



FIRST NATIONS'
Emergency Services
BRITISH COLUMBIA

**Climate change adaptation, cultural revitalization, wildfire
prevention and risk reduction**

BC First Nations Perspective

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May 12, 2019 – First Nation Adapt Program

Presentation Overview

- **Brief overview of FNESS**
 - Forest Fuel Management Department
- **First Nation Adapt Project**
 - Project introduction and overview
 - Community engagement
 - Interviews and analysis
 - Development of community-based burn plan
 - Expected outcomes
- **Questions and Answers (Q&As)**

FNESS: Brief overview

Forest Fuel Management Department

First Nations' Emergency Services Society of BC (FNESS)



- Registered Not-For-Profit Charity
- Governed by a First Nations Board of Directors elected by our members
- Board Directors are members of First Nations Communities in BC

Mission Statement

As a professional community-minded, highly skilled and committed team, FNESS works with First Nations in promoting, developing and sustaining safer and healthier communities by

- **providing assistance to develop emergency planning, training, response and recovery;**
- **providing structural and coastal/marine fire skills training, education and prevention;**
- **providing forest fuel and wildland fire management programs (both on and off reserve); and**
- **fostering leadership and collaborative partnerships** to advance structural and coastal/marine fire services, emergency management, and forest fuel and wildland fire management priorities.

Forest Fuel Management Department

- Primarily funded through the Strategic Wildfire Prevention Initiative and now the Community Resiliency Investment Initiative (Province of BC)
- Department of Indigenous Services Canada (DISC) supports BC First Nations with Wildfire Prevention Initiative.
- Office in Kamloops BC.
- Supports First Nations to access resources, funding for wildfire prevention initiatives.
- Assist communities to navigate through funding, applications, and program criteria.



Forest Fuel Management Department

- Support development of capacity and resources within forest fuel management for First Nations communities.
- Uncertainties with climate change, affect wildfire risk and threat to communities, due to wildfires.
- Must identify and implement wildfire management practices that can achieve management objectives across various potential climate futures.
- ***One major forest fuel management strategy to mitigate climate change-related extreme weather events such as wildfires is the development of a coordinated community-based burn plan***
 - Community-based burn plan would
 1. Decrease fire hazard
 2. Increase available habitat for desirable plants and animals

First Nation Adapt Project

FNESS First Nation Adapt Project: ***Revitalizing traditional burning – Integrating Indigenous cultural values into wildfire management and climate change adaptation planning***

- Is a **multi-year project** (2017-2019) – officially commenced in October 2017

- **Engages with three First Nations communities in British Columbia:**

Xwisten



Shackan Indian Band



Yunesit'in



FNESS First Nation Adapt Project: ***Revitalizing traditional burning – Integrating Indigenous cultural values into wildfire management and climate change adaptation planning***

- Involves the use of **qualitative interviews and analysis**
 - Interview questions are semi-structured, open-ended
 - Analysis searches for key patterns, similarities, values, and locations
- Analysis leads to **co-development of a community-based burn management framework**
 - Combines western science with Indigenous cultural knowledge & values
 - Climate change concerns considered
- **Serves as a case study** for enhancing holistic knowledge and observations of wildfire management to inform climate change adaptation planning for First Nations communities of similar scale and needs.

Methodology

Project Activities

- Meetings with participating First Nation community's Band Council and designated staff;
 - discuss project concepts, objectives, timelines



Meetings at Xwisten

Methodology

Project Activities



Meetings with Shackan Indian Band and Tmixw Research Group

Methodology

Project Activities

Interviews and analysis:

