



1923

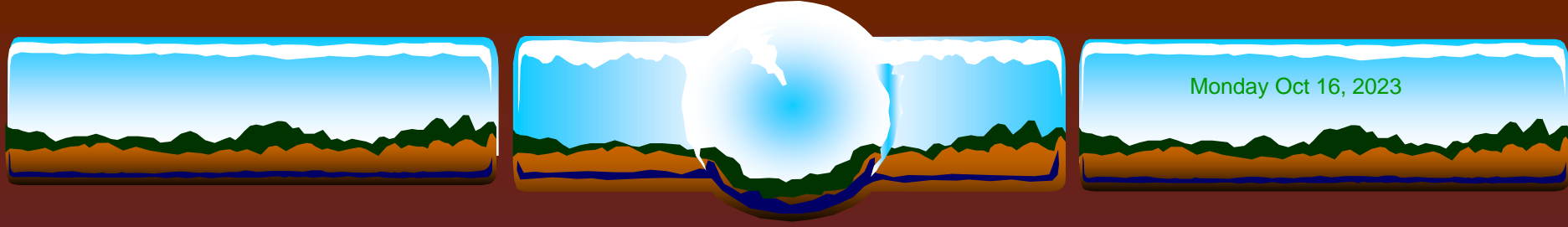


CAUSES OF
CATASTROPHIC
FIRES ARE BOTH
LOCAL AND
REGIONAL

2005



- 1) Urban development
- 2) Resulting fire suppression increases local and regional fuels
- 3) Dry and windy weather
- 4) Poor governance: need “Community Forests”



Monday Oct 16, 2023

FIRESMART IN THE CANADIAN ROCKIES: Integrating Fire, Vegetation, and Wildlife Outcomes

Cliff White, Canmore

Presented to Bow Valley

Human-Wildlife Coexistence Group

December 11, 2023

URBAN FIRES ARE BOTH A REGIONAL AND LOCAL ISSUE





OUTLINE: BEING FIRESMART and WILDSMART IN THE ROCKIES

- ❖ **THE FIRE BOX: Weather, topography, fuel and humans**
- ❖ **Fire history trends**
- ❖ **Weather, topography and fuels**
- ❖ **Human governance and “FireSmart” initiatives**
- ❖ **Maintaining the regional landscape: safe “FireScapes” and potential to integrate this with humans and wildlife co-existence**
- ❖ **Maintain the “Community Forest”:** 50-100 square kilometers around villages and towns, lead agency is town fire department and forester



HUMAN GOVERNANCE-
WILDLIFE COEXISTENCE

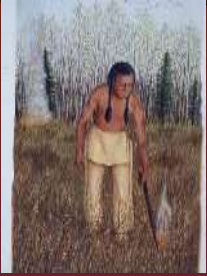
FUEL

Fire
Box

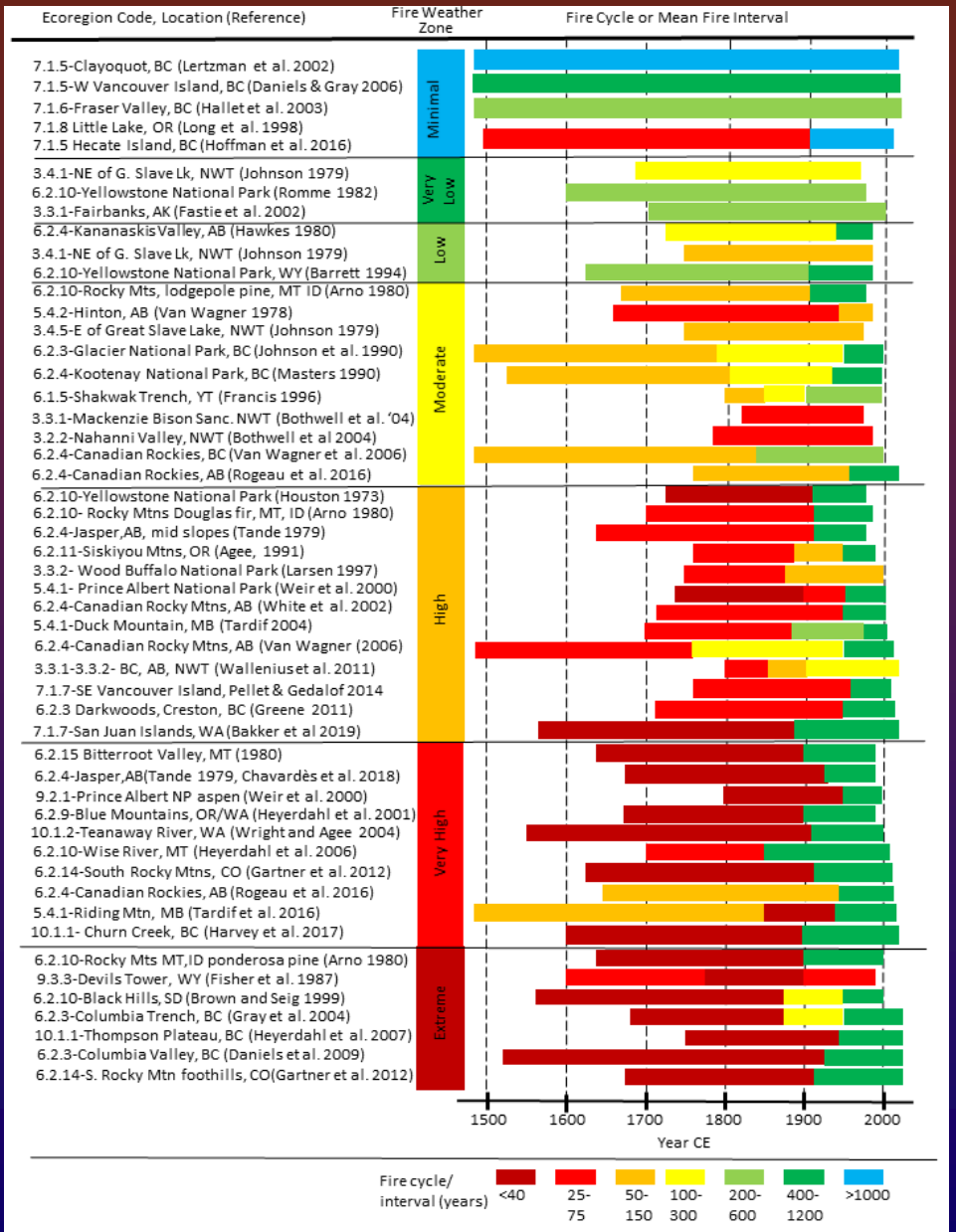
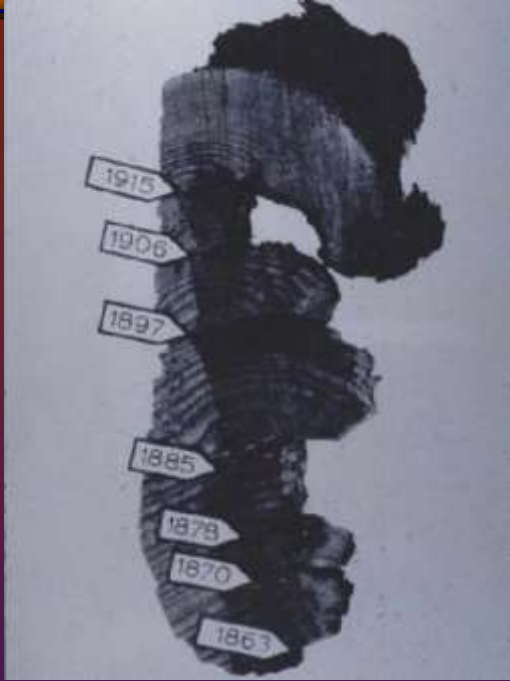
WEATHER

