



LOWER NICOLA INDIAN
BAND DEVELOPMENT
CORPORATION



Steffens Estates Wildfire Risk Reduction Project

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SENIOR PLANNING
FORESTER

Forsite Consultants

Agenda

- 1) Project Partners Overview
- 2) Canada's Wildfire Problem
- 3) Fuel Management Principles
- 4) Steffens Estates Community
- 5) Prescription and Treatment Approach
- 6) Post-Treatment Steps
- 7) Maintenance of Treated Areas
- 8) Challenges and Factors for Success



Project Partners

- Lower Nicola Indian Band Development Corp.
 - Lead proponent
 - Funding administration
 - Operational treatment implementation
 - Local relationships
- Forest Enhancement Society of BC
 - Project funding
 - Advisory support
- Ministry of Forests/BC Wildfire Service
 - Permits/authorizations
 - Prescription approval
 - Advisory support
- Forsite Consultants Ltd
 - Funding application development and grant management support
 - Prescription development
 - Treatment monitoring during operations
 - Post-treatment surveys
 - Professional endorsements and final reporting



Lower Nicola Indian Band Development Corp.



COMPANY BACKGROUND

- Incorporated in 2013 to manage and hold ownership of LNIB's business ventures.
- Oversees multiple companies, including **Shulus Forest Enterprises**, LNIB Ventures, Aggregates, Holdings, and Electricity Transmission Lines.
 - Shulus Forest Enterprises is the subsidiary implementing the fuel treatments on this project
- Operates at arm's length from the Lower Nicola Indian Band, governed by an elected/appointed Board of Directors.
- Mandate: build sustainable businesses that create jobs, training, and financial returns for the LNIB community.

Forsite Consultants Ltd.



COMPANY BACKGROUND

- Founded in 1987, Forsite is a forest and land management consulting firm operating across Canada.
- Provides expertise in **wildland fire, forest operations, LiDAR inventory, GIS, and strategic forest planning, and analytics.**
- Works with **Indigenous communities, governments, and industry** to develop practical, science-based solutions.
- In 2023 a merger with Frontline Operations Group occurred and we created **Forsite Fire**, a specialized wildland fire management division that has grown to over 30 staff in 3 years.



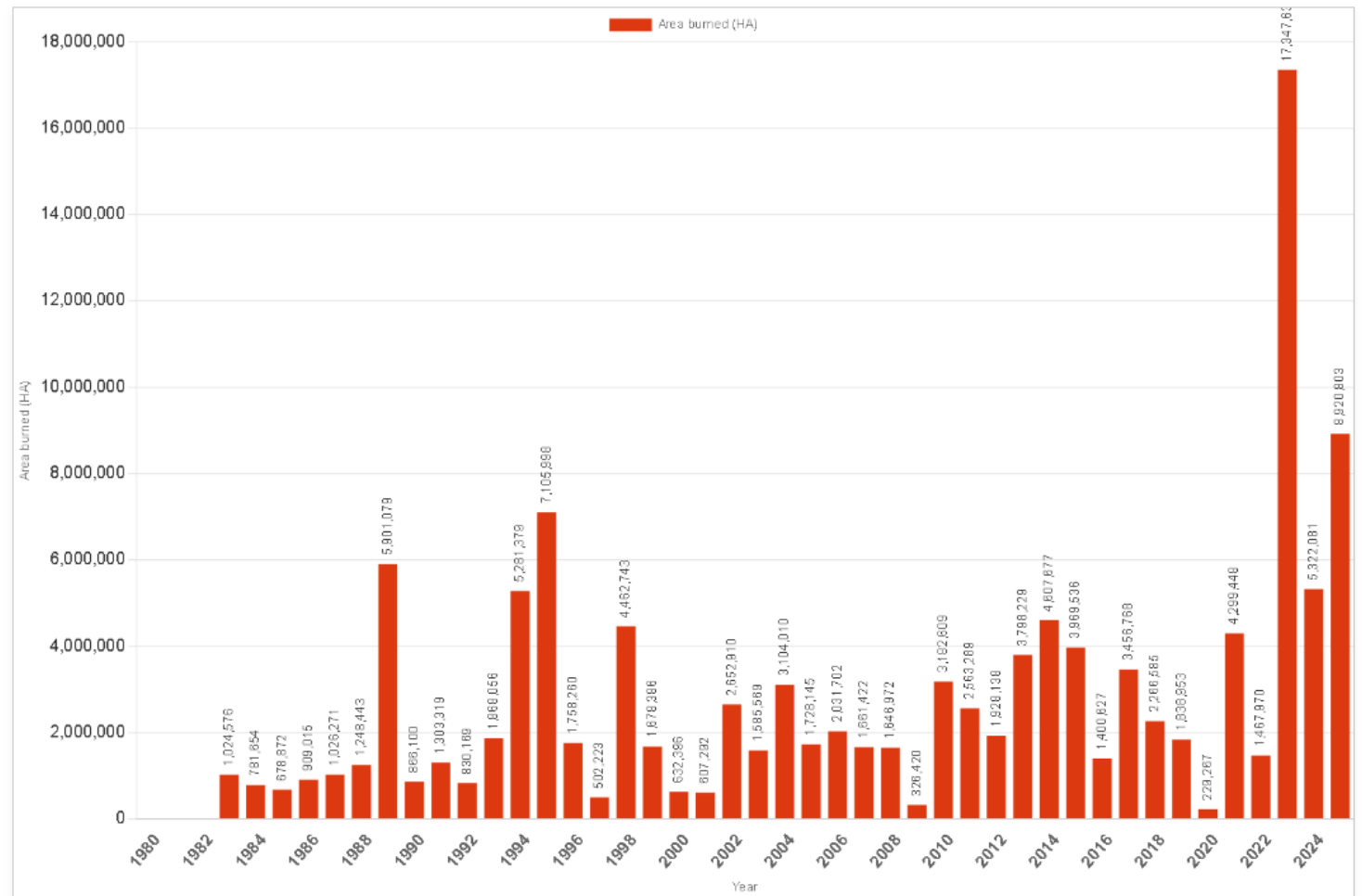
Forsite Fire Strategic Planning Bowling Night 2025