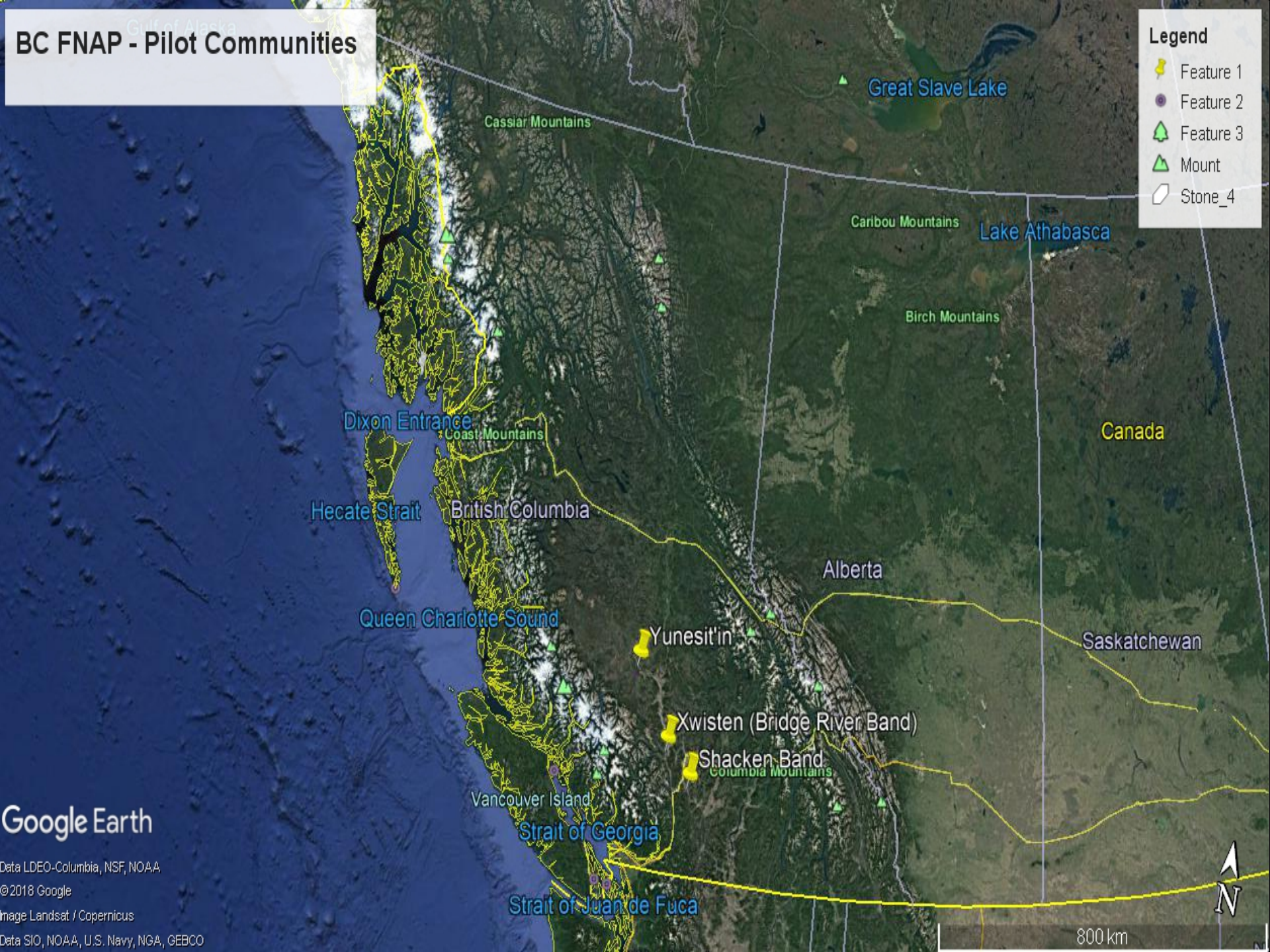
- Developed an interview guide;
- Conducted interviews; and
- Analyzed interviews – thematic analysis.

Methodology

Development of community-based burn plan

- Incorporate local Indigenous values and concerns identified during the interviews
 - berry producing areas, deer range improvements, and community protection
- Includes goals and objectives, regulatory processes, area selection, partnerships and resource requirements
- Current burning practices and methods of government and industry
 - Technical data for the burn plans has been collected
 - Burn plan has been developed

BC FNAP - Pilot Communities



Google Earth

Data LDEO-Columbia, NSF, NOAA
© 2018 Google
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO



Xwisten (Bridge River Indian Band)



Main Village

- Over 30 homes and other structures including a church, small fire hall, pump house

