

Incorporating good fire in vegetation management



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Shifting Mosaics Corp. and Northern Fire WoRx Corp. – Fort Nelson, BC

IVMA – Fire and Flood Session -November 08 2023 – Sunpeaks – remote from Fort Nelson, BC

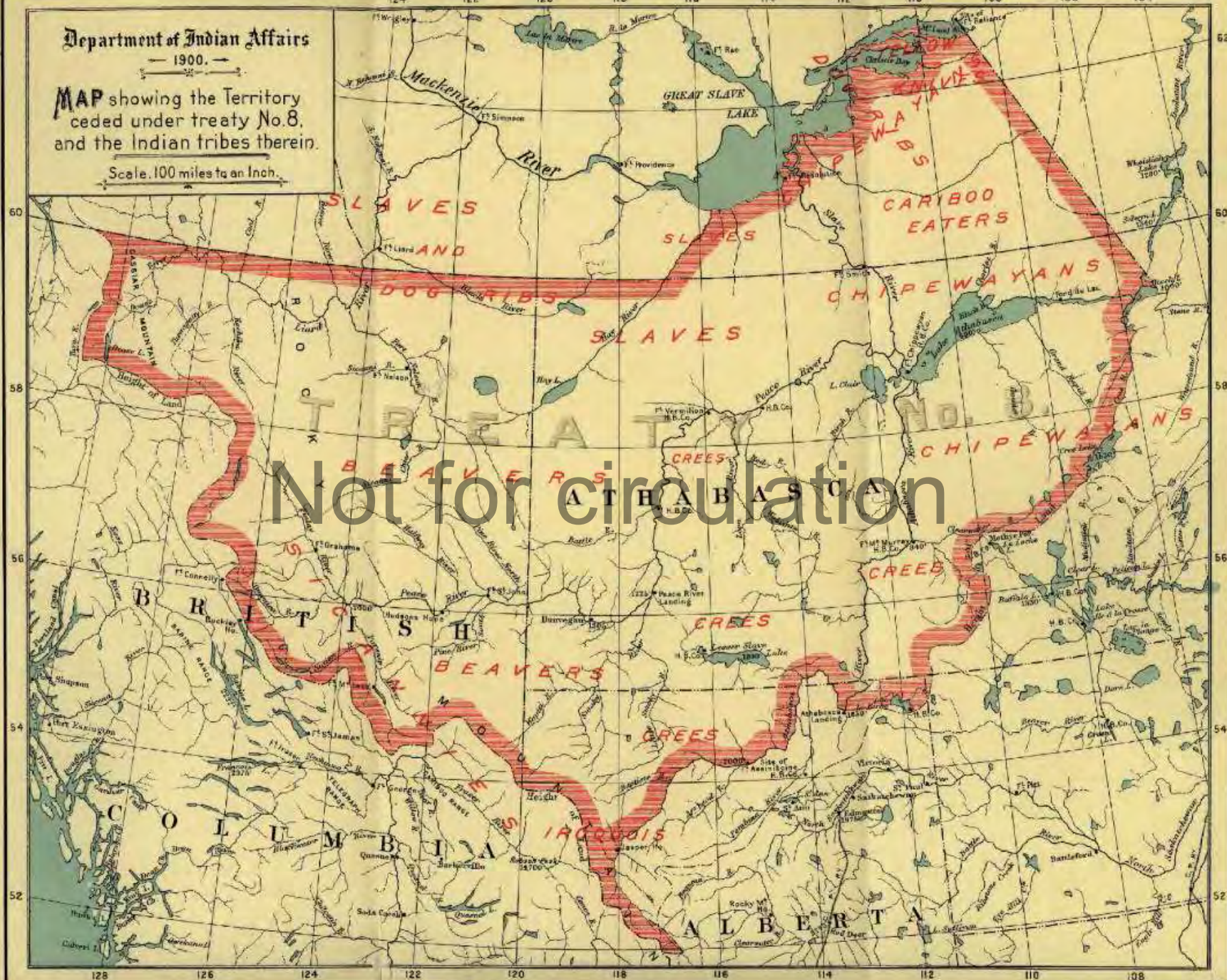


Department of Indian Affairs

1900.

