

Cumulative Effects Telling Of A Good Story



**Prepared For Shuswap Trails Roundtable
Presented by Barry Wilson, RPF
December 3, 2015**

Stories

- Perhaps the most effective way people:
 - Communicate ideas
 - Connect and build relationships & trust
 - Share knowledge
 - Grow understanding
 - Entertain
 - INSPIRE PEOPLE

**After a presentation, 63%
of attendees remember
stories. Only 5%
remember statistics.**

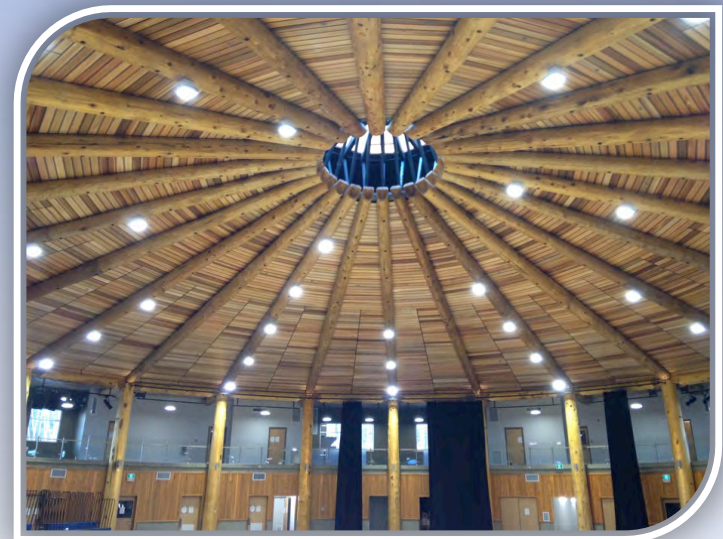
Source: Authors Chip & Dan Heath

Cumulative Effects

Benefits & Liabilities

Splatsin Community Center

- Liabilities
 - Significant cost and risk of \$
 - Architecturally challenging
 - Significant Planning Effort
- Benefits
 - Community & regional gathering place
 - Embodies Secwépemc culture in its Architecture
 - Support for youth and sport
 - Employment
 - Leadership in green technology
 - Community revenue source to support self sufficiency
 - Inspirational symbol to reach for great achievements
 - Legacy for future generations



Cumulative Effects Measured By The Triple Bottom Line



Elements of Landscape
Change (disturbance)



Natural
Disturbance



Forest harvesting
Agriculture
Urban Expansion
Infrastructure
Recreation/
Tourism
Energy
Forestry



Economic Indicators

- GDP
- Royalties and Rents
- Direct and Indirect Employment
- Commodity Production
- Property Value and Taxes



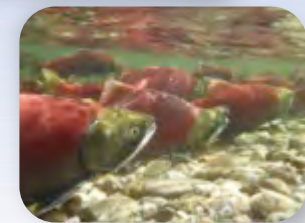
Social Indicators

- Quality of Life
- Recreation
- Traditional Land Use
- Liveable Community



Environmental Indicators

- Water Quality/Quantity
- Landscape Fragmentation
- Wildlife Habitat
- Ecosystem Representation



