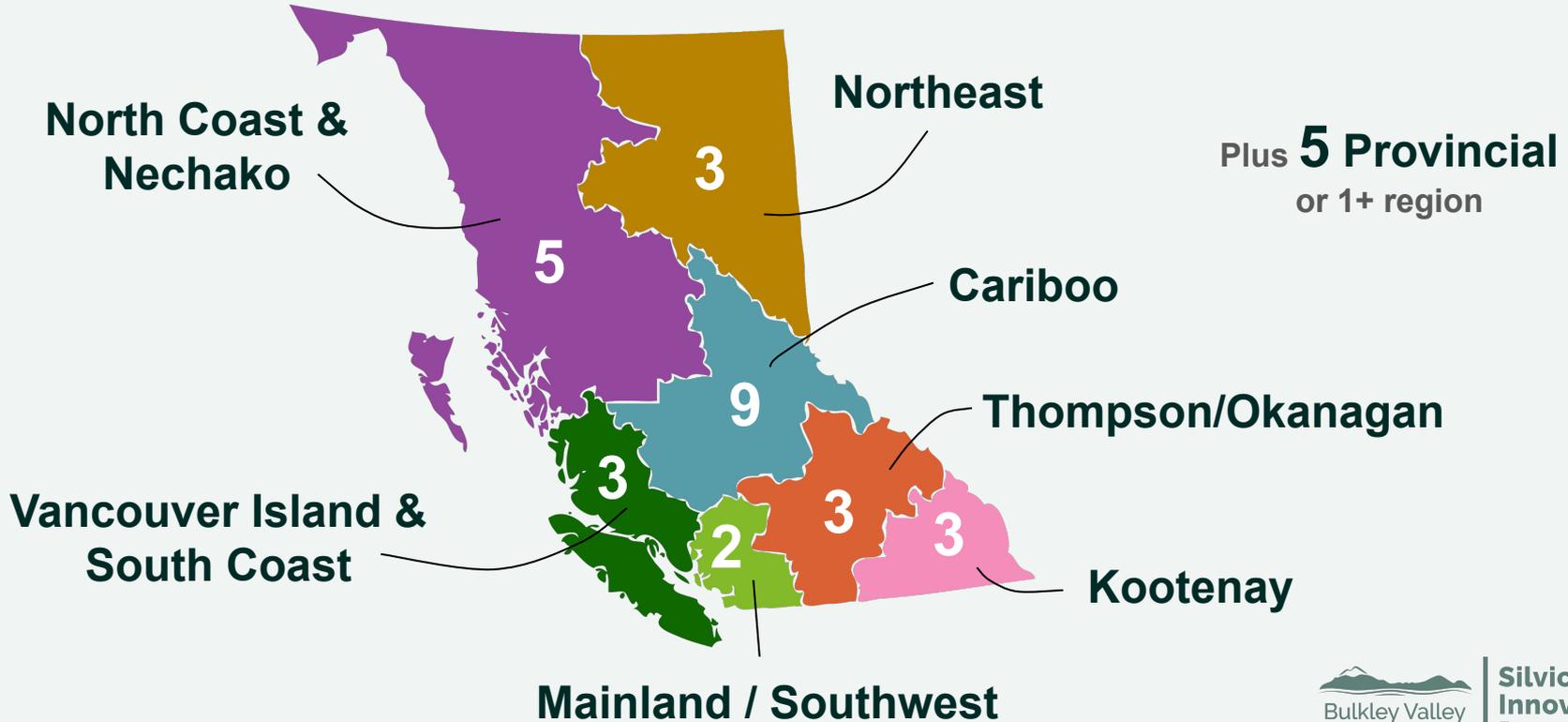
In 2025, we funded **>30 projects** across the province to a sum total of **\$1.05M**.

The 2026 intake is currently in the review phase

Photo by: Jill Harvey



Tour de Innovation *in Action*





Monitoring & Extension of Partial Harvests in Wetzin'kwa Community Forest

Sybille Haeussler

OVERVIEW

- Wetzin'kwa Community Forest proposed a new partial harvest block following Best Management Practices for logging in Goshawk territories.
- Foresters and biologists collaborated with Wetzin'kwa on a **long-term monitoring and extension project** to learn how partial harvest affects Goshawk and a suite of other birds, mammals, lichens and habitat attributes found in old growth forests.



Photo credit:
Sybille Haeussler

HALFWAY UPDATE

- Volunteers (old and young!) worked together to install and retrieve birdsong recording units, gather and analyze fallen log data, count wildlife tracks along ski trails, and set camera traps for detecting flying squirrels
- Birdsong acoustic monitoring equipment was purchased and experienced biologists have analyzed birdsong data
- Next, they will produce **interpretive signage** and **host a field tour** (fall 2026) to share results





Prescribed fire planning in an eco-cultural pyric herbivory context

Shifting Mosaics Corporation

OVERVIEW

- Aims to **mobilize traditional and local ecological knowledge** along with **western fire science** to reignite the cultural and historical practice of applying “**good fire**”
- **Collaborative** with Treaty 8 Nations, local stakeholders, scientists, wildland fire specialists
- **Build and implement up to four prescribed fire burn plans** in Northeast BC where grazing and browsing animals exist



Photo credit: Sonja Leverkus

HALFWAY UPDATE

- **Prescribed fire burn planning** on public and private land
- **Prescribed fire mentorship** at the Peach River Ranch and Bare Mountain Community Pasture
- **Collaboration** amongst Indigenous communities, ranchers, producers, local residents, BCWS, MoF, Cattlemen Associations, Peace River Forage Association