The Wildfire Problem



- Canada – 3 of our worst fire seasons nationally in decades in 3 consecutive years
- BC - 4 of our worst fire seasons of the past century – 2017, 2018, 2021, 2023
- 2023 Highlights
 - 17+ million hectares burned across Canada
 - Donnie Creek Fire in Fort Nelson – 600,000 ha
 - MacDougall Creek Wildfire in Kelowna – 13,970 ha, \$480M CAD insurable losses
 - Bush Creek East Wildfire, North Shuswap - 45,000 ha, \$240 M CAD insurable losses

Annual Area Burned in Canada



Source: Canadian Interagency Forest Fire Center

Wildfire Impacts

- Ecological
 - Soils
 - Water
 - Wildlife habitat
 - Old growth
- Economic
 - Fire suppression costs
 - Insurable structure losses
 - Local industry slowdown
 - Tourism
 - Timber
- Social
 - Loss of lives (civilians and firefighters)
 - Loss of homes
 - Evacuations
 - Mental Health/trauma
 - Respiratory health (smoke impacts)



Climate Change

- Longer fire seasons (start earlier, end later)
- Increased heat waves and drought periods
- Drought stress – tree mortality
- Increased lightning strikes = more ignitions

Climate Change increases

Extreme Fire
weather

+

Available
fuels

=

More ideal
conditions
for wildfire



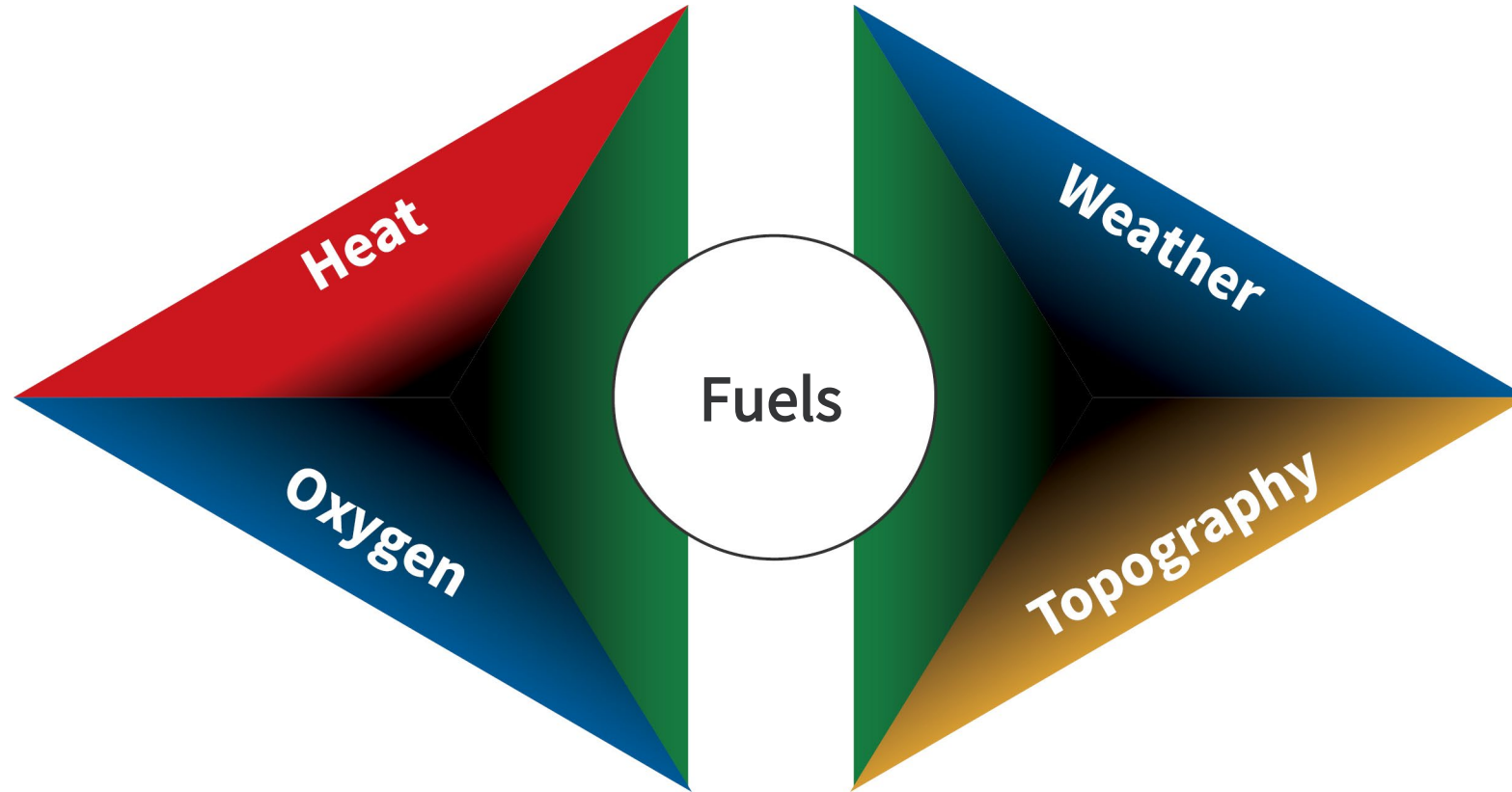
Forest and Land Management

- Before European Settlement of North America
 - Regularly occurring natural wildfires allowed to ignite and burn
 - Indigenous use of fire for 10,000 years (or more)
 - No industrial or human influence (buildings/development, fire suppression, forest harvesting)
- European settlement resulted in
 - Wildfire suppression efforts
 - Restricting Indigenous use of fire on the land
 - Increased human population, building, and development
 - Forest harvesting for timber – clearcuts and high grading



Bethel Ridge, Washington State (Courtesy of Top: US National Archives photo; Bottom: Photo by John Marshall; both courtesy of Dr. Paul Hessburg, USDA)

The Wildfire Triangle



What are Fuels?

Any organic material that can burn including (but not limited to):

- Trees
- Woody Debris
- Grasses
- Shrubs

Woody fuels size classes:

1. Fine fuels (< 7 cm diameter)
2. Large diameter woody debris (7-20 cm diameter)
3. Coarse Woody Debris (over 20 cm diameter)