MAP showing the Territory
ceded under treaty No. 8,
and the Indian tribes therein.

Scale, 100 miles to an Inch.





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Rx fire = human application of fire



The people who taught me about applying fire to the land:

- spoke and taught me about all peoples lighting fire to the land from Indigenous and non-Indigenous peoples, Guide Outfitters, Ranchers, international Rx fire experts
- we all talk about anthropogenic fire in a wholistic way, fire is a medicine for the land, a Rx for health of the land
- for me, the foundation of both of these terms is the application of fire to the land with thought, intention, and a plan by humans.
- in recent years, the term Indigenous Fire Stewardship has been brought forward in the literature





Human application of fire to the land with thought and good intent



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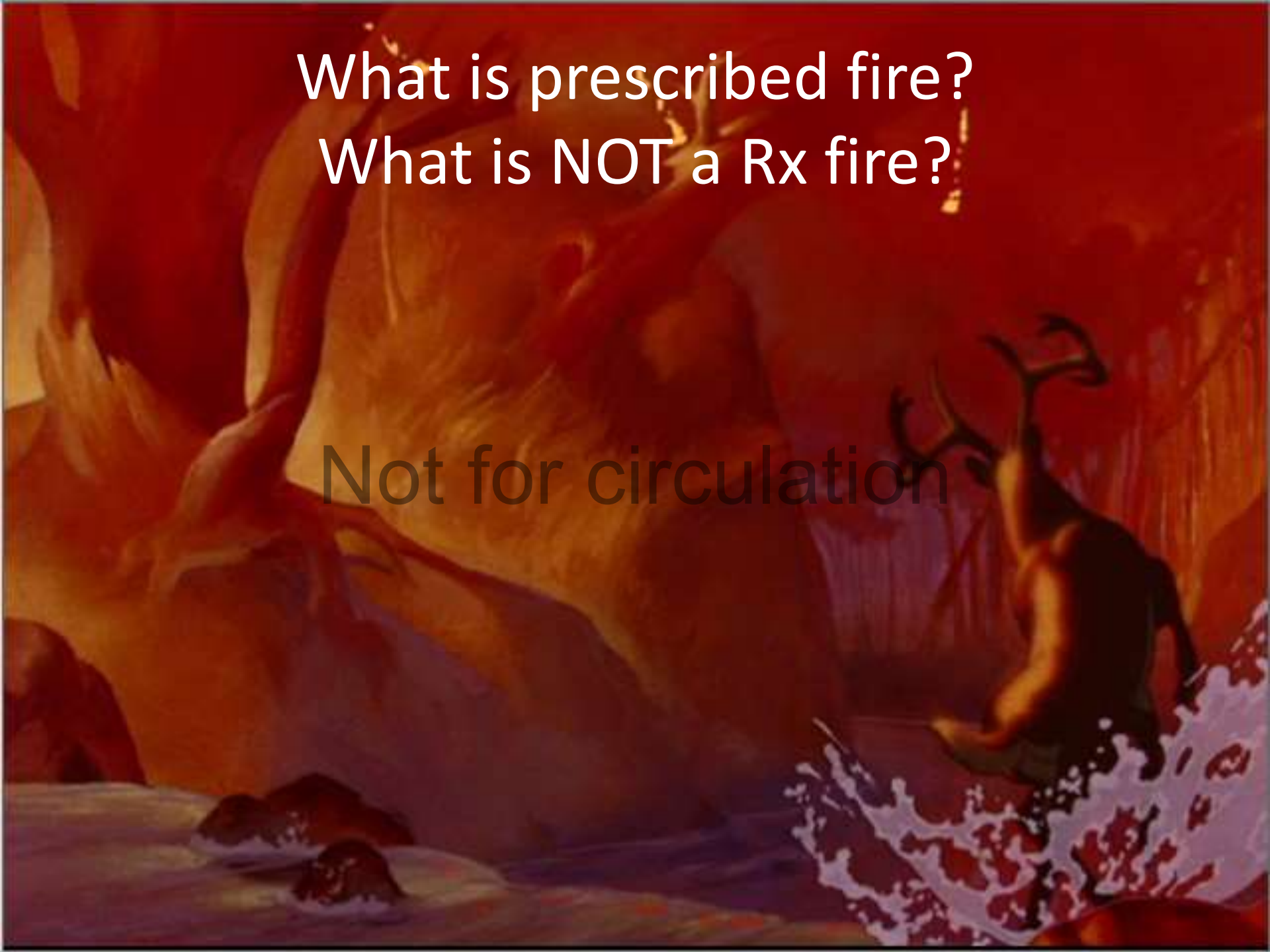