Next, they will produce **extension and outreach material** of post-fire effects



Photo credit: S. Gagne



Photo credit: Sonja Leverkus



Cost and efficacy of combining understory resilience treatments with sawlog harvesting operations in the Dry-Belt Douglas fir

Clinton Community Forest

OVERVIEW

- Clinton CF will **pilot the application of “Restoration Thinning”** from the draft Cariboo Forest Region Best Management Practices for uneven-aged, dry-belt Douglas-fir forests to **improve fire resilience, growth of understory trees, and resistance of stands to forest pests**
- **Shift-level costing will be tracked and submitted to Timber Pricing Branch** (treatment cost per ha and cost per m³ of logs and hog fuel)

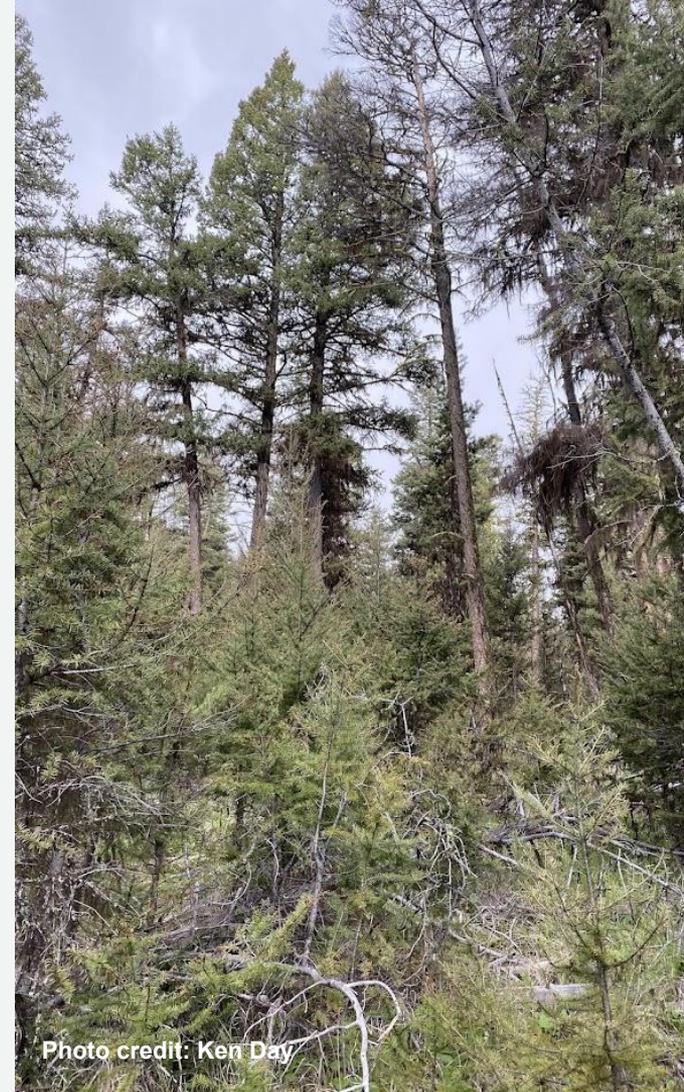


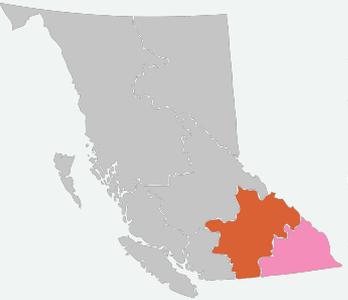
Photo credit: Ken Day

HALFWAY UPDATE

- Collecting **pre-treatment data**
- **Planning pre-treatment amendments** to accommodate trial
- **Field advice and support** for: thinning & removing understory fuels according to best management practices; piling, forwarding, grinding, trucking

Next, they will **collect post-treatment data, analyze economic impacts** and write and distribute a **2-page extension note**





Silviculture systems workshop: *the good, the bad, and the ugly*. What is the alternative?

Woodlots BC

OVERVIEW

- Project showcasing how “**small tenures, big connections**” can support management that contributes to **biodiversity, forest health, and conservation, while sustaining local economies**
- Field visit during the Woodlots BC annual conference (Osoyoos, October 2025) to a woodlot using sustainable harvesting and management, dating back to 1940s



Photo credit: Belle Collective Photography

HALFWAY UPDATE

Workshop hosted breakout groups on four different topics: **Silviculture Systems, Public Use of Woodlot Lands, Woodlot Future Goals** and **Community/First Nations/Government Relations**. Each group viewed their topic through one of the four lenses: the *Good, the Bad, the Ugly and the Alternative*. Discussions led to summary points presented to the conference audience in a plenary session.

Next, they will share outcomes and key learnings in a final report.



Photo credit: Belle Collective Photography



A holistic approach to thinning

*Squamish Community
Forest Corporation*

OVERVIEW

- Aims to **identify priority treatment sites** and **develop prescriptions for forest thinning** through a two-eyed seeing approach
- Community forest managers will work **collaboratively** with Squamish Nation Lands and Cultural team members to **co-identify values** and **develop prescriptions to reduce fire risk, increase biodiversity, improve stand structure** and **nurture cultural values.**

