WILDFIRE RISK REDUCTION STRATEGIES: THE QUESNEL TSA LANDSCAPE RESTORATION PILOT PROJECT

Federation of BC Woodlot Associations and Woodlot
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CITY OF Quesnel

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CLIMATE CHANGE INFLUENCES ON FIRE BEHAVIOR & EFFECTS

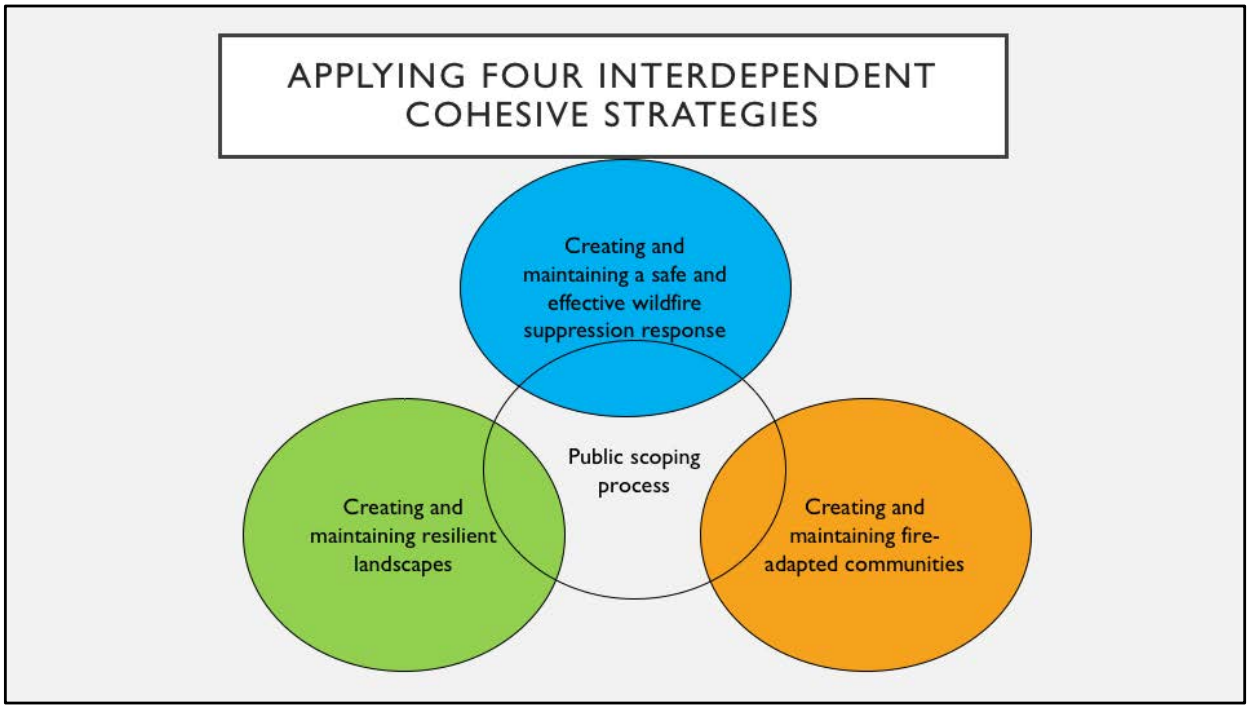
Climate models predict:

- Later snow on dates, earlier snowmelt, lower late season flows
- Warmer winters, reduced snowpack
- Hotter & drier summers: higher daytime TEMPs, lower daytime RH, higher minimum nighttime TEMPs
- More stalled high-pressure systems
- Higher lightning incidence
- Less PRECIP during the fire season
- More frequent strong convective storms
- Longer fire seasons
- More frequent, longer, worsening droughts

Effects on fire & fuels:

- Reduced soil moisture will kill some trees outright
- Others weakened & be vulnerable to I & Ds
- Live and dead fuels will dry out, be available to burn earlier/longer
- Burned area will increase annually to a point
- Patches of high severity fire will be larger
- Reburns will increase in frequency
- Some large, severely burned areas will fail to reforest
- Grass, shrub, woodland area will increase
- Landscape patch grain will coarsen


PLANNING FOR LANDSCAPE RESTORATION
IN THE QUESNEL TSA PILOT PROJECT AREA
The landscape restoration project consists of an integrated program of research, planning and management to better understand the role of fire and insect disturbance processes on ecosystem structure and function and through wildland fire and forest management, restore landscapes that are resilient to future wildfires and a warming climate.