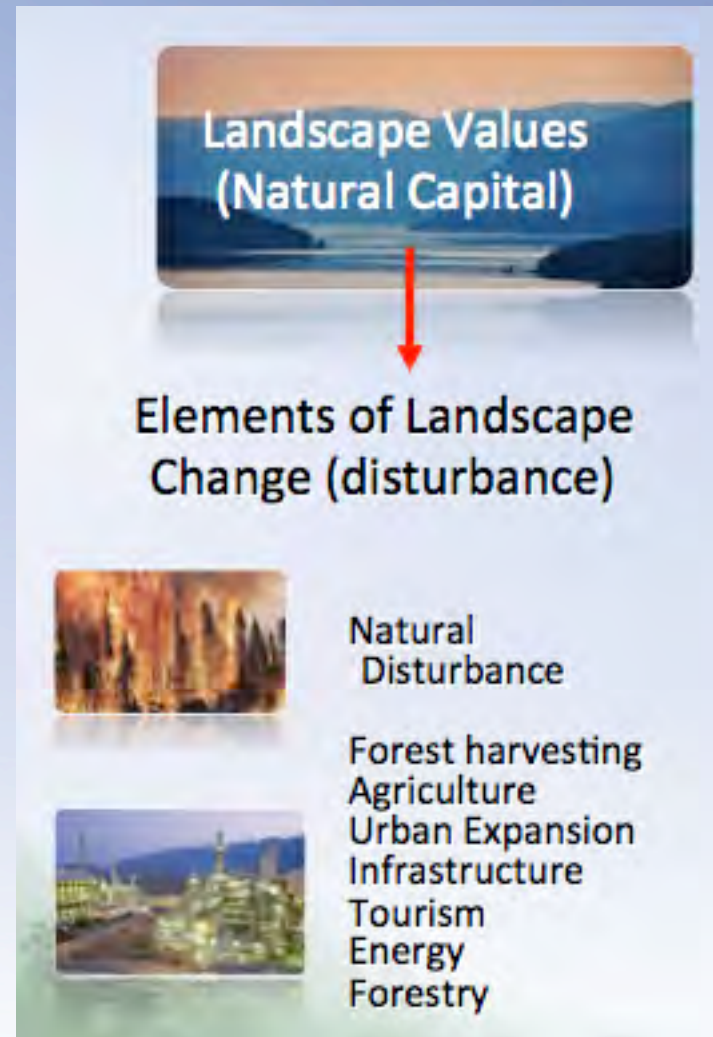
BC Growth is happening

- Growth of BC's **resource extraction** driven economy is the BC & Canadian Government Objective
- BC GDP growth forecast 2.9% (2015) 3.1 % (2016) highest in Canada. (RBC)
- In addition to primary growth, secondary industry, residential, tourism/ recreation and infrastructure growth are strong which bring **many simultaneous pressures on the system**



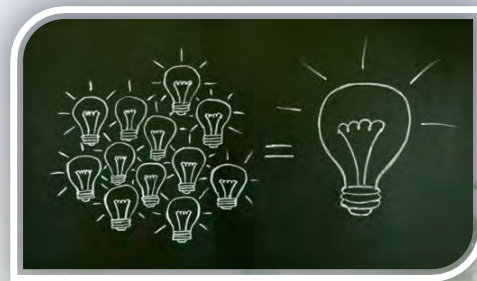
Major Drivers of Change

- Wildfire
- Forest Harvesting
- Minor Roads
- Mining & Aggregate
- Human Population
- Settlement
- Cattle
- Hydro Electric

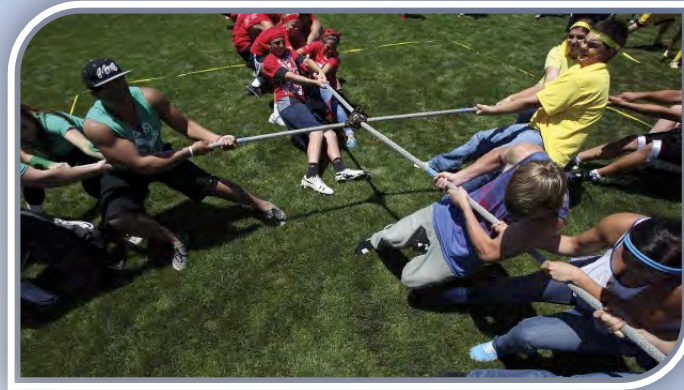


Progressive Planning

- Takes a **holistic view**
- Understands that **RESILIENCE** means planning to adapt to change
- Plan for **what we want**, not minimizing harm
- Seeks collaboration to capture our collective knowledge and **build synergy**