Photo credit: S.E.R. Leverkus

Through this lens, we put fire back in peoples' hands and
on the land literally and figuratively

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Photo credit: S.E.R. Leverkus



What is prescribed fire?
What is NOT a Rx fire?

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Also NOT a Rx fire but ...



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NOT A Rx FIRE but ... fire/ disturbance adapted and driven ecosystems



Fig. 8 Comparison of recently burned and then 2 years post-burn of **a** Plot 4 (oriented east/south-east), **b** Plot 11 (oriented north), and **c** Plot 3 (oriented north/northwest) looking up the line. Left is 2018 and right is 2020. In **c**, Note the reference points with the road and topography; trees had been felled during this project

Rx fire: the application of fire on the land through use of a prescription which outlines treatment, specific goals and management objectives and distribution through space and time



21.05.2009 17:46

Photo credit: S.E.R. Leverkus

Rx fire: the prescribed component relates to the prescription which includes indices, timing, and parameters that must be met in order to achieve the pre-established goals and objectives



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The Rx: Objectives and Indices



bews_burn_plan_template - Compatibility Mode - Saved to this PC Table Tools

Design Layout References Mailings Review View Help Design Lay

BRITISH COLUMBIA Ministry of Forests, Lands and Natural Resource Operations

PREScribed FIRE BURN PLAN

C. Prescribed Burn Objectives and Desired Fire Effects

Summary

Weather

Fire Weather Indices/Codes

Fuel Moisture Content

Fire Behaviour to Meet Desired Fire Effects

Smoke Management

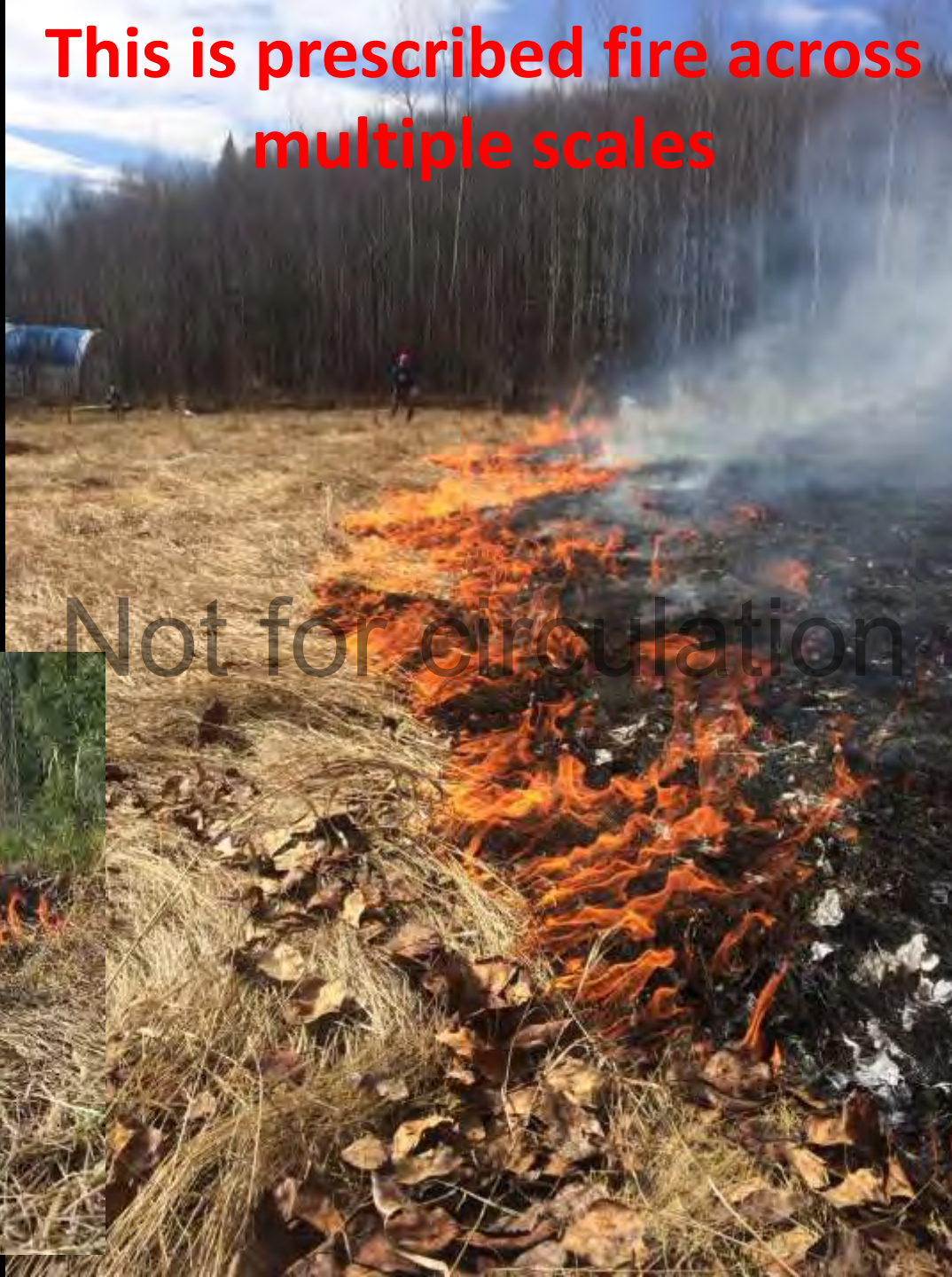
D. Values at Risk

Threatened Areas (outside the burn area)

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**This is prescribed fire across
multiple scales**



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**This is prescribed fire
If you burn it, they will come!**

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Fire in Stillwater OK
Photo credit: S. Fuhlendorf



Rx fire – small scale → WUI/WII