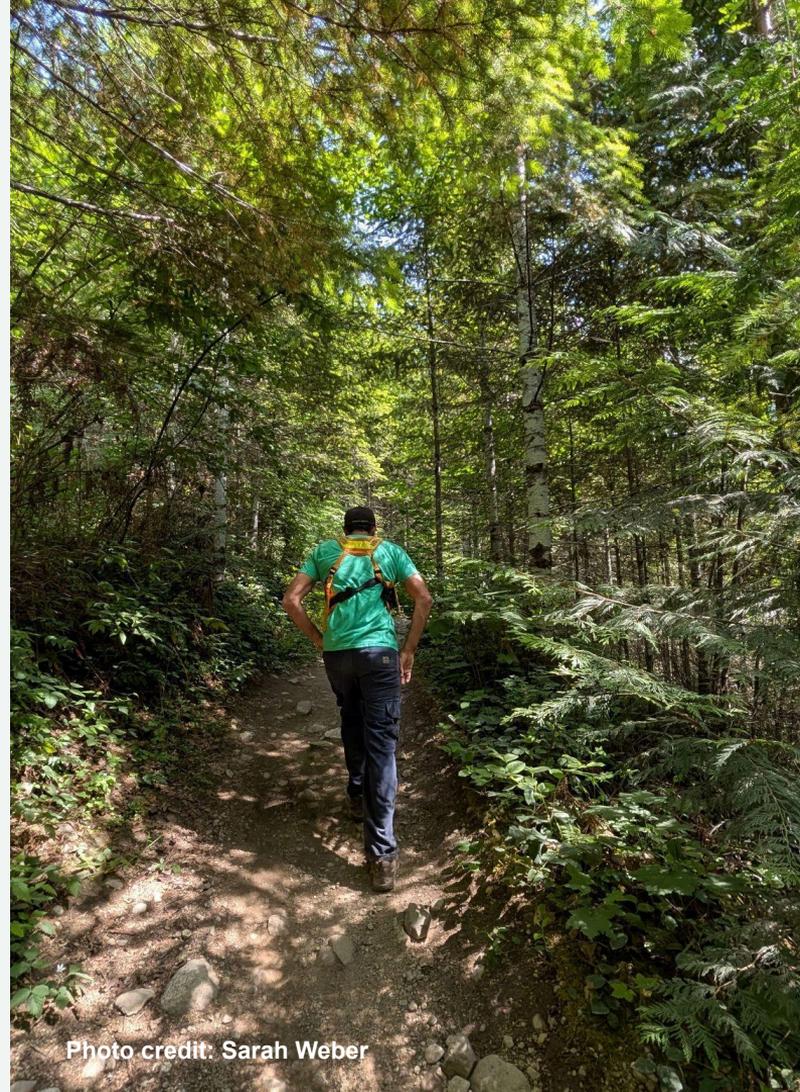


Photo credit: Sarah Weber

HALFWAY UPDATE

- Project design and planning
- Identifying locations for stand treatments
- Field visits to build relationships, share knowledge and discuss treatment goals
- Develop prescriptions

Next, they will **develop research and monitoring protocols** and produce and share a **2-page extension note**.



Photo credit: Sarah Weber



Kwiakah-led community gathering and knowledge sharing workshop

Kwiakah First Nation

OVERVIEW

- Kwiakah First Nation is beginning a major **regenerative forestry** project in their core territory, supported by University researchers
- This project aims to support the **expansion of Indigenous science knowledge and strengthen relationships by integrating Indigenous forest management into ongoing research**



Photo credit: Gavin Woodburn

HALFWAY UPDATE

They have hosted an **Indigenous-led community knowledge sharing workshop** where community members were able to connect with their core territory (boat access only), listen to presentations from University academics doing research and provide input and insights.

- **The event hosted over 40 people** over two days with facilitators, graphic recorder, videographer, catering and water taxi costs to Phillips Arm

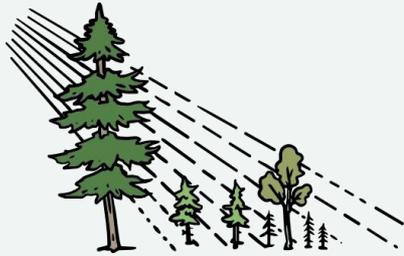
Next, they will compile comments into a **reference document to support student research.**



Photo credit: Gavin Woodburn

2026 intake closed November 30, 2025

Projects will be eligible for **one** of four main themes:



Old-like in a new light



Thin it to win it



A burn a day can help
keep the wildfire away



Accounting for
innovation

Key Activities (So Far):

1. Grants
- 2. SIP Exchange (SIPex)**
3. Extension Needs Assessments and Analysis
4. Extension Resources
5. Ongoing Research



The Problem:

Given the expansive amount of information that exists in various locations and forms across decades of practice, **forest practitioners are challenged to find information and knowledge that is trustworthy, practical and relevant.**





Silviculture
Innovation
Program



NEED HELP WITH A PROBLEM?

HOME COMMUNITY OF PRACTICE TRAINING AND EDUCATION EXPLORE RESOURCES FEATURED TOPICS HELP

A banner image showing two people in safety gear (orange and green vests, orange helmets) standing in a forest, looking towards the trees.

SIPex

Dedicated to increasing accessibility and visibility of knowledge
in support of innovative silviculture in British Columbia

Purpose



Silviculture
Innovation
Program

What is the SIPex?

The **SIP exchange (SIPex)** is a user-friendly and open-access information portal. It enables better access by practitioners to information, knowledge and resources on innovative silviculture in BC.

The Life of SIPex



Knowledge Summit
March 2024

Project Initiated
Technical Team and
Strategic Advisor
August 2024

Data Curation
Specialist
October 2024

Functionality and
Content Scoping
October 2024

Beta Version Tested
May 2025

SIPex Launch
October 2025

The Life of SIPex cont'd

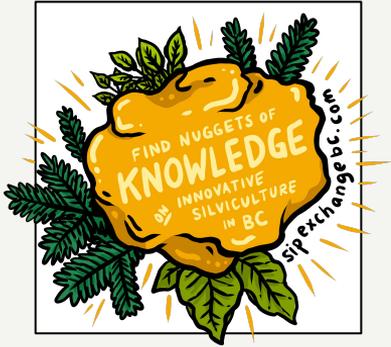
SIPex team implements feedback and the SIPex evolves (Resources are added, features change, new featured topics)



Forest practitioners use the SIPex and test its ability to help overcome barriers (real-world scenarios are tested)

Forest practitioners provide feedback and exchange knowledge (What is missing? What needs enhancing?)