Orchard Springs

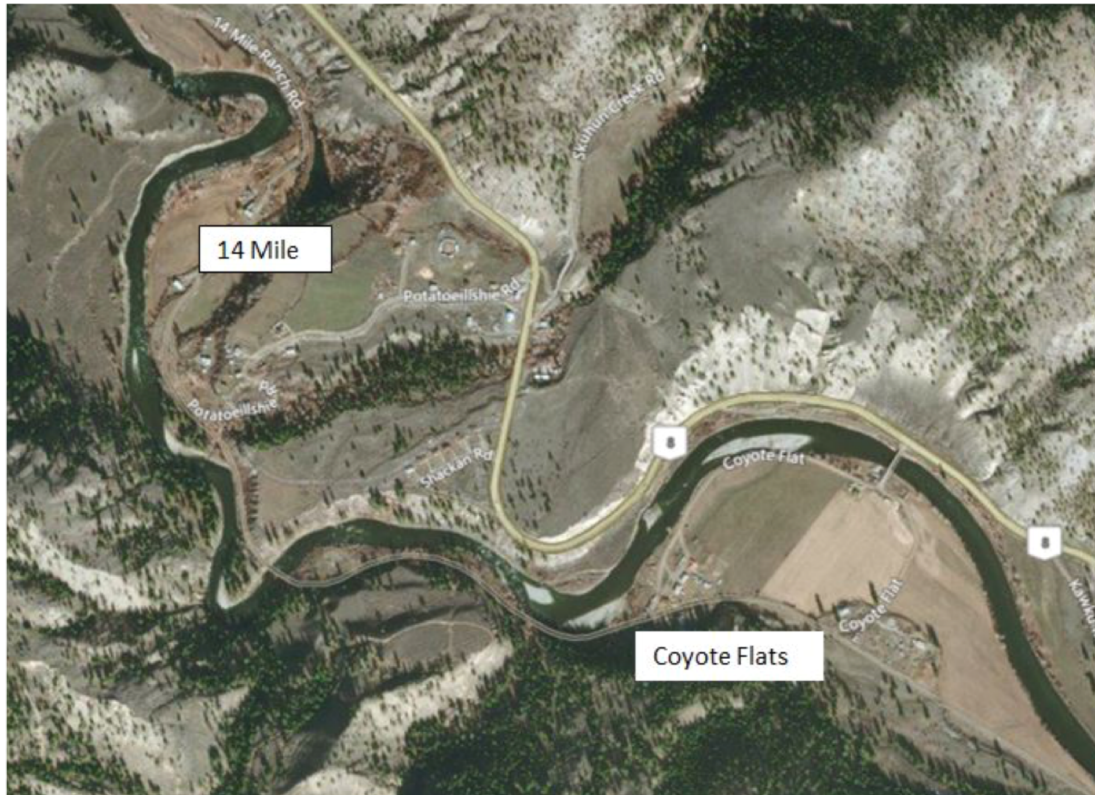
- Over 50 homes and other structures including the band office, community center, health center, daycare, harbour, fire hall, and pump house
- Xwisten Volunteer Fire Dept. services both these areas including another 30 homes and structures outside these 2 main residential areas

Shackan Band



- Scw'exmx – people of the creeks
- Nicola Tribal Council member (Nlaka'pamux Nation)
- 40 km's west of Merritt and 20 km's east of Spences Bridge
- Along Highway 8
- 3,875 hectares spread over 3 reserves
- 133 registered members
- 69 living on-reserve

Shackan Band



- Adjacent to Highway 8 and the Nicola River
- 14 Mile and Coyote Flats subdivisions located on I.R. #11
- Shackan Volunteer Fire Dept. services both of these areas
- I.R. #12 and #13 are uninhabited, more remote, and more forested