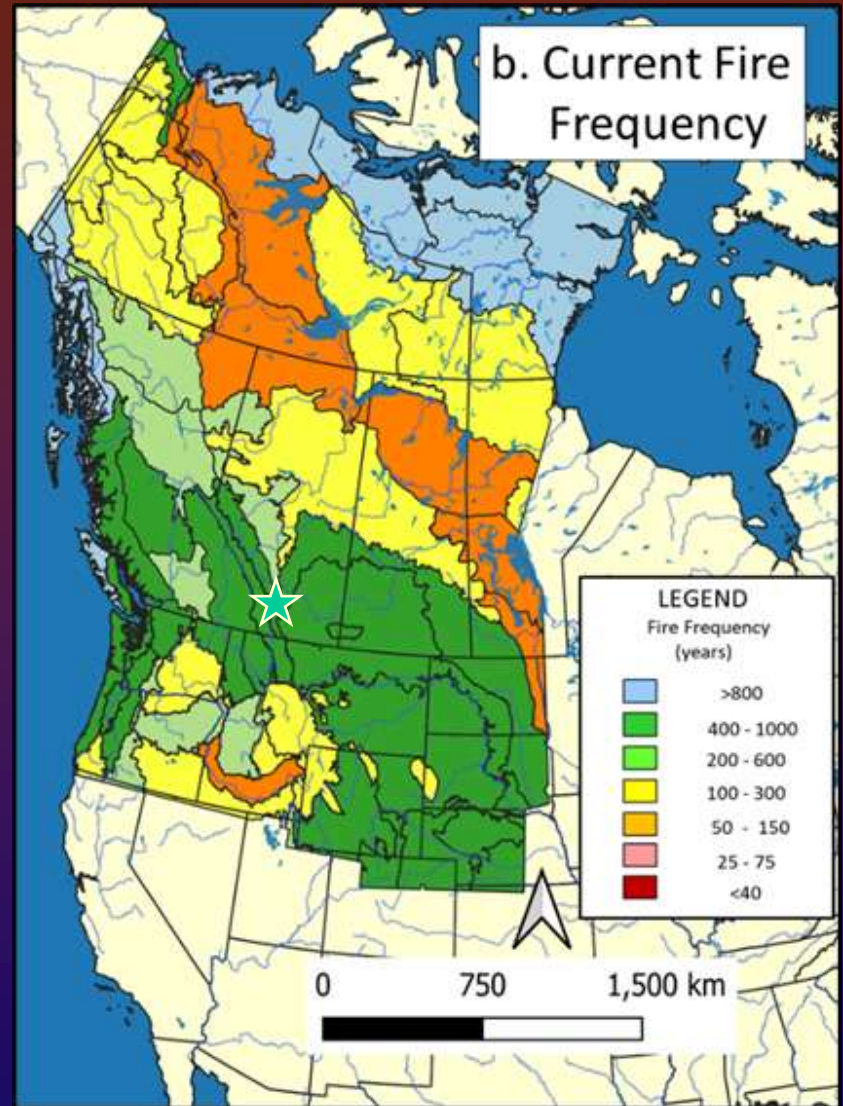
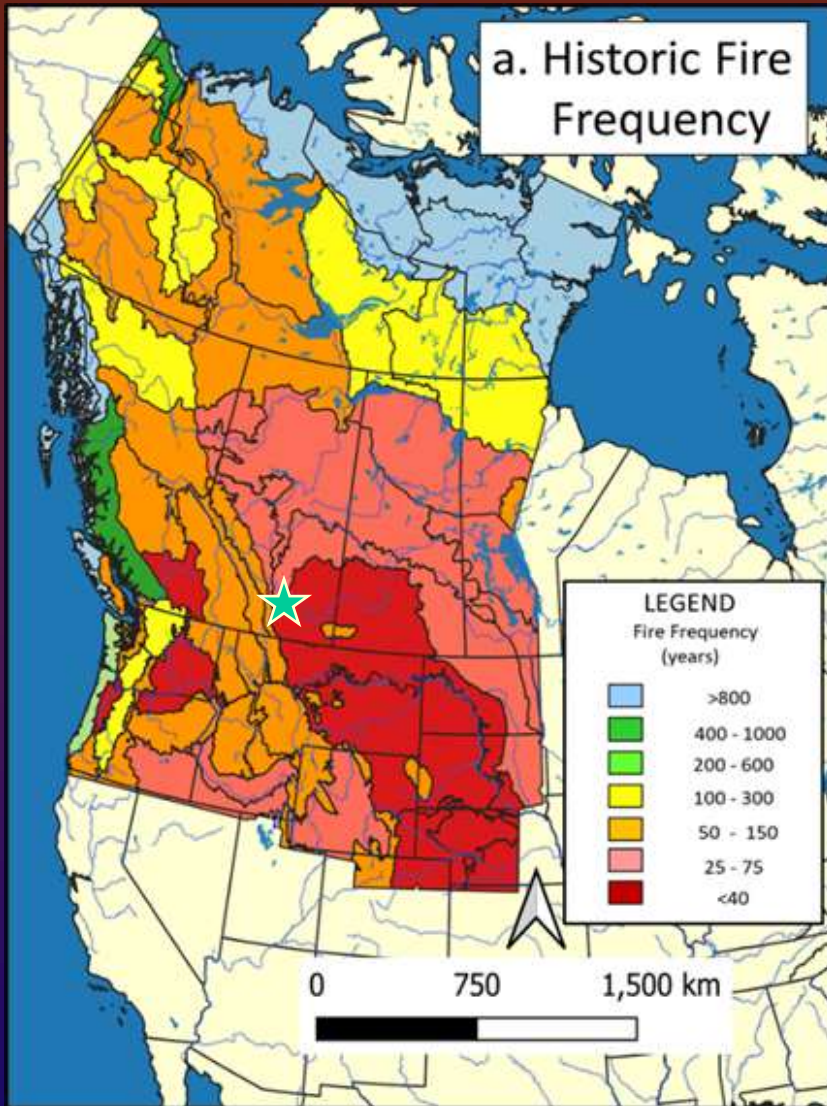
TOPOGRAPHY

Indigenous management



“Burn early,
burn often”

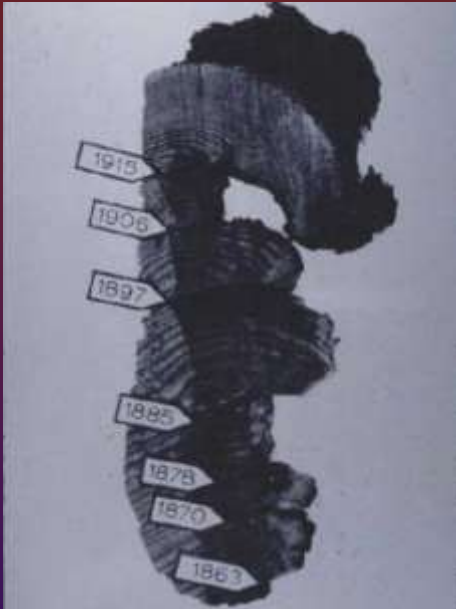




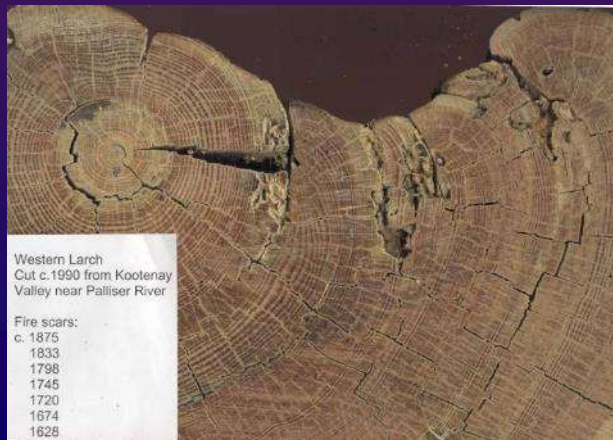
SOURCE: <https://lensoftimnorthwest.com/themes/lens-northwest-files/download-report-biomes-to-anthromes-in-americas-northwest/>

1979 JASPER FIRE HISTORY STUDY

<https://lensoftimenorthwest.com/galleries/alberta/athabasca/town-of-jasper/>



A legacy of
Indigenous
management



Western Larch
Cut c.1900 from Kootenay
Valley near Palisier River

Fire scars:
c. 1875
1833
1798
1745
1720
1674
1628

Gerry Tande,
University of
Alberta

Jasper Athabasca Valley

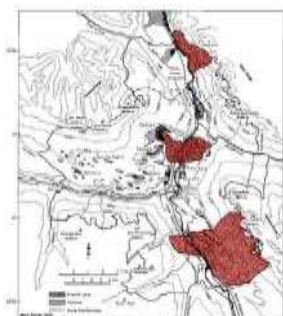
Fire History (from Tande 1979)