SIPex Features:



Resource Library

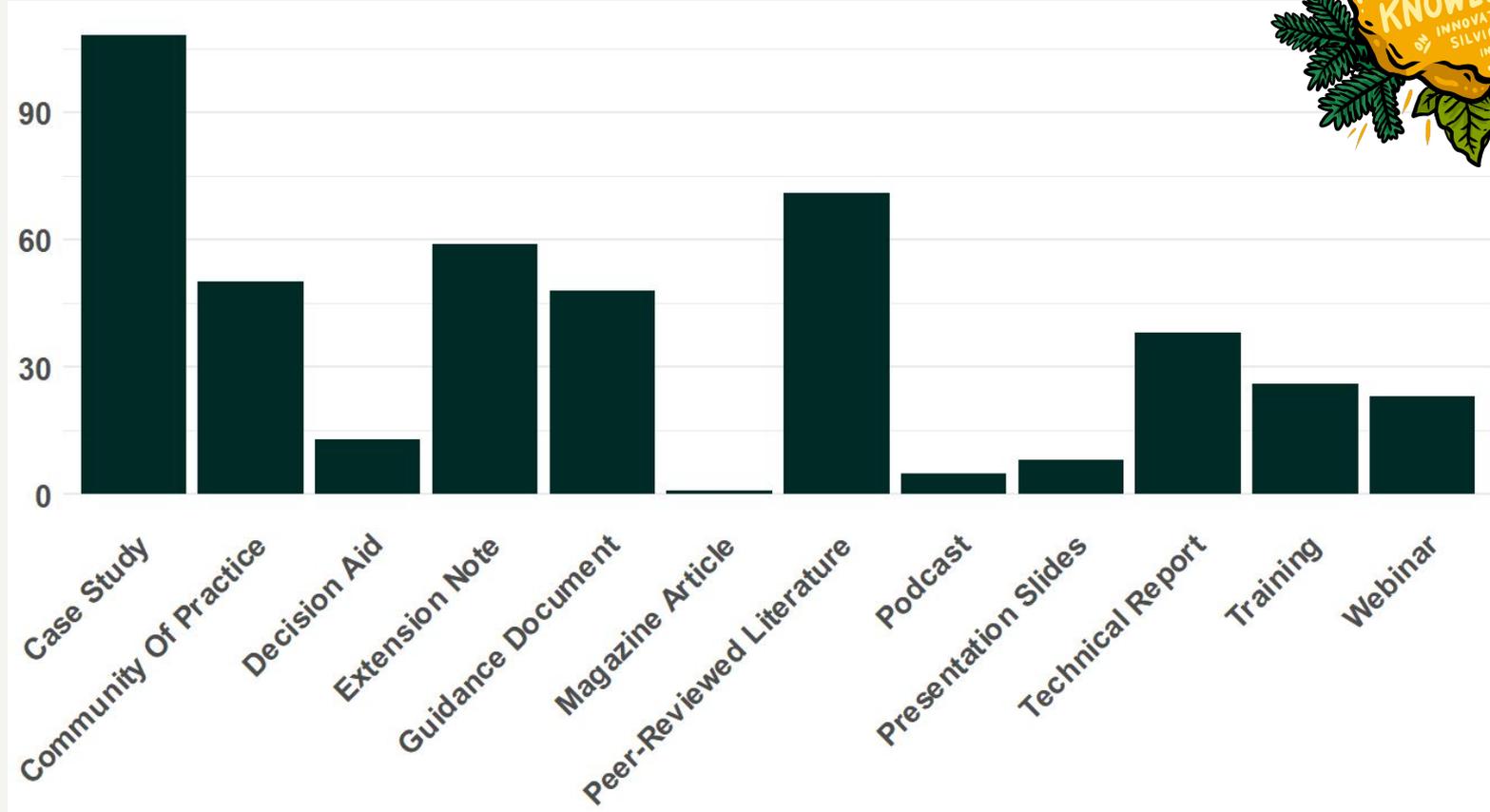
The **resource library** stores an archive of searchable written resources, curated and tagged so that each search yields the most relevant information.