Yunesit'in

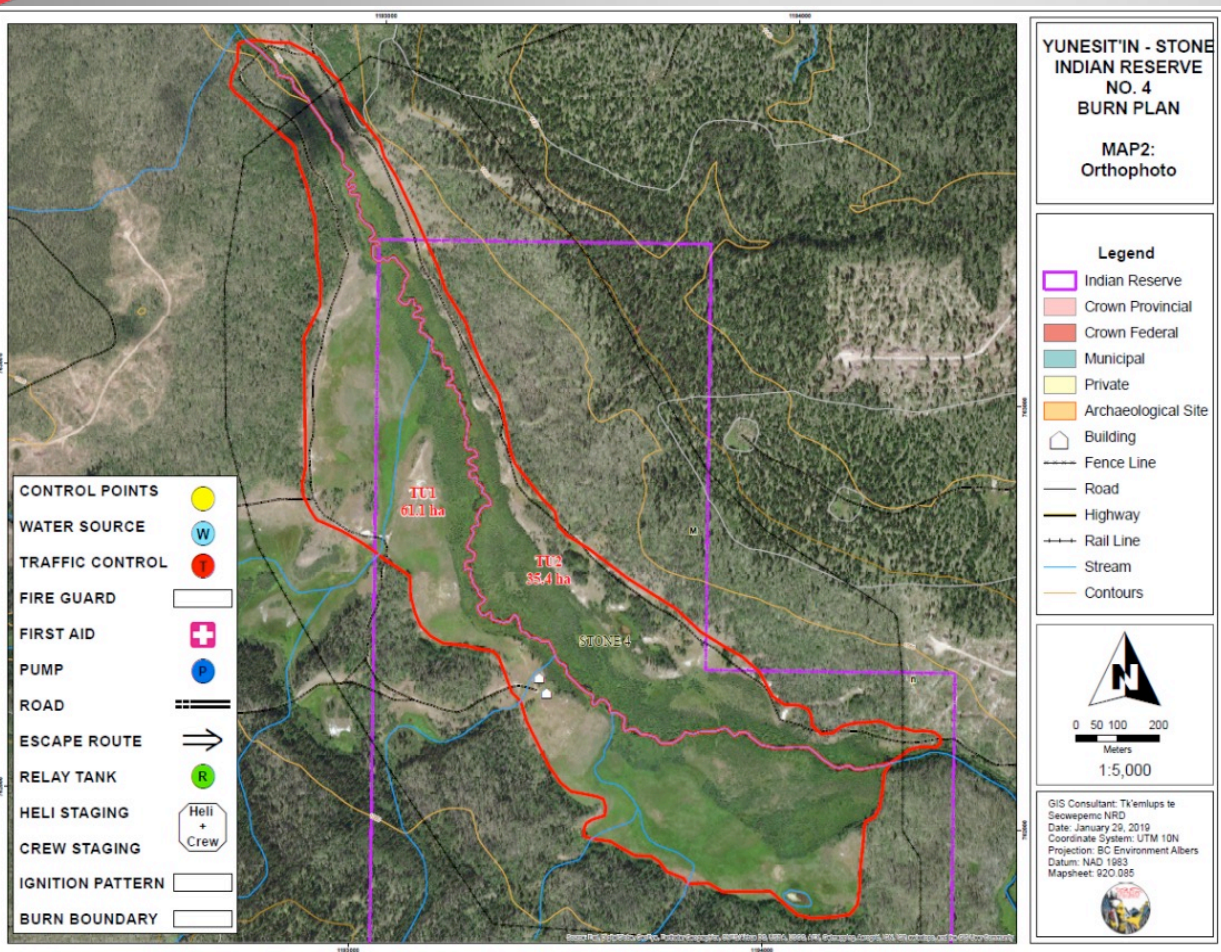
Yunesit'in – aka. Stone or Stoney

One of six communities that comprises the Tsilhqot'in Nation

105 km west of Williams Lake, 8 km south of Hanceville

486 registered members

232 living on-reserve



Existing forest structure & past impacts

- Dry, open south-facing slopes and flat benches
 - Sagebrush, bunchgrass, saskatoon and soopolallie
 - Immature and mature Ponderosa Pine and Douglas-fir
- North-facing slopes primarily Douglas-fir with Ponderosa Pine in the valley bottom
 - Same species as above but with denser areas of brush, shrubs, and trees in the wetter areas
- Mountain Pine Beetle outbreak
 - Areas of Fd and Py mortality still remain
- Severe drought in summer of 2009
- Result
 - Increased surface fuel loading and risk of severe wildfire

BEC Zone and NDT

Biogeoclimatic Zones

- Bunchgrass zone (BG)
 - Lowest elevation below the PP zone
 - Primarily found at Shackan
- Ponderosa Pine zone (PP)
 - Low elevation along the valley bottom
- Interior Douglas Fir zone (IDF)
 - Mid to upper elevation above the PP zone

Natural Disturbance Type

- NDT 4 – frequent stand-maintaining fires

FBP Fuel Types

C7 fuel type

Ponderosa Pine/Douglas Fir over story
Xwisten (Bridge River Indian Band)



O1a/b fuel type

Matted and Standing grass
Shackan Band



Xwisten

Fuel Treatments

Xwisten (Bridge River Indian Band)



- From 2007 to 2016 treated well over 110 ha of reserve land as well as 24 ha of Provincial crown land

FireSmart Recognized Community

- Xwisten (Bridge River Indian Band) received National Fire Smart Recognition in 2013 and renewed in 2014.



Fuel Treatments



- Trained and experienced work crew, with all necessary equipment and resources to conduct forest fuel management activities.
- Skills, capacity and training for fire suppression crews.