(t) 1678-1714



(s) 1727



(r) 1737



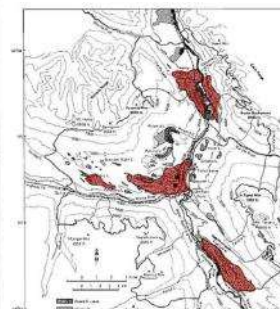
(q) 1758



(p) 1771-1780



(o) 1797



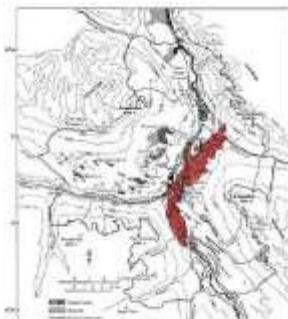
(n) 1807



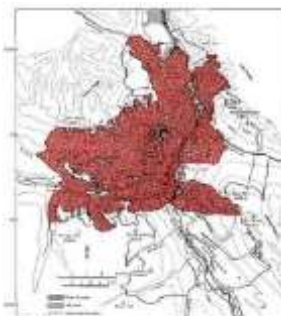
(l) 1837



(m) 1834



(k) 1846



(j) 1847



(i) 1851-1858



(h) 1861-1863



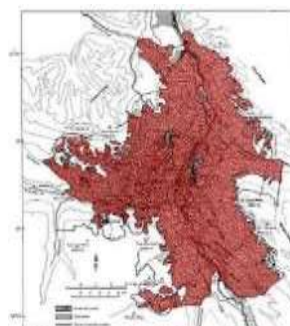
(g) 1869



(f) 1876-1884



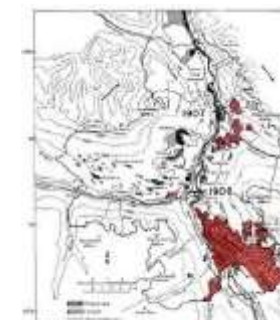
(e) 1888



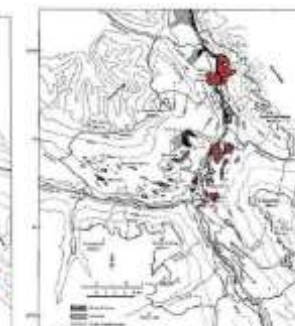
(d) 1889



(c) 1904-1905



(b) 1906-1907



(a) 1908



HUMAN-
WILDLIFE COEXISTENCE

FUEL

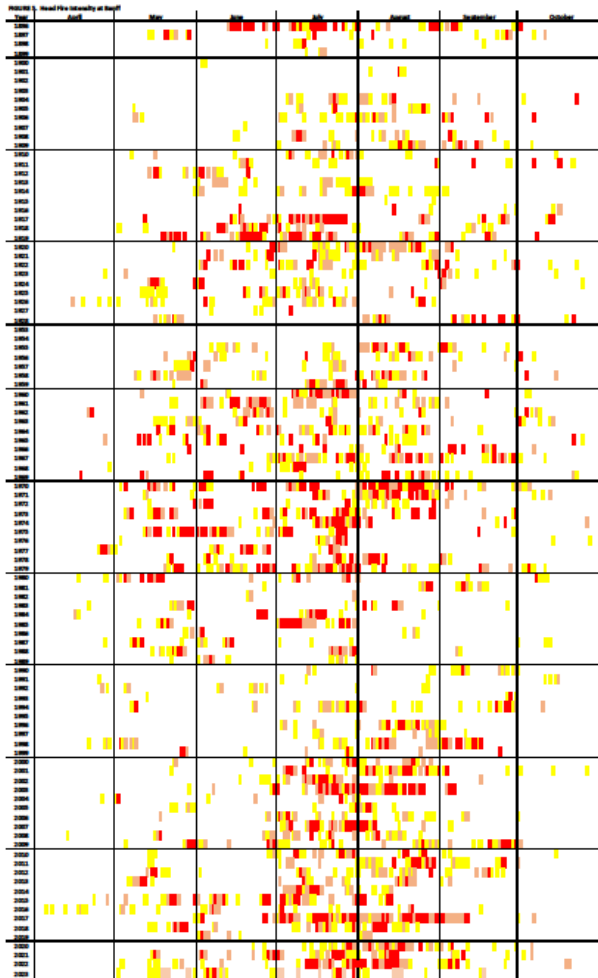
Fire
Box

WEATHER

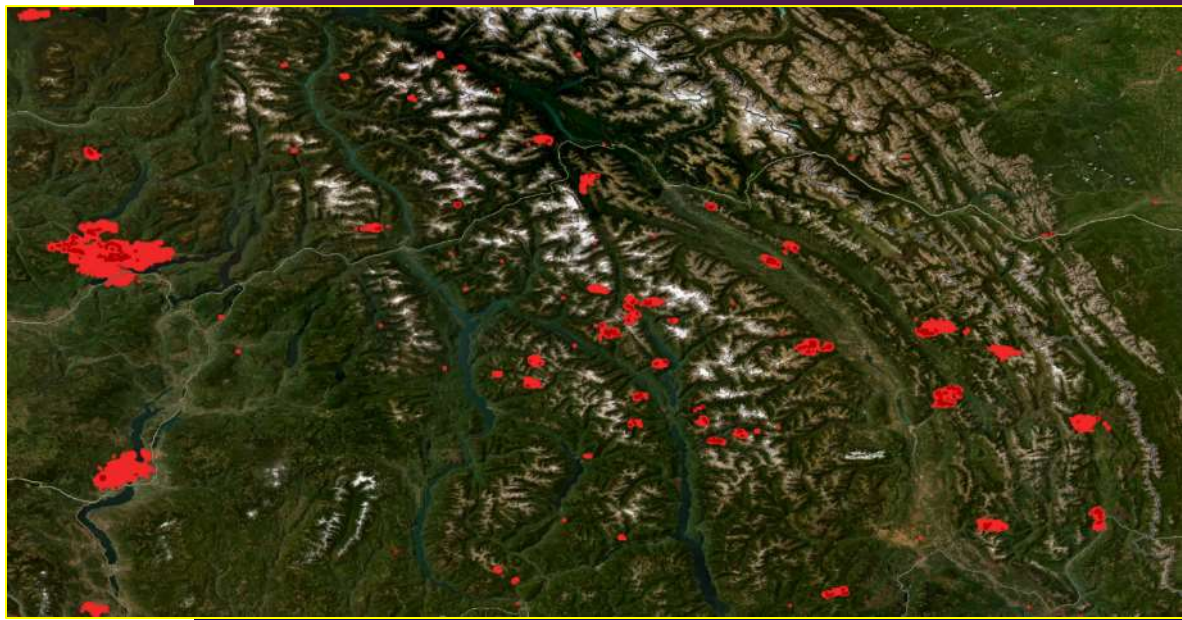
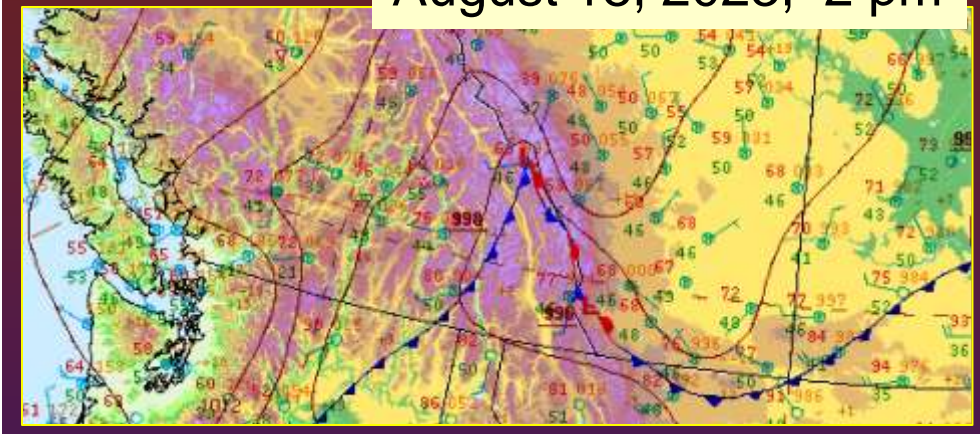
TOPOGRAPHY