Snapshot: Resource Library

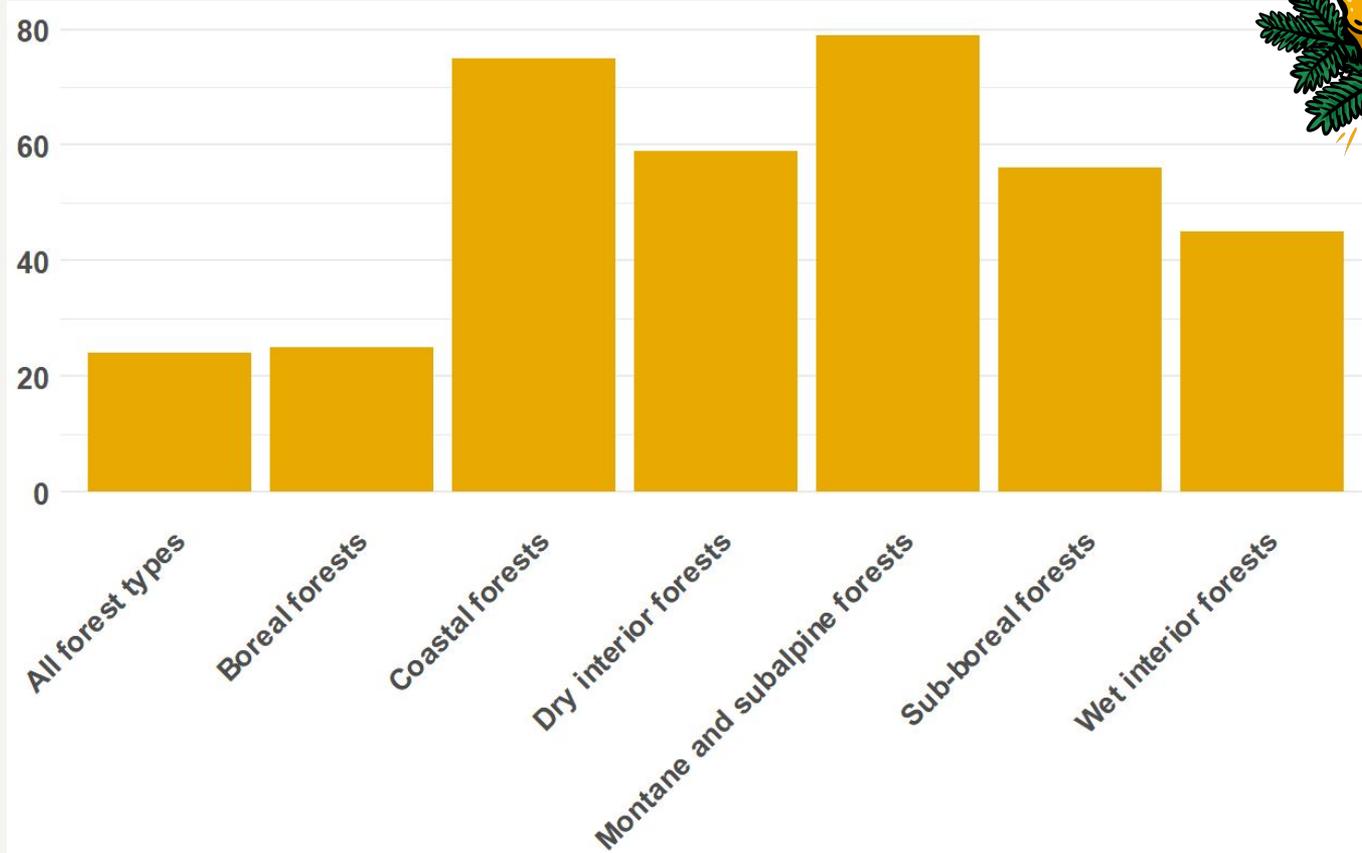
- 408 resources available
- Popular resources:
 - Partial cutting prescriptions in constrained areas - implementation guidelines
 - Fire management stocking standards guidance document
 - Silviculture systems handbook for British Columbia (LMH 79)
- Most common search terms:
 - Reforestation
 - Understory planting douglas fir
 - Pre-commercial thinning prescriptions