BRIDGE RIVER INDIAN RESERVE NO. 1 BURN PLAN

MAP 2: Orthophoto

Legend

- Treatment Unit
- Indian Reserve
- Crown Provincial
- Crown Federal
- Municipal
- Private
- Archaeological Site
- Building
- Fence Line
- Road
- Highway
- Stream
- Lake
- Contours



0 50 100 200
Meters

1:5,000

GIS Consultant: T'k'emlup to Secwepemc NRD
Date: December 17, 2018
Coordinate System: UTM
Projection: BC Environment Albers
Datum: NAD 1983
Mapsheet: 921.071



- CONTROL POINTS**
- WATER SOURCE** W
- TRAFFIC CONTROL** T
- FIRE GUARD**
- FIRST AID** +
- PUMP** P
- ROAD**
- ESCAPE ROUTE**
- RELAY TANK** R
- HELI STAGING** Heli
+Crew
- CREW STAGING** Heli
+Crew
- IGNITION PATTERN**
- BURN BOUNDARY**

TU-1
1316 ha

TU-3
11.8 ha

TU-2
27.3 ha

BRIDGE
RIVER 1

BRIDGE RIVER 2

BRIDGE RIVER 3

BRIDGE RIVER 4

BRIDGE RIVER 5

BRIDGE RIVER 6

BRIDGE RIVER 7

BRIDGE RIVER 8

BRIDGE RIVER 9

Interviews



Carl Alexander

- When asked if he was ever a part of it or watched any of it his response was...



Interviews



Gasper Jack

- When asked about hunting areas he said...



REVITALIZING CULTURAL BURNING:

INTEGRATING INDIGENOUS CULTURAL VALUES into WILDFIRE MANAGEMENT and CLIMATE CHANGE ADAPTATION PLANNING

Authors: Xwisten Nation, Gerald Michel; Brent Langlois, First Nations' Emergency Services Society (FNESS); Jeff Eustache, FNESS; Darrick Andrew, FNESS; Amy Cardinal Christianson, Natural Resources Canada; and Natasha Caverley, Turtle Island Consulting Services Inc.

CLIMATE CHANGE & WILDFIRE



Annual area burned, fire severity and length of fire season are likely to increase as a result of climate change.

(Flannigan, Cantin de Groot, & Wotton, 2013; Hager, 2017; Moritz et al., 2012)

Decades of wildfire suppression result in extensive forest fuels accumulation and increase the likelihood of large wildfires.

(Agee & Shinner, 2005; Donovan & Brown, 2008)



XWISTEN - THE SMILING PEOPLE-

Also known as Bridge River Indian Band, Xwisten is a St'át'imc Nation located in south Central British Columbia, northwest of Lillooet, at an important convergence of the Bridge River and Fraser River.

PROJECT METHODOLOGY

Our team conducted qualitative interviews in Xwisten- documenting oral histories on climate change and cultural burning practices.

We helped establish the Xwisten Fire Council, where Elders with burning experience met monthly and discussed Xwisten values, needs, issues, priorities and local knowledge about cultural burning. Our team then developed a community-based burn plan framework.

THE BURN PLAN FRAMEWORK

The Burn Plan incorporates local Indigenous values, knowledge and climate change concerns with weather conditions and prescribed burning science to reduce climate change impacts on the community.

It outlines goals and objectives for a planned burn, regulatory processes, proposed area selection (includes land designation for Xwisten), topography, timber types, local ecology, weather considerations, partnerships and required resources.

FNESS INITIATIVE: A MULTI-YEAR COMMUNITY-BASED PROJECT

Goal: To advance climate adaption when reducing the impacts of extreme weather events (wildfires and drought) and integrate Indigenous cultural values and knowledge into wildfire management planning.

Xwisten Elders and members are highly knowledgeable of the interplay between fuel conditions, weather, fire behaviour and cultural burning practices that impact land-based activities (e.g. berry harvest, picking, fishing & hunting).

CULTURAL BURNING PRACTICES

Xwisten had extensive fire burning practices prior to European contact. Fire is used as a tool, not only to reduce risk to their settlements, but also to achieve cultural outcomes.

However, over the past century, government regulations around fire suppression were strictly enforced. As a result, there was a significant loss of Indigenous knowledge in favour of Western practices.

Today, climate change, the Mountain Pine Beetle infestation and build-up of forest fuels has caused unhealthy forest conditions and increased the wildfire risk to the Xwisten community.