APPLYING FOUR INTERDEPENDENT COHESIVE STRATEGIES
Creating and maintaining a safe and effective wildfire suppression response
Public scoping process
Creating and maintaining resilient landscapes
Creating and maintaining fire-adapted communities

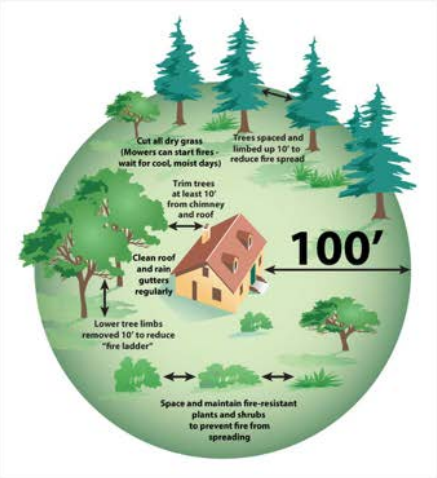
CONDUCT PUBLIC SCOPING PROCESS

- Including First Nations, private citizens, forestry sector, non-governmental organizations, municipal government
- Key questions:
  - What important values do you want protected?
  - What resulting conditions are unacceptable?
  - How do you weight what you value?
  - What does your ideal future look like in the next 100 years?

CREATING AND MAINTAINING A SAFE AND EFFECTIVE WILDFIRE SUPPRESSION RESPONSE

- Conduct fire use planning:
  - Identify essential fire suppression anchor and control points and maintain them,
  - Ensure that treatments are tailored logically to topography,
  - Ensure all harvest treatments are also fuel treatments – we want to affect flame length and ember production

CREATING AND MAINTAINING FIRE-ADAPTED COMMUNITIES



- Adopt FireSmart/Firewise practices,
- Develop plans to protect power, fiber-optic, water supply, and communications infrastructure,
- Develop community-wide protection plans for each First Nations Reserve, town and village.

LINKAGE BETWEEN FUEL TREATMENT AND HOME VULNERABILITIES

Home, business and infrastructure vulnerabilities are to:

- Direct flame contact igniting the surface,
- Ember deposition and combustion on flammable surfaces.

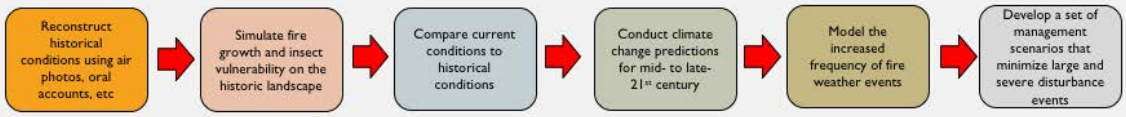
Fuel treatment effectiveness:

- Thinning, combined with firebreaks (roads, trails, green lawns, etc.), can affect direct flame contact with structures,
- Not effective at limiting ember production – embers are the product of fine woody fuels,
- Thinning, firebreaks and prescribed fire can affect direct flame contact as well as ember production.

CREATING AND MAINTAINING RESILIENT LANDSCAPES

- Historic patchwork of forests and grasslands suggest that:
  - large, severe wildfires were rare in the past, and,
  - frequent, small wildfires created and maintained conditions that generally prevented large, severe fires.
- Patchwork resulting from First Nations burning practices and lightning ignitions also reduced forest susceptibility to insects such as the Douglas-fir and mountain pine beetles.
- The task for the future is to determine what that range of historic patchworks looked like and how it functioned on the landscape. Given our warming climate, we need to determine how best to rebuild that patchwork in order to reduce landscape vulnerability to widespread fires and insect outbreaks.
- Because fire is part of the solution, reducing average annual area burned is not a realistic goal.

KEY STEPS IN THE PROCESS



MANAGEMENT SCENARIOS AND TRADE-OFF ANALYSIS

- With global warming, how do we reduce the size and severity of natural disturbance events?
- Using our model framework we can identify forest structure types and patterns that minimize large and severe fire events,
- We can also model forest structure types and patterns that minimize large bark beetle and defoliator events,
- Build these types and patterns into management scenarios and estimate:
  - Fire and insect impact statistics such as annual area burned, fire severity, proportion of area vulnerable to bark beetles,
  - timber supply (profile of the resource) and non-declining yield, carbon storage, First Nations food abundance and distribution, wildlife habitat, sediment yield and fish habitat, and, smoke emissions from prescribed fire and wildfire.

STRUCTURED DECISION-MAKING WITH STAKEHOLDERS

Key questions posed to stakeholders:

- What important values do you want protected?
- What resulting conditions are unacceptable?
- How do you weight what you value?
- What does your ideal future look like in the next 100 years?

Within the context of the key questions:

- consider the results of the initial analysis of management alternatives and revise next iteration of alternatives
- repeat as often as necessary to get to an agreed upon plan to submit to the province