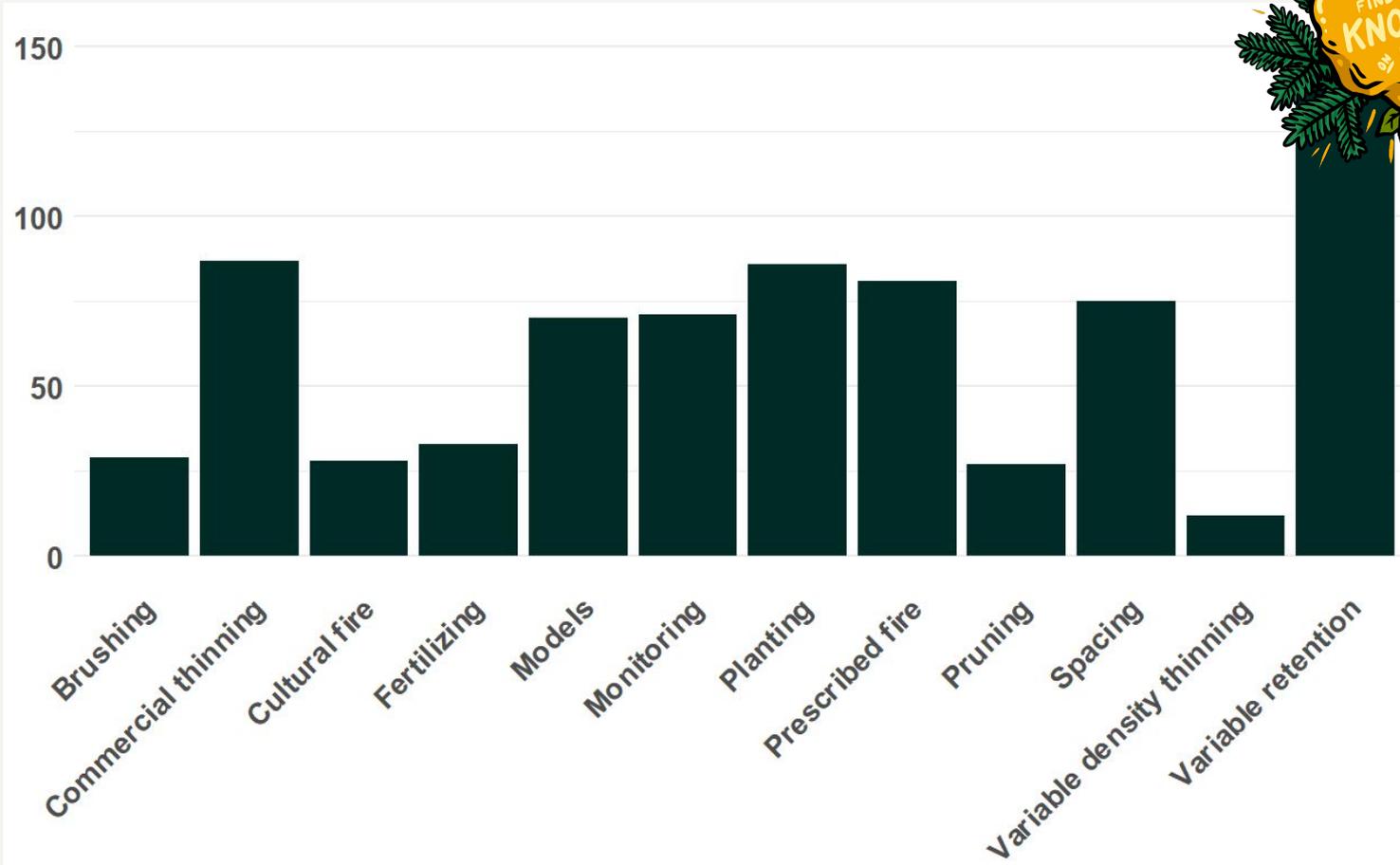
Snapshot: Resource Library



Snapshot: Resource Library



Snapshot: Resource Library





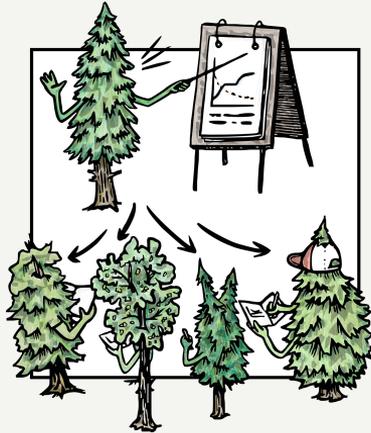
Featured Topics

The **Featured Topics** are designed with the understanding that no two learners engage with information in exactly the same way. It provides a birds-eye view with increasing detail for existing or emerging “hot topics” for forest practitioners.



***Community
Directory***

The **Community** pages provide ways to engage with knowledge holders, through Communities of Practice and an “experts” directory. It ensures practitioners are able to learn from others directly.



***Training &
Education***

The **Training and Education** page provides a summary of the evergreen opportunities to advance practitioner training and education on innovative silviculture practices and approaches.

Explore the SIPex:

sipexchangebc.com

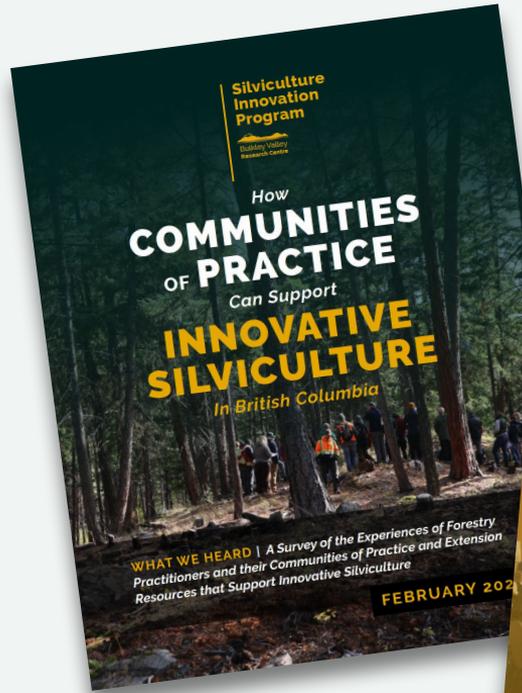
Contact: sip.learn@bvcentre.ca or alana.clason@bvcentre.ca

Key Activities (So Far):

1. Grants
2. SIP Exchange (SIPex)
3. **Extension Needs Assessments and Analysis**
4. Extension Resources
5. Ongoing Research



What We Heard Reports



Knowledge Summit
What We Heard Report
(released May 2024)

Communities of Practice survey What We Heard (released February 2025)

Key Activities (So Far):

1. Grants
2. SIP Exchange (SIPex)
3. Extension Needs Assessments and Analysis
- 4. Extension Resources**
5. Ongoing Research



Extension and Resources

Visit sjp.bvcentre.ca/resources/

Silviculture Innovation Program

EXTENSION NOTE SERIES
Volume 02 | October 2025

A Case Study: Application of Fisher Habitat Tool in the Cariboo Region by West Fraser

Prepared by: Janella Hallé (BC Forest Stewardship and Policy Superintendent, West Fraser), Laurel La Riviere (Planning Coordinator, West Fraser), Gillian Chouh-Fraser (Extension Specialist, Silviculture Innovation Program), Sandra Kay (Carnivore Conservation Biologist, Government of BC), and Joanna Burger (Carnivore Conservation Specialist, Government of BC)

Learn more about the application of this tool by watching the SIP video series, *Out On A Limb Episode 3*: <https://sjp.bvcentre.ca/out-episode-3/>

Overview

- Fishers (*Pekania pennanti*) are medium-sized weasels that need specific old forest characteristics to thrive. The retention and creation of fisher habitat helps manage forests for biodiversity. Fisher populations are indicative of a healthy ecosystem.
- The BC Fisher-Habitat Working Group and the Government of BC created the Fisher-Habitat Retention Spatial Data and Tool (herein, the "Fisher Tool") to help foresters manage for fisher habitat. The Fisher Tool provides habitat retention guidance based on different fisher life history components, including habitat retention targets and rare stand types within the cut block.
- In this extension note, we detail the work of West Fraser who used the Fisher Tool to inform harvest plans to retain fisher habitat. We take practitioners through the harvest of cutblock "CP293" south of Quesnel. First, the Fisher Tool determined habitat retention targets and identification of specific trees that would support fisher habitat. Next, West Fraser completed on-the-ground field verification of these features in the cutblock. The harvest plan was then adapted, including changes to harvest boundaries, road layout, location of timber reserves and stand level retention.