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Photo credit: S.J. Neudorf
NFWRx Ops. Chief

Rx fire in a working forest: Vegetation mngmt = fuel reduction?



Rx fire – landscape level



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Rx fire – landscape level fire BRFN Moose Pasture Rx Fire



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Rx fire – landscape level fire BRFN 2022 Rx Fire



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Rx fire – mixed severity = heterogeneity

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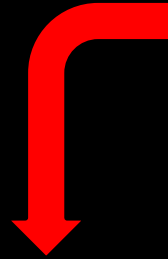


Fire is an ecological process

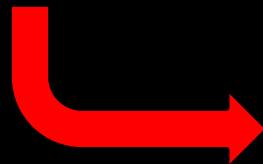
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Pyrogenesis

resulting from severity/intensity etc



August 2009



June 2009



August 2010





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**= Cultural Landscape
driven by anthropogenic fire (TSF + #)**



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**South-facing grasslands maintained by
fire and grazing**

20.09.2008 13:59



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Anthropogenic



Dr. Henry Lewis - “Fires of Spring” and “A time for burning”

The Dene, Cree and Guide Outfitters of NEBC – “Imagine the Fire”

FNFN and SMC FNFN*fire “Imagine the Fire” CBC The National

- **TEK + LEK + endangered species (wood bison)**

The Dunne zaa – “Megafires: The Global Threat”

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Anthropogenic fire = cultural landscape: FNFN Fire Project 2009 – 2015

TEK

- Re-growth of vegetation
- Hunting and survival
- Comfort and aesthetic practices
- Ceremony
- Light
- Communication
- Warmth and cooking



Dene - Lewis (1978), Gottesfeld (1994)
- Gitksan and Wet'suwet'en



Dunne-zaa harvesting berries in old fire, Fall 2013



Environment
Canada

Environnement
Canada



General themes from interviews:

- Fire is a necessity
- The art of tending fire should be taught at a young age
- Fire is a serious and respected art to the Dene and Cree people

“The Dene and Cree have a traditional and cultural interaction with fire. Fire is a vital practice that must be continued and passed down to the next generations.”