Fuel Management Strategies

Three aspects of forest structure to target during fuel treatments

1

Increased
Canopy Base
Height

2

Reduced
Surface
Fuel
Loading

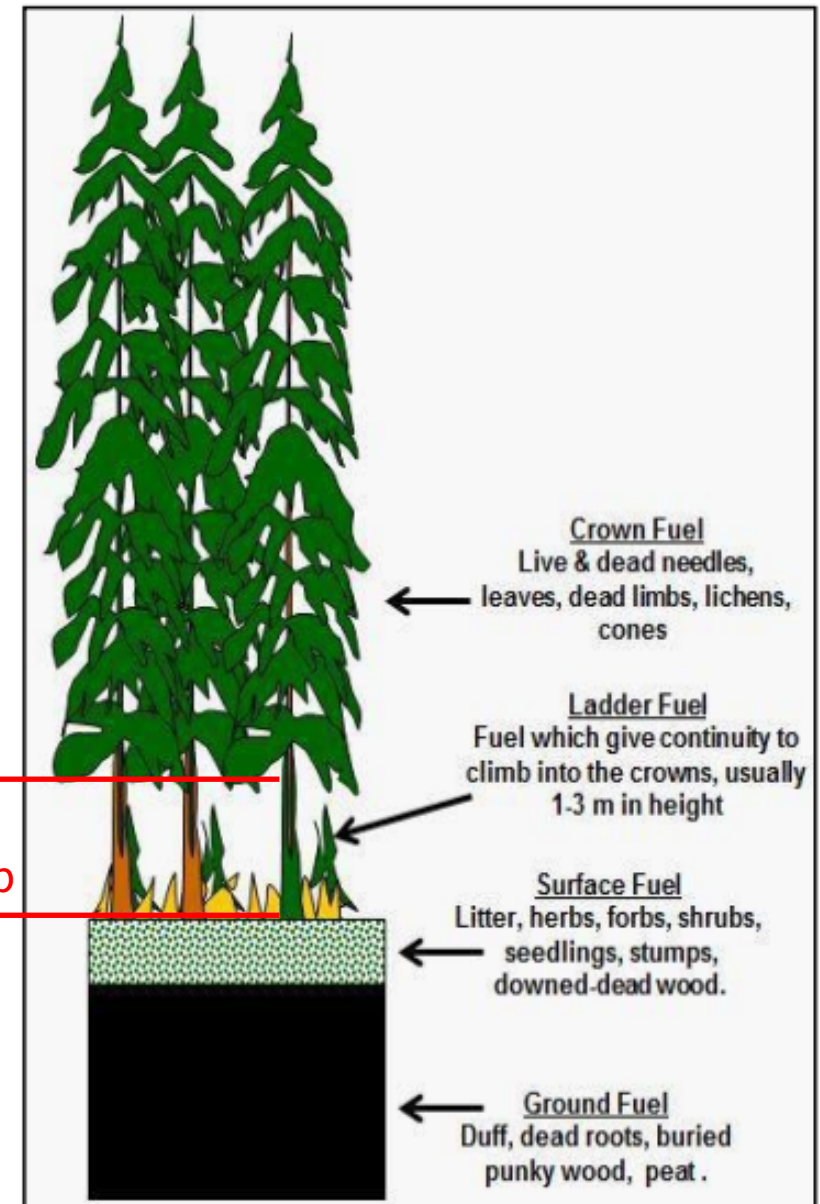
3

Reduced Canopy Bulk
Density - exercise
caution, not all
forests need thinning!

Key to manage both quantity and distribution (vertical and horizontal continuity)