FIRE WEATHER

Banff Fire Weather Index 1896-2023

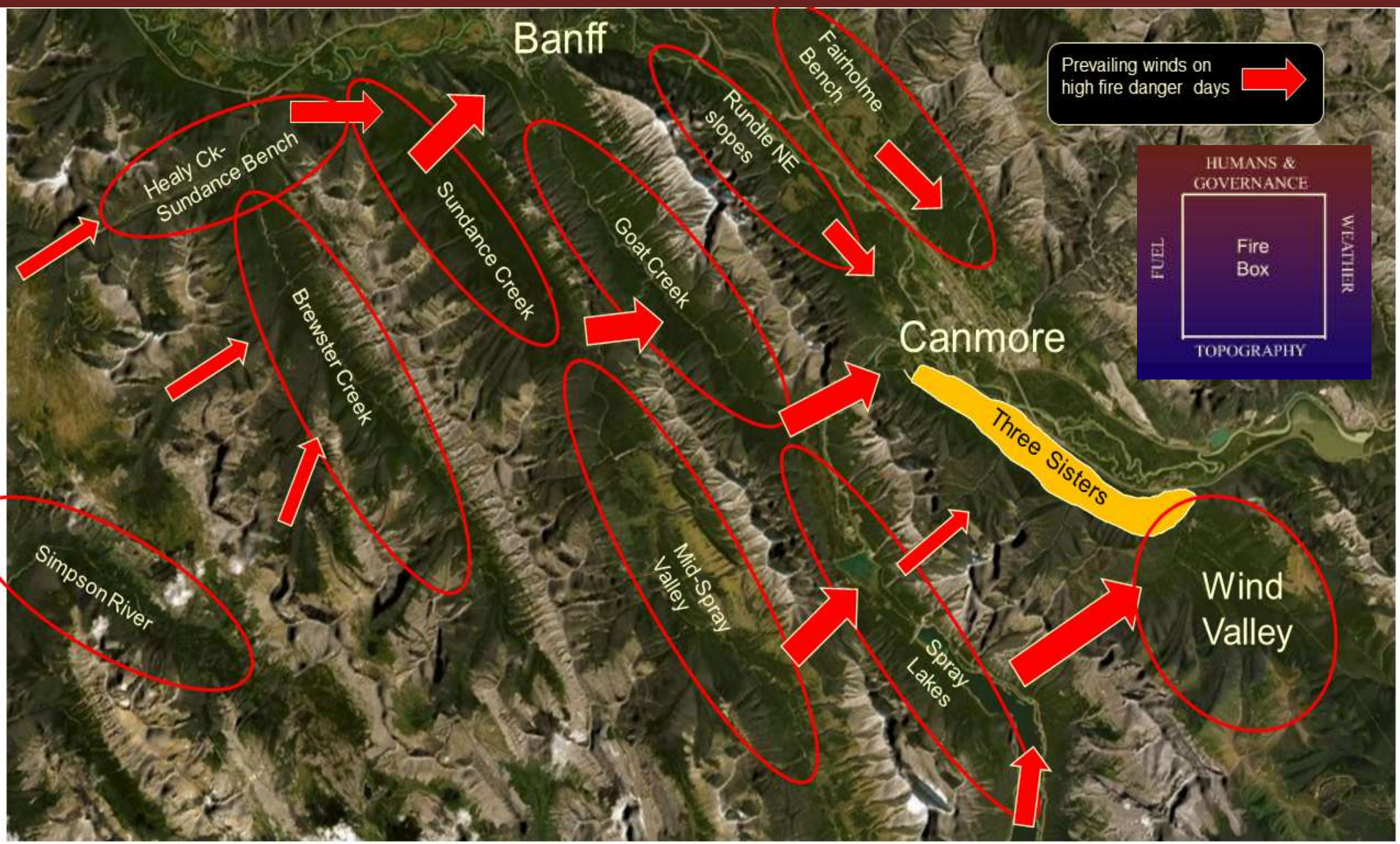


August 18, 2023, 2 pm



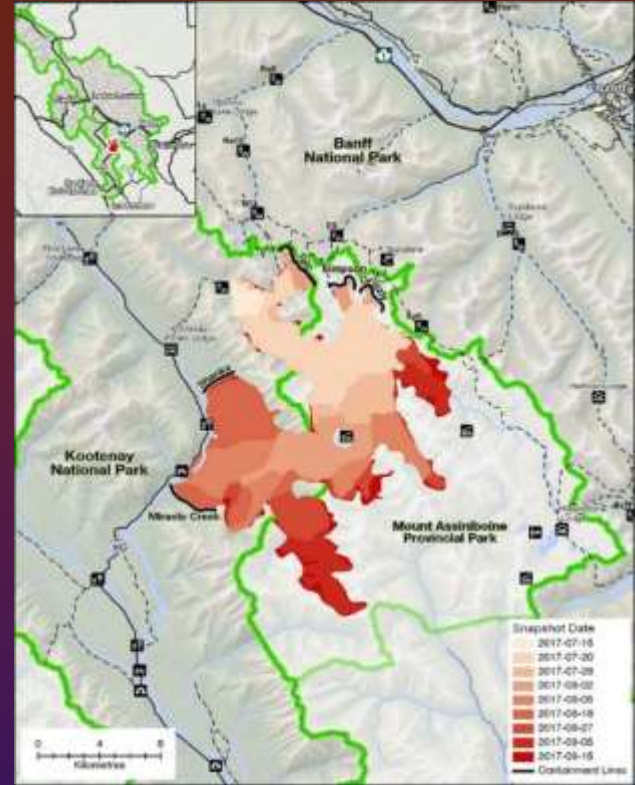
(from Mark Heathcott, Sept 20, 2023)