Burn Intensity

Kept low to only disturb the top few centimetres of soil. This is what's considered a 'good fire'

Cultural Significance

Burning is an activity that brings families and community together and promotes medicinal plant growth

KEY FINDINGS

Time to Burn

Early spring when the snow recedes and the leaves are not out yet is an ideal time to burn



Key Locations

On-reserve and 21 specific off-reserve locations were identified as burn areas on the Xwisten traditional territory

Forest Management

Reduces wood tick infestation

Food Production

Burning improves berry production, mushrooms, wild onions and mountain potato harvest

ELDER CONCERNS

- Forest overgrowth means there is too much fuel for a 'good fire'. Hand-thinning is needed first to ensure soil and plants are not damaged
- Lack of youth interest & engagement

NEXT STEPS

- EXPLORE OPPORTUNITIES for First Nations communities in BC to enhance their resiliency in wildfire prevention and risk reduction.
- SUPPORT STRATEGIES to revitalize cultural practices and utilize Indigenous knowledge to better plan for and adapt to climate change impacts.

Shackan Indian Band



FireSmart Recognized Community

- Shackan received National Fire Smart Community Recognition in 2013
 - Renewed in 2014 and 2017.
-
- Shackan Fire Department responded to a grassfire in March 2018.

Shackan Indian Band March 2018 burn





Interviews

"The one thing I think about when-when I look at a protocol of the traditional burn is it wasn't glamorized, and it wasn't feared. It was again almost as natural as anything else... When I think about the protocol, the traditional burn, it's got to be as humble as it's always been and I think...it's got to be done in the safe way, you got to have all things in place but I think one of the protocols is that its got to be done in a good way because you're changing the land."



Lennard Joe
RPF



Interviews

"... just over the past few years I've noticed a lot of the seasons are starting to overlap, we're getting hotter summers, cold winters, but the mish-mash in between those seasons is the mix, because we go from, high waters flooding, to drought conditions in like 4 weeks and because it runs off so quickly there's not enough time for the ground to absorb the water which creates drier conditions for the fire to start, and if we're able to properly introduce traditional burning into our practices again I think it would help a lot with, like forest sustainability, and some of our traditional practices, like berry picking and even hunting, and probably pest control, like ticks, seem to come in waves and then one year its just absolutely terrible, a fire goes through and then there very little ticks the next year."



Chief Jordan
Joe



REVITALIZING CULTURAL BURNING

INTEGRATING INDIGENOUS CULTURAL VALUES INTO WILDFIRE MANAGEMENT AND CLIMATE CHANGE ADAPTATION PLANNING

AUTHORS: Shackan Indian Band; Sharon Stone, Tmix Research; Amy Cardinal Christianson, Natural Resources Canada; Natasha Caverley, Turtle Island Consulting Services Inc.; Brent Langlois, First Nations' Emergency Services Society (FNESS); Jeff Eustache, FNESS; Darrick Andrew, FNESS

FUNDER: Department of Indigenous Services Canada (DISC) First Nations Adapt Program

First Nations' Emergency Services Society
OF BRITISH COLUMBIA

CLIMATE CHANGE & WILDFIRE

CLIMATE CHANGE WILL LIKELY INCREASE ANNUAL AREAS BURNED, INTENSIFY FIRE SEVERITY AND LENGTHEN THE FIRE SEASON.

(FLANNIGAN, CANTIN DE GROOT & WOTTON, 2013; HAGER, 2017; MORITZ ET AL., 2012)

PROJECT OVERVIEW

A MULTI-YEAR, COMMUNITY-BASED INITIATIVE TO REDUCE IMPACTS OF EXTREME WEATHER EVENTS IN FIRST NATIONS COMMUNITIES.

METHODOLOGY

GATHERED ORAL HISTORIES FROM ELDERS AND KNOWLEDGE KEEPERS ON CLIMATE CHANGE AND CULTURAL BURNING PRACTICES

ASSISTED IN DEVELOPING A COMMUNITY-BASED BURN PLAN FRAMEWORK

SHACKAN INDIAN BAND

THE SHACKAN INDIAN BAND IS AN NLAKEPAMUX FIRST NATIONS GOVERNMENT. IT IS ONE OF FIVE BANDS WHO COMPRISE THE SCW'EXMX - THE PEOPLE OF THE CREEKS.