Fuel
Strata Gap

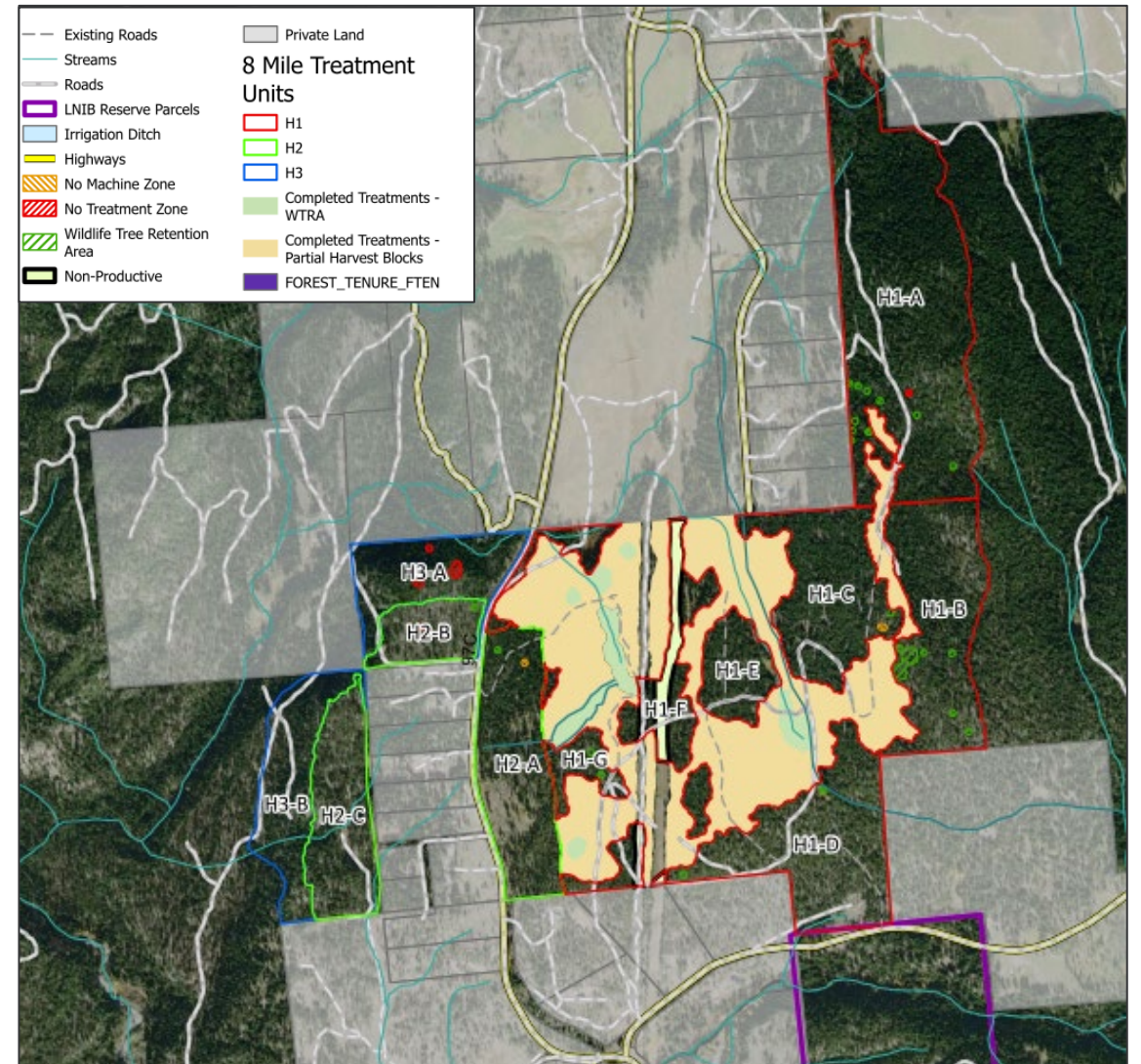


Source: BCWS Wildfire Threat Assessment Guidebook
(2020)

Steffens Estates Community



Steffens Estates Boundary (Red)



Fuel Prescription Map

Project History



■ Phase 1 - Commercial Harvest

- 2019–2020: Initiated FLTC proposal with local licensee; MoF approved pre-planning; referrals sent to First Nations and residents.
- 2021: Reviewed referral feedback; project delayed due to unviable stumpage rate of \$117.54/m³.
- Early 2022: Completed appraisal and cruising, reducing stumpage to \$13.37/m³—project became viable.
- May–June 2022: Harvest completed – 63 ha treated, 6,194 m³ cruised, 6,578 m³ delivered.

■ Phase 2 - Fuel Management

- August 2022: FESBC application approved
- Fall 2022: Prescription Development
- Summer 2023 – March 2024: 70 ha treated (post-harvest)
- April 2024 – March 2027 (estimate): 150 ha treated (50 ha/year over 3 years planned)



Drone Imagery courtesy of FESBC
Commercial thin = [blue](#). Hand treatment = [red](#)

Fuel Management Prescription Steps

1. Reconnaissance – ‘big picture’ decisions
2. Layout and Plots (stand inventory, line transects)
3. Information sharing – First Nations and stakeholders
4. Prescription Development to BCWS Standards – see Tools for Fuel Management web page



Field Reconnaissance

	Fuel Management Prescription	
A. PROJECT IDENTIFICATION		
PROJECT ID AND UNIT ID: Eight (8) Mile – Fuel Management Treatment Fuel Treatment Units (FTU's) – H1, H2, H3	LAND OR TENURE HOLDER: Provincial Crown Land Cascades Natural Resource District	
LATITUDE/LONGITUDE: 15° 50' 30.43" N 120° 49' 24.49" W	GEOGRAPHIC DESCRIPTION: Eight Mile Road, Steffens Estates along Mamit Lake Rd. North of Lower Nicola Indian Band – IR#1 Mameet	
HIGHER-LEVEL PLAN(s):	MAP REFERENCE NUMBER:	