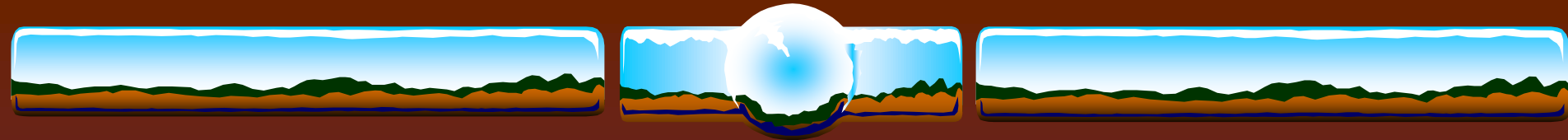
TOPOGRAPHY



2017 VERDANT CREEK FIRE

Threats to Sunshine Ski Area, Assiniboine Lodge, and Banff-Canmore Area





1889



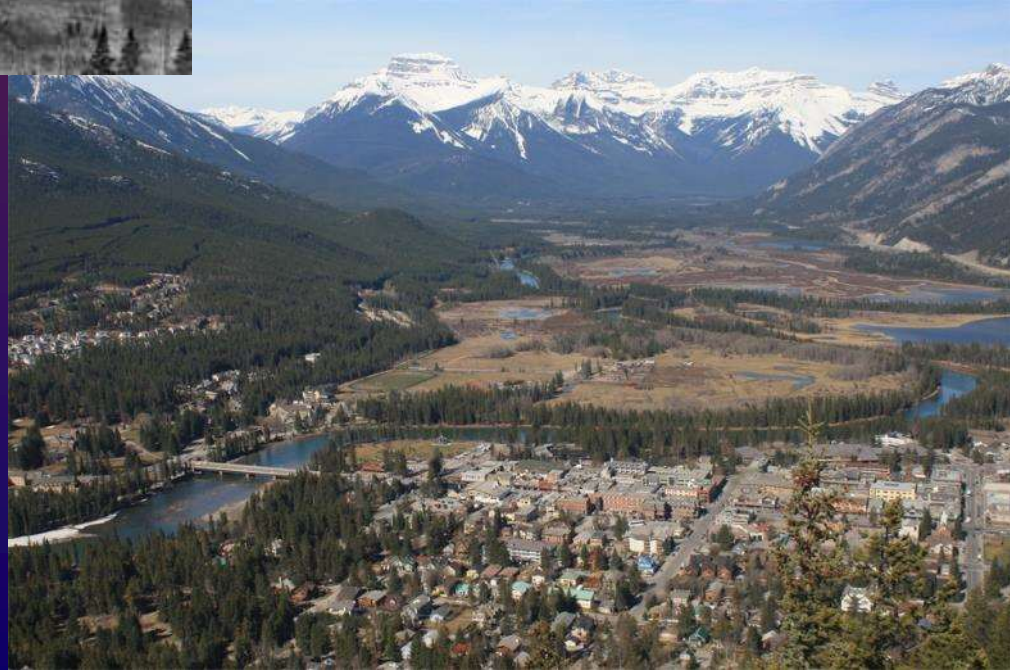
2014

FUEL





1889



2014



FUEL

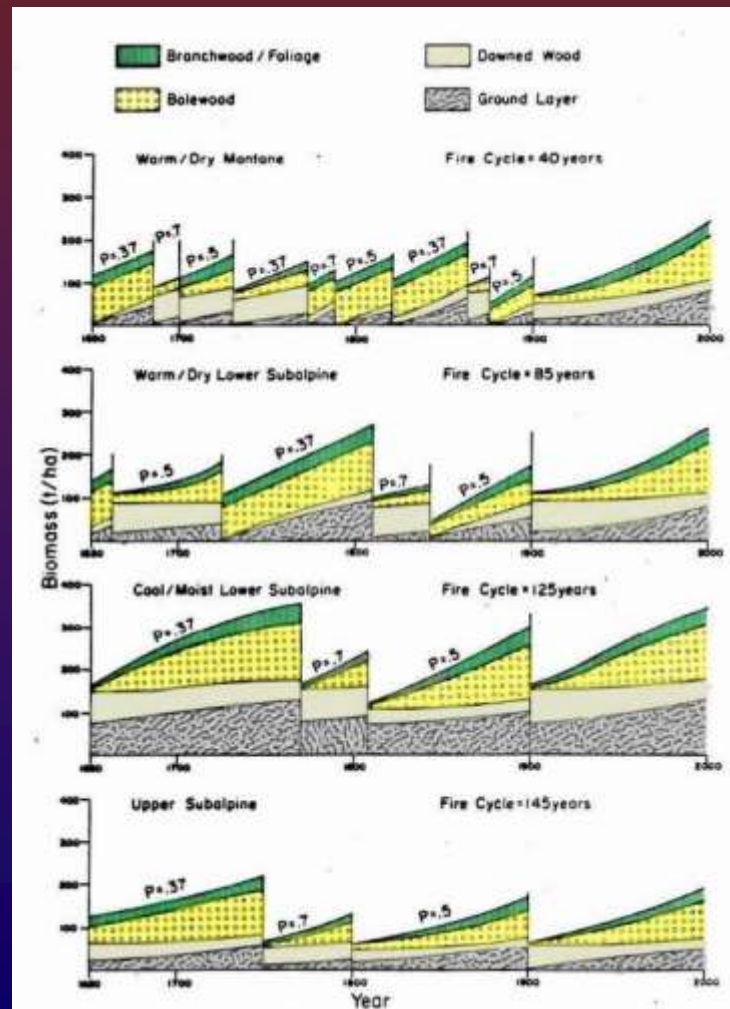
Nick Morant photo
c. 1955



2010



Fire suppression:
Greater fuel biomass,
continuity & flammability





HUMAN GOVERNANCE-
WILDLIFE COEXISTENCE

FUEL

Fire
Box

WEATHER

TOPOGRAPHY

FireSmart

Protecting Your
Community
from Wildfire



Working Together for Safer Communities in the Wildland / Urban Interface



Spruce



Fir



Pine



Cedar





1923

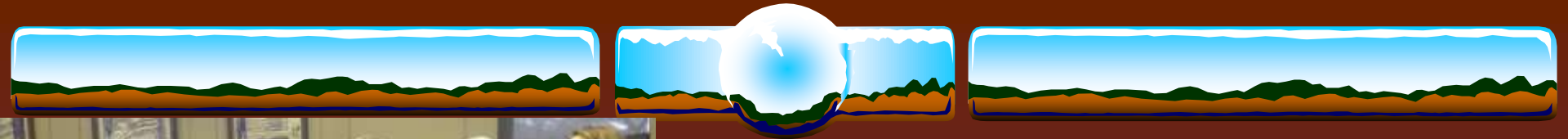


**SOLUTIONS FOR
FIRE RISK &
MANAGEMENT
ARE BOTH LOCAL
AND REGIONAL**

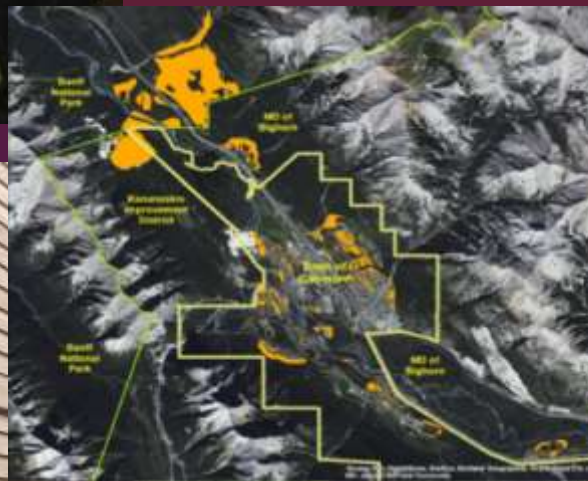
2005



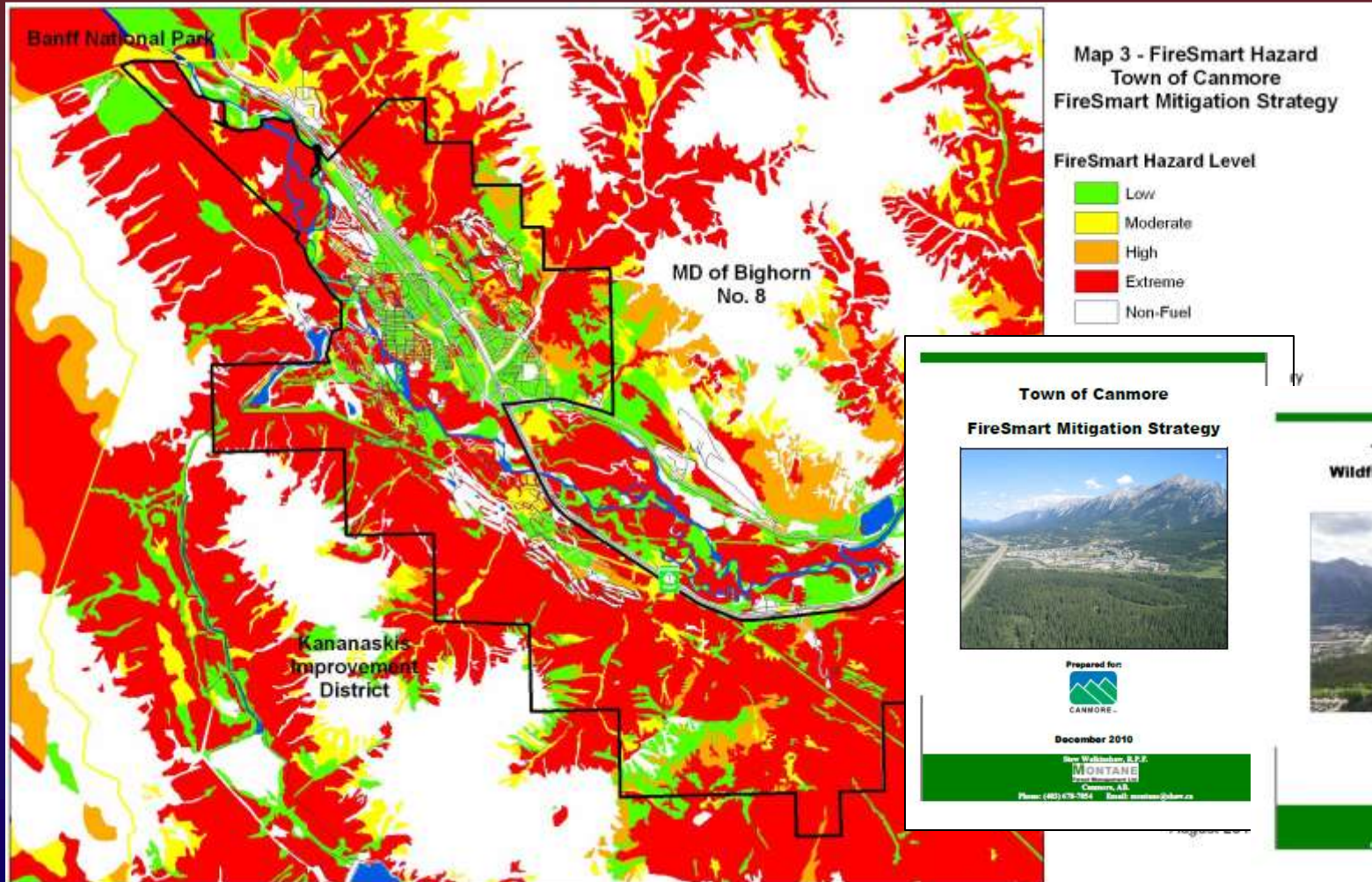
- 1) Urban development
- 2) Resulting fire suppression increases local and regional fuels
- 3) Dry and windy weather