About the Case Study

This case study details the application of the Fisher Tool in cutblock "CP293" south of Quesnel in a Douglas-fir leading stand with minor components of pine (PI), spruce (SA), balsam fir (BI) and aspen (AI) (FRI6s, PI13s, SA3s, BI1s, AI1s). The stand is primarily Sub-Boreal Spruce moist hot BEC subzone and has been classified as a 02 site series (meaning it is a zonal site).

WHAT TO EXPECT
in this extension note

- Case Study
- Cariboo Region
- Retain Habitat
- Prescription
- Harvest

- A case study of prescription development by West Fraser south of Quesnel
- An example output of the Fisher Tool
- Recommendations for forest managers on the Fisher Tool



OVERVIEW

- Fishers (*Pekania pennanti*) are medium-sized weasels that need specific old forest characteristics to thrive. The retention and creation of fisher habitat helps manage forests for biodiversity. Fisher populations are indicative of a healthy ecosystem.
- The BC Fisher-Habitat Working Group and the Government of BC created the Fisher-Habitat Retention Spatial Data and Tool (herein, the "Fisher Tool") to help foresters manage for fisher habitat. The Fisher Tool provides habitat retention guidance based on different fisher life history components, including habitat retention targets and rare stand types within the cut block.
- In this extension note, we detail the work of West Fraser who used the Fisher Tool to inform harvest plans to retain fisher habitat. We take practitioners through the harvest of cutblock "CP293" south of Quesnel. First, the Fisher Tool determined habitat retention targets and identification of specific trees that would support fisher habitat. Next, West Fraser completed on-the-ground field verification of these features in the cutblock. The harvest plan was then adapted, including changes to harvest boundaries, road layout, location of timber reserves and stand level retention.



WHAT TO EXPECT
in this extension note

- Case Study
- Cariboo Region
- Retain Habitat
- Prescription
- Harvest

- A case study of prescription development by West Fraser south of Quesnel
- An example output of the Fisher Tool
- Recommendations for forest managers on the Fisher Tool



OVERVIEW

- Fishers (*Pekania pennanti*) are medium-sized weasels that need specific old forest characteristics to thrive. The retention and creation of fisher habitat helps manage forests for biodiversity. Fisher populations are indicative of a healthy ecosystem.
- The BC Fisher-Habitat Working Group and the Government of BC created the Fisher-Habitat Retention Spatial Data and Tool (herein, the "Fisher Tool") to help foresters manage for fisher habitat. The Fisher Tool provides habitat retention guidance based on different fisher life history components, including habitat retention targets and rare stand types within the cut block.
- In this extension note, we detail the work of West Fraser who used the Fisher Tool to inform harvest plans to retain fisher habitat. We take practitioners through the harvest of cutblock "CP293" south of Quesnel. First, the Fisher Tool determined habitat retention targets and identification of specific trees that would support fisher habitat. Next, West Fraser completed on-the-ground field verification of these features in the cutblock. The harvest plan was then adapted, including changes to harvest boundaries, road layout, location of timber reserves and stand level retention.



Operator Quick Reference Card

FISHER PILE SPECIFICATIONS



Silviculture Innovation Program

IDEAL fisher piles look like...

✓ 1/3 (or more) of pile pieces are big pieces >20cm diameter

✓ Windows!

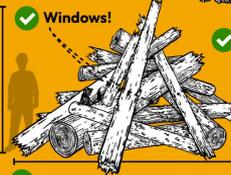
✓ Height minimum 2m tall

✓ Footprint minimum 3m x 5m

Fishers are mid-sized, long & slender forest carnivores – about the size of a house cat.

✓ Pieces are criss-crossed creating a "jumble"

✓ No fines, debris, moss, soil, needles, etc.! Fines are pieces <10cm diameter



POOR fisher piles look like...

✗ Too flat/small

-----Pile decomposes faster-----

✗ Too many fines

-----Fills up habitat spaces-----

✗ Too stacked

-----Can't access the core-----

Silviculture Innovation Program

Bulkley Valley Research Centre

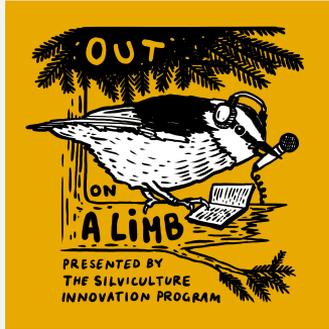
SIPTionary

A Brief, Work-In-Progress Dictionary for Silviculture Related Terminology

from the Silviculture Innovation Program (SIP)

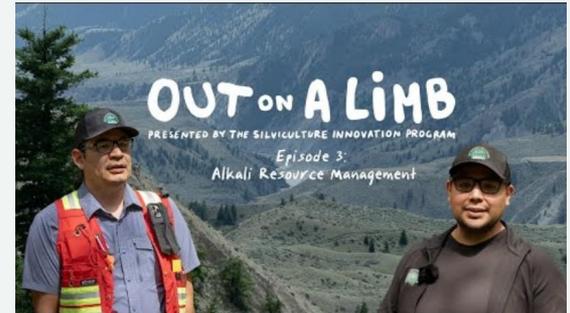
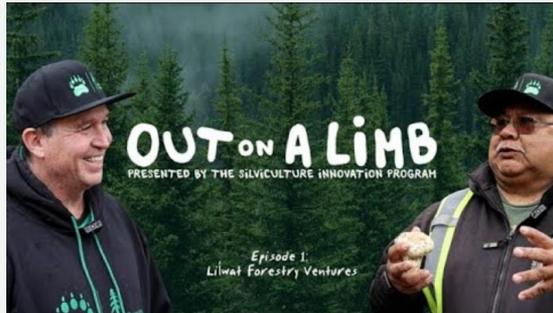


Out on a Limb series



A media series that highlight practitioners that are implementing innovative practices and approaches.