BRFN Rx Fire Program 2008 – present



NEWS RELEASE

For Immediate Release
2021IRR0063-001940
Oct. 7, 2021

Blueberry River First Nations
Ministry of Indigenous Relations and Reconciliation

B.C., Blueberry River First Nations reach agreement on existing permits, restoration funding

VANCOUVER – Today, Blueberry River First Nations and the Province have reached an initial agreement that begins to support healing the land, and helps provide stability and certainty for forestry and oil and gas permit holders in Blueberry's traditional territory in the immediate term.

The agreement follows the historic June 29, 2021, B.C. Supreme Court ruling in Blueberry River First Nations (Yahey) v. Province of British Columbia, which determined the Treaty 8 rights of the Blueberry River First Nations have been breached by development authorized by the provincial government over many years.

The initial agreement is a first step in responding to the B.C. Supreme Court's decision, which requires the Province and Blueberry to work together to develop land management processes in Blueberry territory that restore and protect the ability of the land to support Indigenous ways of life, and ensure future development authorizations manage cumulative effects on land and wildlife and their impact on the Nation's treaty rights.

Under the agreement, the Province will establish a \$35-million fund for Blueberry to undertake activities to heal the land, creating jobs for Nation members and business for service providers in the northeast region. Activities will include:

- land, road and seismic restoration;
- river, stream, and wetland restoration;
- habitat connectivity;
- native seed and nursery projects; and
- training for restoration activities.

In addition, \$30 million will be allocated to support the Blueberry River First Nations in protecting their Indigenous way of life. Activities will include:

- work on cultural areas, traplines, cabins and trails;
- educational activities and materials, including teaching traditional skills and language;
- expanding Blueberry River resources and capacity for land management; and
- restoring the health of wildlife through wildlife management, habitat enhancement including prescribed burning, and research.

As part of the agreement, 195 forestry and oil and gas projects, which were permitted or authorized prior to the court decision and where activities have not yet started, will proceed. Twenty currently approved authorizations, which relate to development activities in areas of high cultural importance, will not proceed without further negotiation and agreement from Blueberry. The Province has provided notification to the respective permit holders.

BRFN Rx Fire Program 2022:

8 years + 1 precedent setting court case + 3rd time's a charm



BRFN Rx Fire Program 2022



BRFN Rx Fire Program 2022

Successes: Good crew



- ✓ Remote locations
- ✓ Legally binding



10:25 all LTE

Done spot forecast Pink Mountain...

SYNOPSIS: A southeast flow aloft will provide a mix of sun and cloud in the area on Tuesday. Winds at times gusty southwesterly. It's dropping in the low to mid levels in the afternoon. A few clouds are scattered overnight with winds easing to light. A broad upper trough will bring variable cloudiness on Wednesday. There is only a slight chance of showers. Light, briefly gusty wind to northeast winds expected. It's lowering to the mid levels in the afternoon.

Tuesday: A mix of sun and cloud. Winds: southwest 15 to 20 mph. Gusts 25 to 30 mph during the afternoon. High near 12. Minimum in near 22 percent.

Tuesday night: A few clouds. Winds: easing to variable to 10 mph during the evening. Max in 75 percent.

Wednesday: Morning overcast then increasing cloud in the afternoon. Slight chance of showers later in the day. Winds light in the morning, increasing east to northwest 15 to 20 mph gusts 25 to 30 mph in the afternoon. High near 13. Min in near 25 percent.

CONFIDENCE: Good. Looks like a dry pattern for both days with only a slight chance of showers on Wednesday. Winds should come up a bit both days but no strong winds are anticipated.

VERTING: Good both mornings with an occasional light rain and night at times moderate showers.

SPOT FORECAST: (subject to change. Please call for the latest forecast and observations as needed.)