Bow Valley Towns have TAKEN A LEADERSHIP ROLE

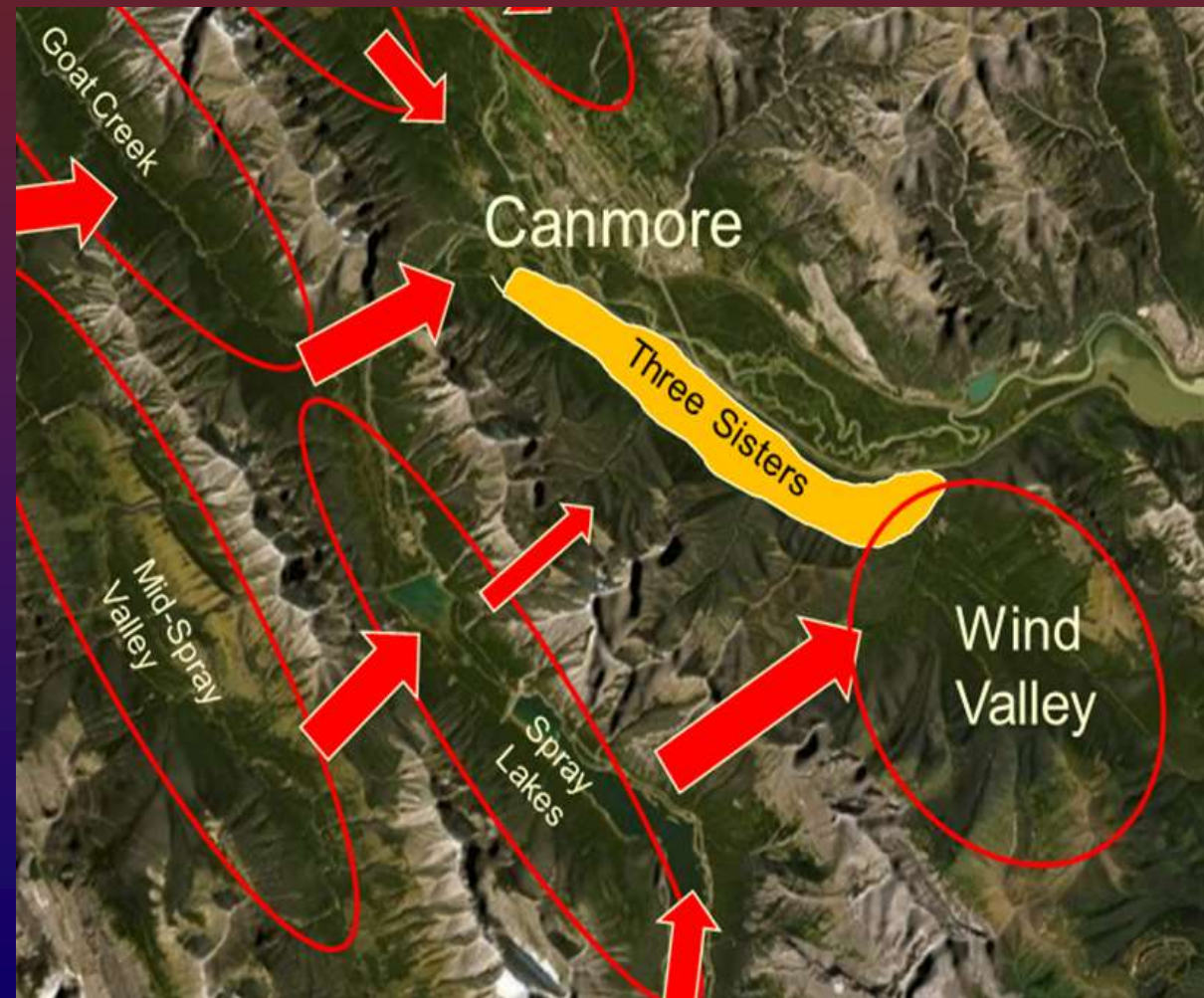


CANMORE REGIONAL AREA: FIRESMART MITIGATION STRATEGY



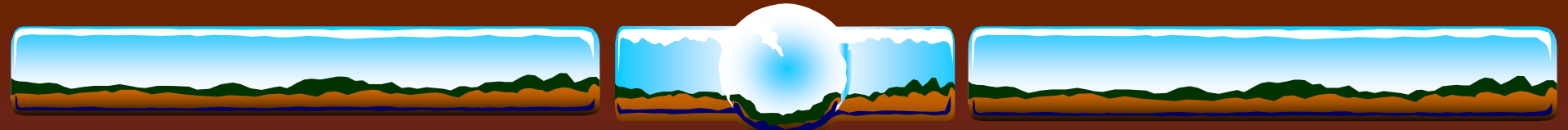


NEED TO INTEGRATE CANMORE FIRESMART PROGRAM WITH REGIONAL FIRE AND ECOSYSTEM MANAGEMENT



- 1) Large wildfire control or containment near town boundaries
- 2) Unique need to protect wildlife corridors
- 3) Unique need to restore and maintain montane ecosystems


**EXPERT INPUT ON
BOTH LOCAL AND
REGIONAL
WILDLAND FIRE
RISK IS ESSENTIAL**



1998 Banff East Boundary Prior to Carrot Creek
Fuel Break and Fairholme Prescribed Fire



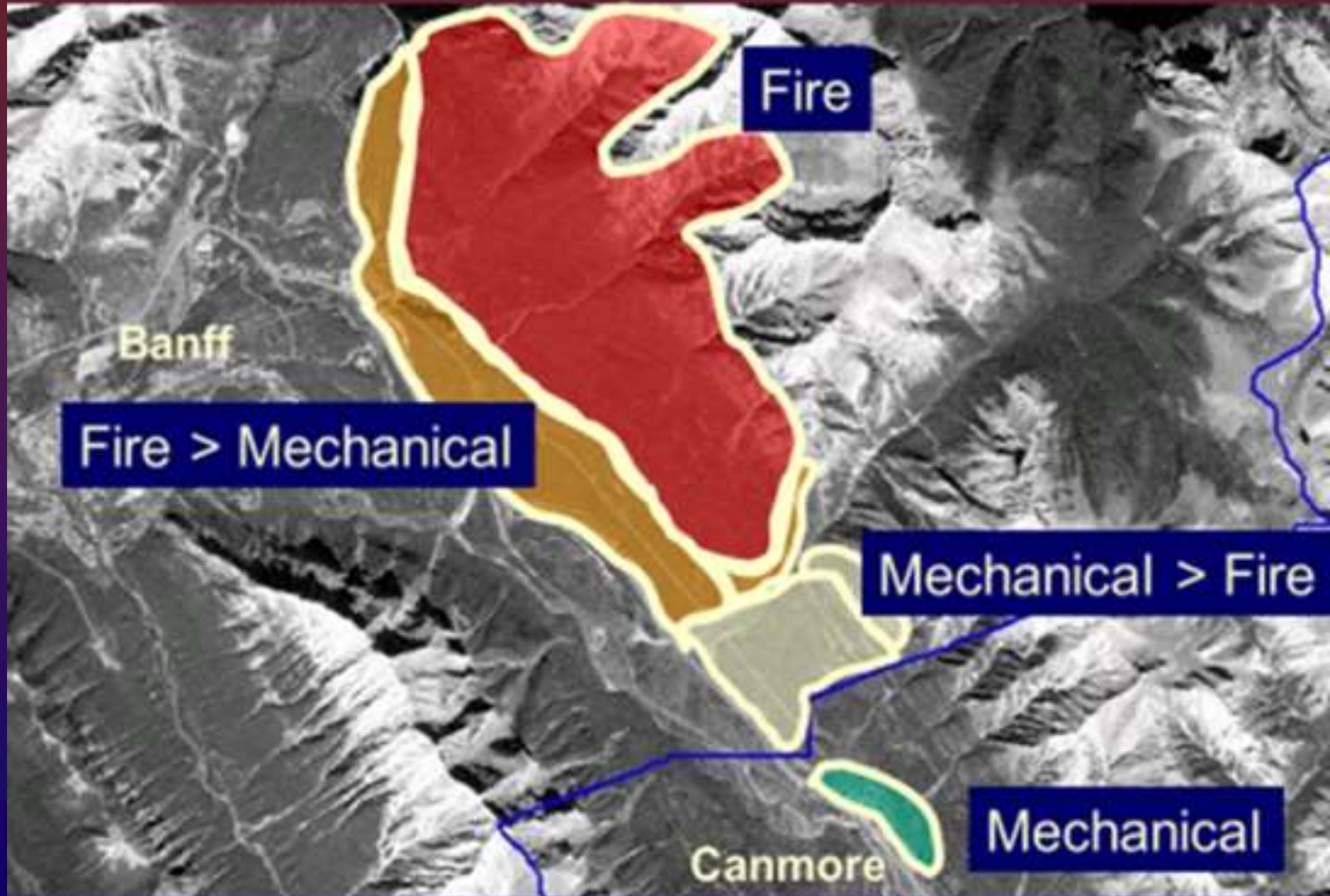
Ian Pengelly
Parks Canada

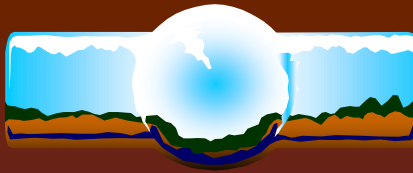


Fairholme Bench, Banff National Park: Carrot Creek Fuelbreak
FIRESCAPE: Integrate out 20 km from your town or village