BCWS Prescription Template

Prescription Considerations



1. Fire ecology – 5-10 year fire return interval
2. Forest health – drought stress
3. Fire suppression considerations
 1. Are the values FireSmart?
 2. location of values relative to hazardous fuels and prevailing winds
 3. Is the treatment anchored?
 4. Is treatment area safe and accessible for fire crews?
4. Fire Behaviour – pre-treatment vs. post-treatment
5. Other resource values (cultural, ecological, social, etc.)



Representative of Pre-Treatment Stand Conditions

Partial Harvesting and Fuel Treatments



Steps:

1. Log merchantable timber
2. Post-harvest treatments in logged areas
3. Hand/small machine fuel treatments in areas without economic fibre for recovery



Pre-harvest stand before fuel treatment



Post-harvest stand before fuel treatment



Post-harvest after debris piling

Contract Monitoring

- Documentation
 - Contracts,
 - Safety forms
 - Insurance
- Pre-work kick-off meeting
- Regular site inspections at key stages – Start of operations,
 - After a small amount of area completed, (e.g. 1-2 ha)
 - Agreed upon milestones (e.g. every 10 ha for invoicing)
- Pile Burning Needs
 - Cured debris
 - Ground conditions
 - ‘Good’ or ‘Fair’ Venting



Incomplete Milestone Inspection



Passed Inspection



Pile Creep



Uneven Burning – Push in Debris

Post-Treatment

- Did we meet the prescription targets?
 - Stems per hectare
 - Fuel strata gap (pruning/spacing)
 - Surface fuel loading (transects and visual estimates)
- Final reporting to funding program
 - Certification forms - Professional endorsements
 - Financials
 - Post-treatment summary report
 - Silviculture surveys and RESULTS reporting



Post-Treatment Fuel Transect Plot

Maintenance of Fuel Treated Areas

- Monitoring plan/shelf life
- Triggers for maintenance
 - Forest health impacts
 - Windthrow
 - tree re-growth,
 - wildfire impacts
- Options
 - Prescribed burning
 - More harvesting (second-pass)
 - More fuel treatments
- Species conversion?



Officials plan to clear 365 hectares as part of the firebreaks, and plant more than 400,000 trees.



Lisa Walker, director of the wildland fire management for the Yukon Government, gestures to an Aspen seedling. These tiny seedlings were planted in early October as part of the Whitehorse firebreak. (Caitrin Pilkington/CBC)

Source: CBC News

Challenges

- Opening Burning Smoke Control Regulations (OBSCR)
 - Venting requirements
 - Pile seasoning
- Wildfire Hazard Abatement
 - “Qualified Holders” – 24 months to burn piles
 - All other licenses (FLTCs) – 6 months to burn piles
- Government fiscal timelines
- Standards for fuel management – phased approaches to scale up
- Stocking standards



Shulus Forest Enterprises crews burning fuel debris piles in Steffens Estates area

Photo Credit: Ernie McIvor.

Factors for Success

- Reliable treatment crews
- Economies of scale – think big!
- Communication and transparency
- Joint decision making



FESBC Board of Directors Tour in 2024



Forest Practices Board Field Tour in 2023

Links

- LNIB Development Corp - <https://lnibdc.com/>
- Forsite Consultants Ltd. - <https://forsite.ca/>
- FESBC Funding Opportunities: <https://fesbc.ca/funding-opportunities/>
- Paul Hessburg TedTalk - Why wildfires have gotten worse -- and what we can do about it
https://www.ted.com/talks/paul_hessburg_why_wildfires_have_gotten_worse_and_what_we_can_do_about_it
- BCWS Tools for Fuel Management: <https://www2.gov.bc.ca/gov/content/safety/wildfire-status/prevention/fire-fuel-management/fuel-management>
- Whitehorse Fuel Break News Story: <https://www.cbc.ca/news/canada/north/whitehorse-firebreak-construction-wildfire-risk-1.7206428>



Thanks for all your efforts!



Shulus Forest Enterprises crews on site at Steffens Estates area

Photo Credit: Ernie McIvor.



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Questions?





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