Tuesday

Time	Temp	Wind	Clouds	Precip
12:00	12	15	10	0.0
15:00	10	15	10	0.0
18:00	8	10	10	0.0
21:00	6	10	10	0.0

Wednesday

Time	Temp	Wind	Clouds	Precip
12:00	12	15	10	0.0
15:00	10	15	10	0.0
18:00	8	10	10	0.0
21:00	6	10	10	0.0

Forecast: No. Flight - 0200-1400-1800

PLEASE provide minute weather readings with forecasts to the Forecaster!!

Temp: _____ RH: _____ Wind Dir: _____
 Dir: _____ Precip: _____
 Comments: _____



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Challenges – expect the unexpected

- Wx
- Prep: frozen hoselay, blacklining takes time
- Igs Ops: start no later than 11h00
- Pressure: water pressure!,
deliver without rushing, stay within Rx

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An aerial photograph of a wildfire. Thick white and grey smoke billows from the ground, partially obscuring the landscape. The terrain is a mix of brown, charred earth and patches of green vegetation. The sky is filled with large, billowing clouds of smoke, with some light breaking through near the top. The overall scene is dramatic and captures the scale of the fire.

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BRFN Rx Fire Program 2022

- ✓ **Collaboration**
- ✓ **Documentation**
- ✓ **Partnership**
- ✓ **Habitat**
- ✓ **Fire absorbent landscapes**

Relationships and Trust



BLComFor Rx Fire Program 2019 - present



Foundation:

Put good fire out on the land



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Opportunities and possibilities for the role of Rx fire as part of vegetation management?



- ✓ **Removes aboveground biomass for targeted invasive plant treatment**
- ✓ **Supports native plant encroachment and re-establishment**
- ✓ **Fire is an ecological process in the ecosystem we work in**
- ✓ **Supports fire absorbent landscapes and fuelbreaks**
- ✓ **Reduces fuel load and decreases potential impacts from wildfire events**
- ✓ **Could be applied across linear disturbances/seismic lines to create a shifting mosaic in appropriate locations**

Example of Rx fire in oil/gas industry:
Crew mobilization to remote lease site(s)