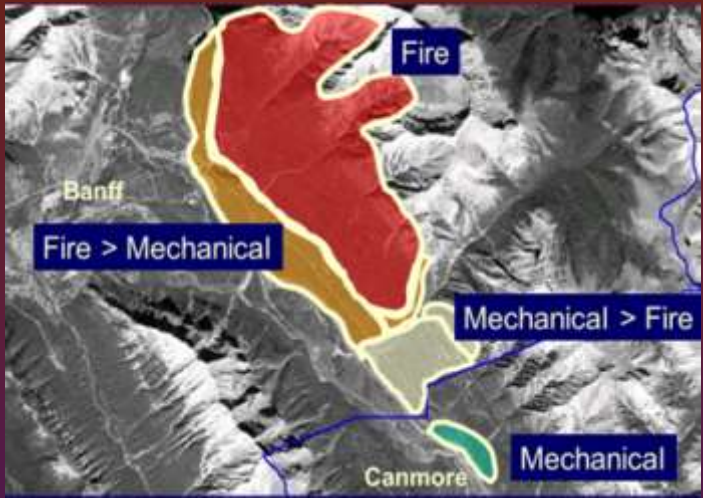


Firescape: Maintain with mechanical techniques near towns, and prescribed fire moving further away





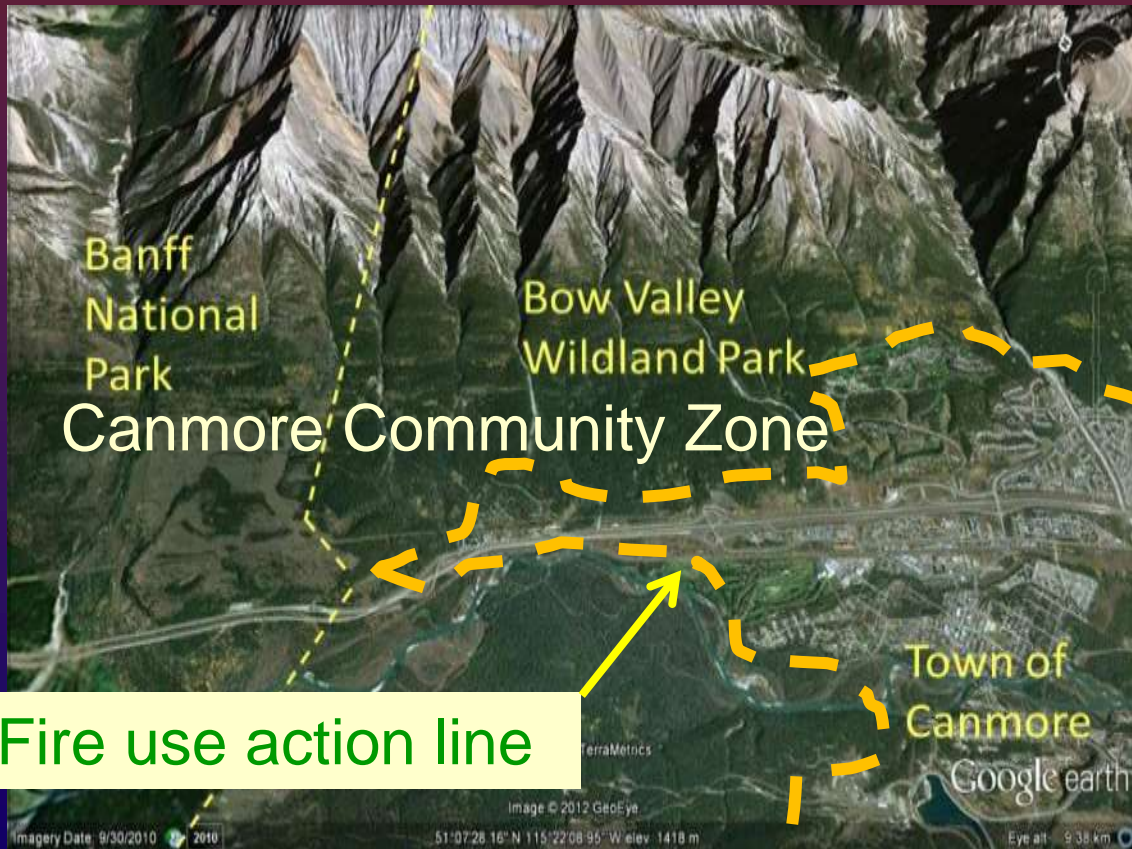
BALANCED APPROACH USING TIMBER HARVESTING AND PRESCRIBED FIRE



FAIRHOLME BENCH PRESCRIBED FIRE
View from Canmore Home Hardware, May 28, 2003

“BURN EARLY... BURN OFTEN, DO IT WHEN IT IS EASY, YOU MIGHT DO IT WHEN ITS HARD

Establish Community Forest Zones (50-100 sq km around towns) Fire Protection is the Priority

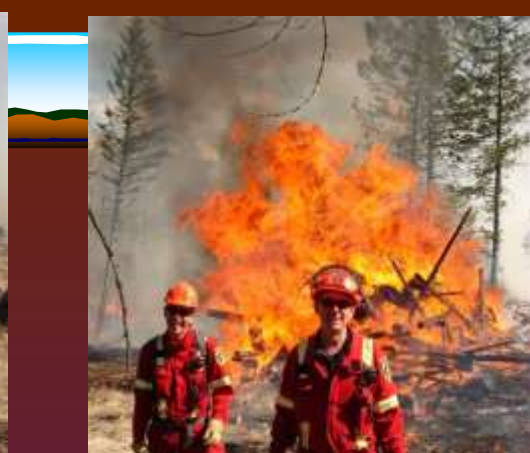


- Local fire departments are lead agency for fuel management in the zone ;
- FireSmart structures highest priority on edge of towns;
- Design fuel breaks and Fire Use Action Lines for routine maintenance with machinery and fire, and emergency burnout operations

COMMUNITY FORESTS

FUND FOREST MANAGEMENT THROUGH WOOD SALES??
LOW IMPACT FOREST HARVESTING MACHINERY??





Spring Hazard Reduction Burning: Banff and Canmore Municipal Fire Departments

Local communities help maintain fuel breaks with fire departments and other staff to learn regional “Firescape” and fire management techniques