SINCE COLONIZATION, MUCH OF THE KNOWLEDGE ON FIRE PREVENTION, MITIGATION, AND RISK REDUCTION ACTIVITIES WAS LOST.

When I was young, I would go hunting.

From Shulus, we would walk north up towards Mamit Lake.

Grandfather would light some fires on the way up. He would tell me why.

"The area is full of ticks. The birthing areas for deer should have the grass area burned so that they have fresh food, be free of ticks and can see their predators."

On our way down, we would look back and see the Ministry of Forestry putting out our fires.

He would say, "I wish they would just let it burn. It won't go anywhere but up the hill. It's spring time and will just go out on its own."

But at that time, it was illegal to burn.

- JOE GILCHIRST

REDUCES PEST INFESTATIONS

OPENS WATER FLUMES/DITCHES AND OVERGROWN CREEKS

EARLY SPRING BURNS IMPROVE GRAZING FOR ANIMALS

LATE FALL BURNS IMPROVE LAND PRODUCTIVITY AND HUNTING CONDITIONS

ON AND OFF RESERVE BURNING SITES IDENTIFIED, PRACTICES CONNECTED TO SEASONS

IMPROVES LAND FOR FOOD PRODUCTION, HARVESTING AND FORAGING

PROMOTES GROWTH OF MEDICINAL PLANTS

LOW INTENSITY BURNS CRITICAL TO SOIL HEALTH

AN ACTIVITY FAMILIES DID TOGETHER ON THE LAND

FIR-PITCH USED TO CREATE "DRIP-TORCH"

ACORNS USED TO SPREAD FIRE

CULTURALLY SIGNIFICANT ACTIVITIES FOR FAMILIES AND KNOWLEDGE TRANSFER

KEY FINDINGS

CONTROLLING BURNS MORE DIFFICULT GIVEN SIGNIFICANT OVERGROWTH

COMMUNITY CONCERNS

TERRITORY AND WEATHER MORE VOLATILE - EXTREME FLOODING AND EROSION

IMPACTS OF RESIDENTIAL SCHOOLS AND GOVERNMENT REGULATIONS ON KNOWLEDGE BASE IN COMMUNITY

CURRENT POLICY AND LEGISLATION CREATE BARRIERS

PRIVATIZATION, POPULATION GROWTH AND INDUSTRIAL ACTIVITY MAKE BURNING MORE DIFFICULT

NEXT STEPS

- DEVELOP AN INDIGENOUS-INFORMED CULTURAL BURNING FRAMEWORK AND REVIEW PROCESS FOR FIRST NATIONS COMMUNITIES IN BC
- SEEK INNOVATIVE APPROACHES TO BUILDING LOCAL RESOURCES AND CAPACITY TO PLAN FOR AND ADAPT TO EFFECTS OF CLIMATE CHANGE
- NURTURE STRATEGIC PARTNERSHIPS AND LINKS TO THE UNITED NATIONS DECLARATION OF THE RIGHTS OF INDIGENOUS PEOPLES AND THE TRUTH AND RECONCILIATION CALLS TO ACTION

Next Steps

- Culturally-relevant values to each (community) burn plan, has been completed.
- Engaged with BC Wildfire Service for their review, support and coordination to assist with burns.
- Presented the project to community members (Xwisten and Shackan).
- Presented e-lecture via the Canadian Forestry Institute (2018) – *“session recorded the highest attendance so far for the CFS series and also generated a number of great questions/discussion.”*
- Conduct spring burns (2019) for Xwisten and Shackan.
- Interviews are completed – with transcription and subsequent analysis currently in progress for Yunesit'in. Results are forthcoming.
- Photo document cultural burning revitalization narratives and community burns in Xwisten and Shackan via a companion Indigenous Cultural Burning Storytelling and Practices Project. Funding: Natural Resources Canada.

Expected outcomes

- Resources and capacity to plan for and adapt to effects of climate change
- Inform policy makers, wildfire management specialist, crew leaders, land planners, and program managers
 - Develop strategies that maintain or enhance cultural attributes of First Nations communities.

Questions?

Thank You!

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Acknowledgements:

Darrick Andrew, FNESS

Dr. Amy Cardinal Christianson, Natural Resources Canada

Dr. Natasha Caverley, Turtle Island Consulting Services Inc.

Participating Elders and Fire Knowledge Holders

Shackan Indian Band

Tmixw Research

Xwisten

Yunesit'in

**Funder: Department of Indigenous Services Canada – First Nation
Adapt Program**

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