Visit sip.bvcentre.ca/out-on-a-limb/



What is Extension?



Hoffman, Chow-Fraser, Copes-Gerbitz and Axelson, 2025. Canadian Journal of Forest Research. How extension enhances the knowledge and practice of innovative silviculture in British Columbia, Canada", <http://dx.doi.org/10.1139/cjfr-2025-0036>

What is Extension?

How extension enhances the knowledge and practice of innovative silviculture in British Columbia, Canada

Kira M. Hoffman[✉], Gillian Chow-Fraser[✉], Kelsey Copes-Gerbitz[✉], and Jodi N. Axelson[✉]

[✉]Silviculture Innovation Program, Bulkley Valley Research Centre, 3731 1st Ave, Smithers, BC V0J 2N0, Canada; [✉]Forest Science, Planning and Practices Branch, British Columbia Ministry of Forests, PO Box 9513 Stn Prov Govt, Victoria, BC V8W 9C2, Canada

Corresponding author: Kira M. Hoffman (email: kira.hoffman@bvcentre.ca)

Abstract

The pressures facing natural resource sectors have grown in recent decades, especially as they intersect with Indigenous Rights and Title, environmental sustainability, and economic interests. In British Columbia (BC), Canada, forest management and forestry practices have come under significant scrutiny, largely sparked by the public opposition to the harvesting of old-growth forests, increasing severity of wildfires, economic declines in the forest industry, and the impacts of a changing climate. As the pace and scale of these challenges grow, the forest sector must be equipped to innovate and adapt. Here, we contribute our understanding of “how to do extension” in the forest sector and, building on an historical perspective of extension in BC and beyond, offer recommendations for how extension can support innovative silviculture in BC. Extension is a knowledge process that is practiced in five different forms: one-way knowledge sharing, two-way knowledge exchange, participatory exchange, co-produced knowledge generation, and anticipatory knowledge generation. The outcomes of extension include empowering individuals, organizations, and communities to collaborate and connect knowledge and practice to address complex forest-based challenges. Extension in innovative silviculture, and forestry in general, ensures that disconnected knowledge and scientific systems are bridged, providing pathways to help ensure applied research projects fill knowledge gaps for practitioners, and that forest planning and operations meaningfully identify and manage for multiple values.

Key words: extension, forestry, innovation, silviculture, British Columbia, knowledge

1. Introduction

As the pace and scale of economic, environmental, and social challenges grow, the forest sector must be equipped to innovate and adapt. Extension is a process that empowers individuals, organizations, and communities to connect knowledge and practice to address complex forest-based challenges through innovation. The forest sector has a long history of innovation, but in recent decades has evolved to incorporate a wider diversity of interests, including researchers and practitioners with broad training and expertise, and Indigenous and local communities (Weiss et al. 2020).

In the province of British Columbia (BC), Canada, extension is a critical need across many sectors, particularly natural resource sectors tasked with managing systems or pro-

opposition to the harvesting of old-growth forests, increasing severity of wildfires, economic declines in the forest industry, ongoing assertions of Indigenous sovereignty, and the current and future impacts of a changing climate (Hagerman et al. 2010; Sutherland et al. 2023). In addition, recent legislative changes to the *Forest and Range Practices Act* have focused on the importance of Indigenous and provincial co-governance of forests, as well as the need to diversify the range of values for which forests are managed and creating clear outcomes through Forest Landscape Planning processes (Government of British Columbia 2025).

Considering these changes, forest managers, practitioners, and researchers have been asked to engage in extension that will support a new forestry model that emphasizes partner-

Forms of Extension

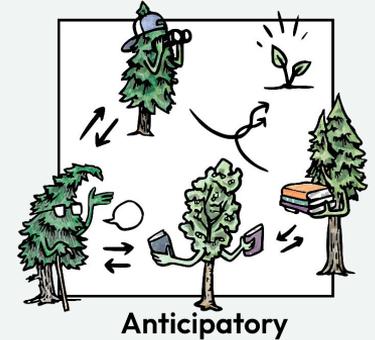
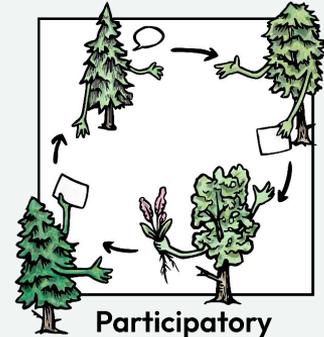
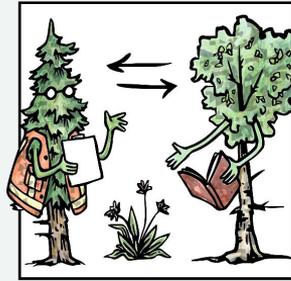


ILLUSTRATION BY LAURA STANTON
Silviculture Innovation Program

Thank you!

Learn more and subscribe to
SIP newsletter at: www.sip.bvcentre.ca/subscribe

www.sip.bvcentre.ca

Contact: alana.clason@bvcentre.ca