Snow

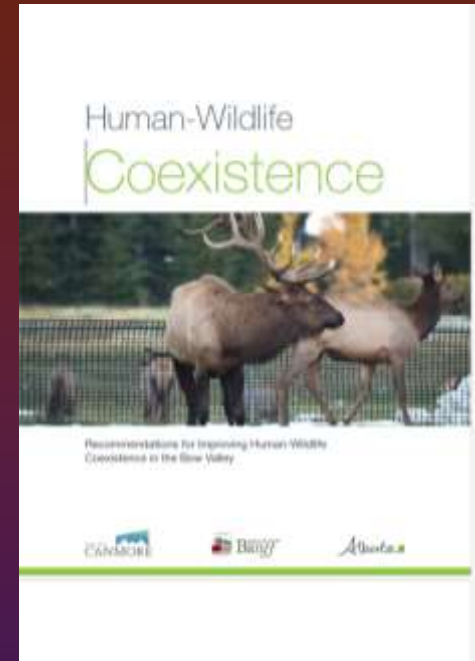
HUMAN GOVERNANCE- WILDLIFE COEXISTENCE

FUEL

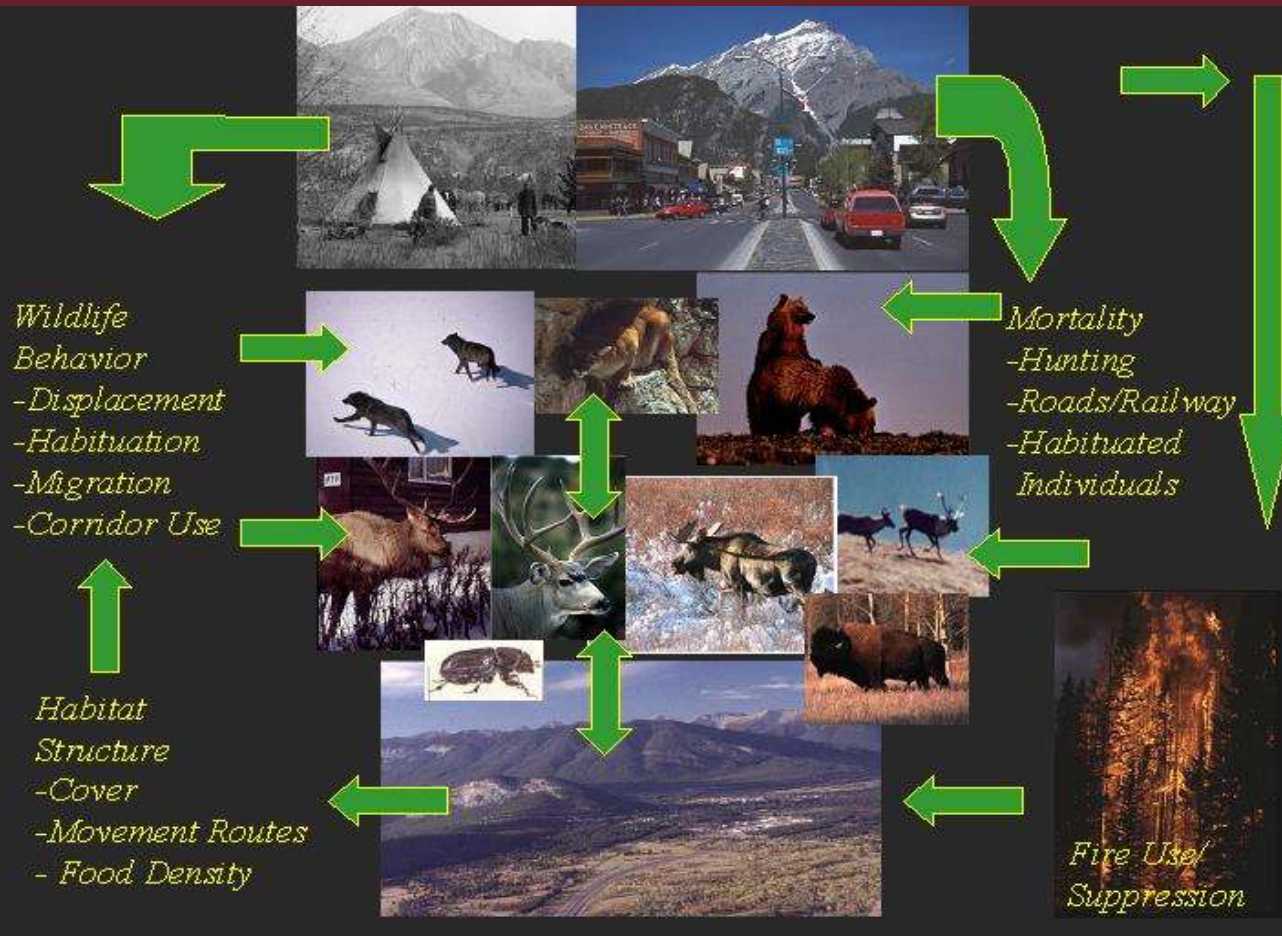
Fire
Box

WEATHER

TOPOGRAPHY



Bow Valley is a world leader research into fire, habitat, and human interaction effects with wildlife



HIGHWAY MITIGATION: Fencing and Crossing Structures



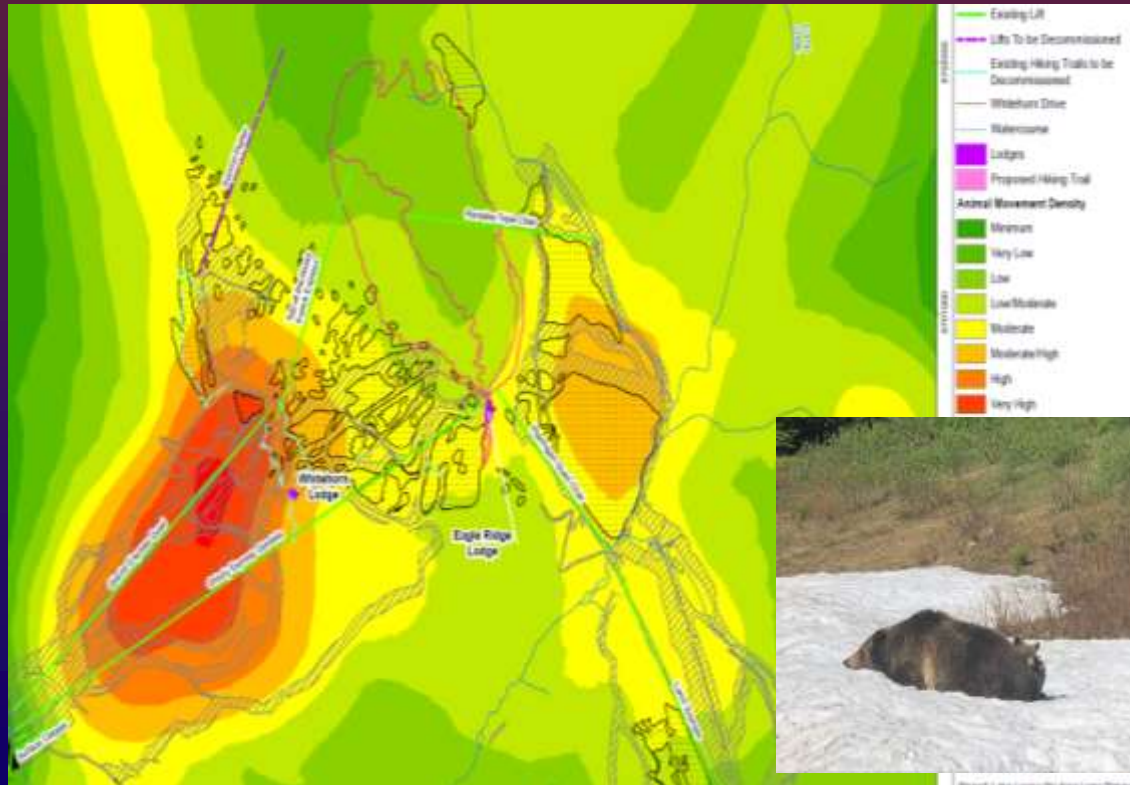
RESTORE WILDLIFE CORRIDORS



Grizzly movement density

Lake Louise Ski Area 1998-2016

With careful human use management, fuelbreaks and prescribed burns are excellent wildlife habitat (edge effects)





CARROT CREEK FUEL BREAK:

A few days after a light spring burn
No holdover smokes.....green grass



**PROMOTE
ECOLOGICAL
HEALTH:**

**“Fear is a good
starter but a
poor finisher.”**

URBAN AREA

- FireSmart
- Structural and Landscaping Guidelines
- evacuation routes
- fire hydrants
- roofing and siding
- decks and fencing
- ground cover
- tree spacing/species

TOWN PERIPHERY GREENBELT

- vehicle access
- mechanical maintenance
- water sources
- meadows, deciduous trees, spaced conifers
- "fire use action line" for emergency backburning to halt wildfires

INTENSIVE FOREST MANAGEMENT

- light vehicle access
- mechanical fuel breaks
- healthy young forests with shrublands, deciduous stands
- rapid initial fire attack
- small shoulder season prescribed fires

EXTENSIVE FOREST MANAGEMENT

- mechanical fuel breaks
- rapid initial attack
- routine use of prescribed fire to maintain young medium aged healthy forests
- some old growth in safe locations

NATURAL

- moderate
- initial attack
- prescribed
- perhaps some ignitions
- mixture of

Distance from town boundary

1-2km

COMMUNITY FOREST HIGH PRIORITY FIRE PROTECTION ZONE

Municipal government takes lead on forest management, works within park policy, agreements

5-10km

HIGH PRIORITY FIRE PROTECTION ZONE
Provincial or national park agency takes lead on forest management

15-20km

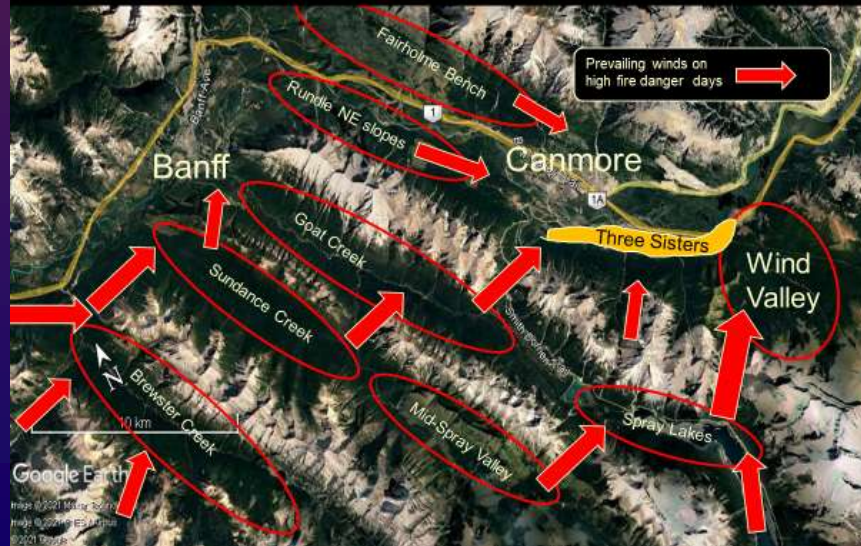
MODERATE FIRE PROTECTION

Provincial park agency forest management

Could the Bow Valley become a prototype region that integrates a “Firesmart” landscape into surrounding parks and protected areas where wildlife and human coexistence is also a high priority??



FORESTS >100 YEARS OLD IN THE BOW VALLEY



+

CANMORE REGIONAL AREA: FIRESMART MITIGATION STRATEGY