Blacklining supported by hoselay





Blackline with hoselay and containment



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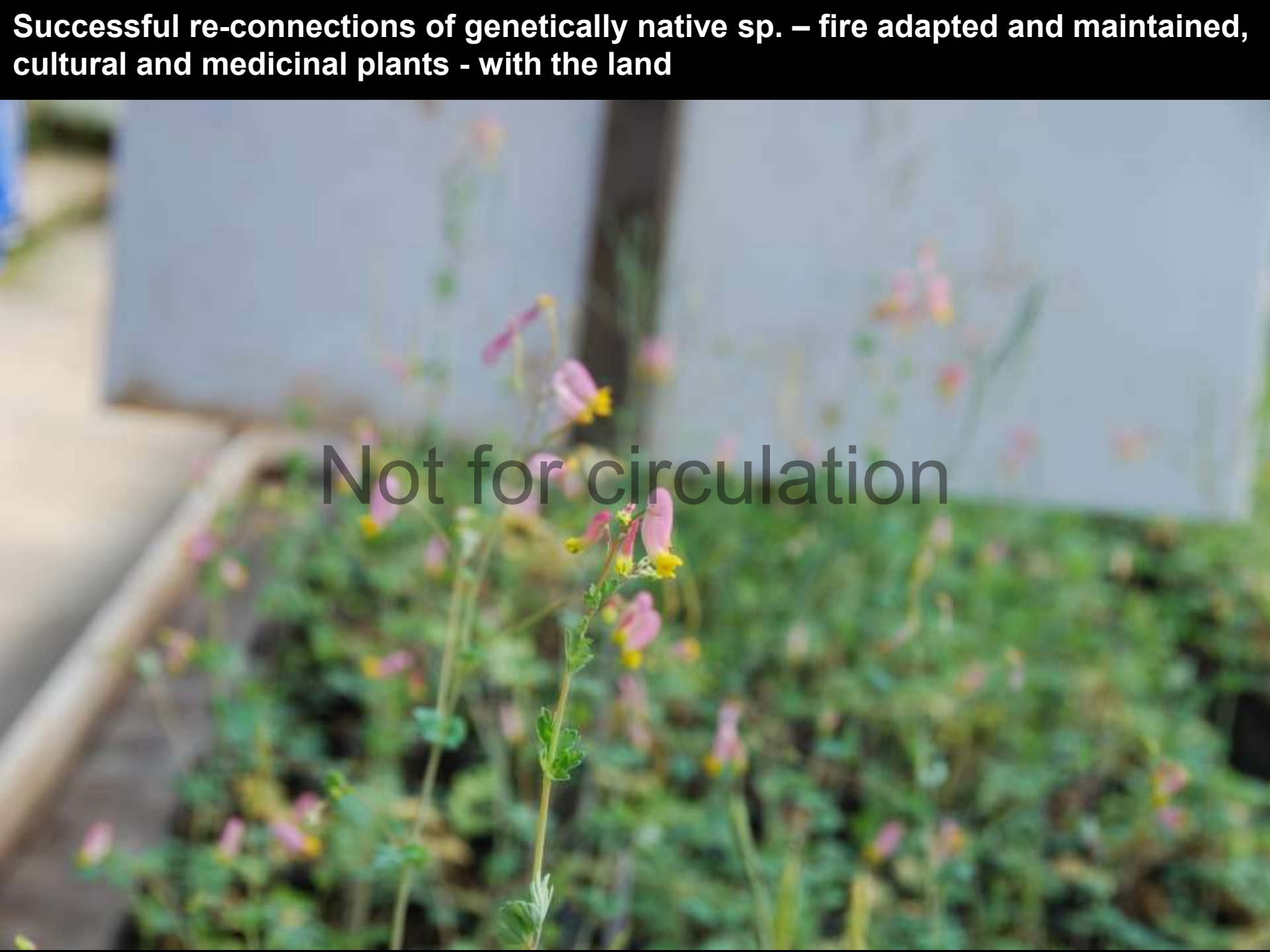




Industrial Grasslands Restoration (IGR) and Operational Ecological Restoration (OER) (Leverkus 2022)



**Successful re-connections of genetically native sp. – fire adapted and maintained,
cultural and medicinal plants - with the land**

A photograph of a garden bed filled with numerous small, pink and yellow flowers. The flowers are in various stages of bloom, with some showing bright yellow centers and others being more fully pink. The foliage is green and dense. In the background, a wooden fence or structure is visible, slightly out of focus. The overall scene is a lush, natural garden setting.

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A photograph of a muddy pond or wetland area. The water is murky and reflects the surrounding environment. In the foreground, there is a muddy bank with several clumps of green grass and some low-lying vegetation. A pink survey flag is visible on the left side of the bank. The text "Not for circulation" is overlaid in the center of the image.

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**My future of fire:
We light 'em and
We fight 'em**



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**NFWRx –
putting
good fire
out on the
land since
2016**

Do not be surprised when fire takes a walk across NEBC
Fire season extending on both ends
“Future promises more flame – not less” – Pyne

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Acknowledgements and respect to our fallen brothers and sisters

- Devyn Gale (19) - BCWS
- Adam Yeadon (25) – GNWT Fort Liard
- Big Cat 20 – Zak Muisse (25)
- Panda – Ryan Gould (41) – Valhalla Helicopters
- 4-pack – Kenneth Patrick (37), Blain Sonnenberg, Jaxon Billyboy-Bowe and one unnamed soul - Tomahawk Crew



Putting fire out on the land: Mobilizing TEK/LEK with science = it's what we do at SMC+NFWRx

how we interact with each other

How we interact with the land and all lives inhabiting it and the
processes occurring within and around

“Two eyes and two ears to observe and listen; one mouth to speak
when it is time to speak”



Thank you - Mussi/Mahsi cho - Wuujo asaana laa –Kukwstsétsemc – Miigwech - Sechanalyagh

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University of Alberta – Wildfire Analytics

<http://wildfireanalytics.org/index.html>