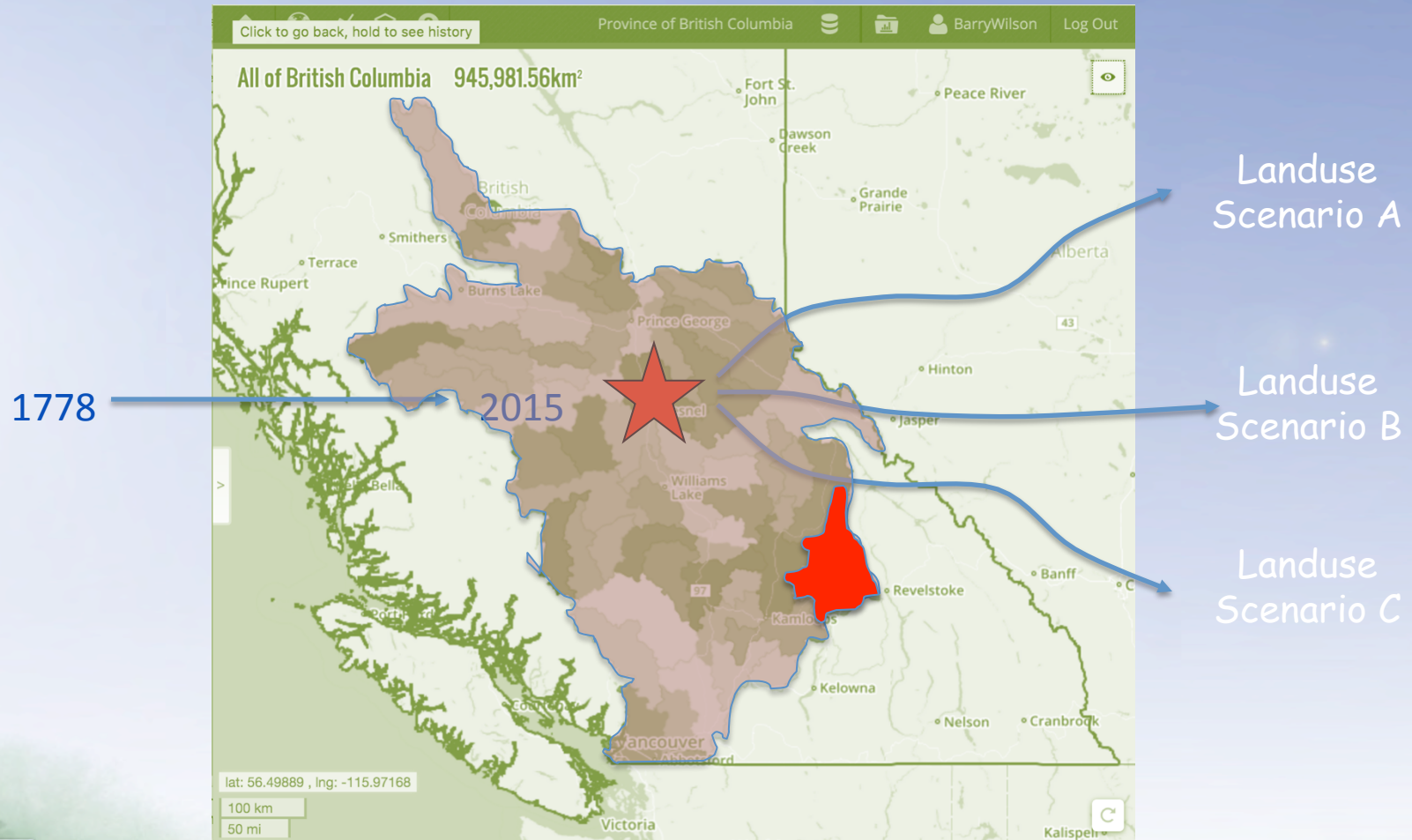
Rethink the tug of war



as a delicate balance



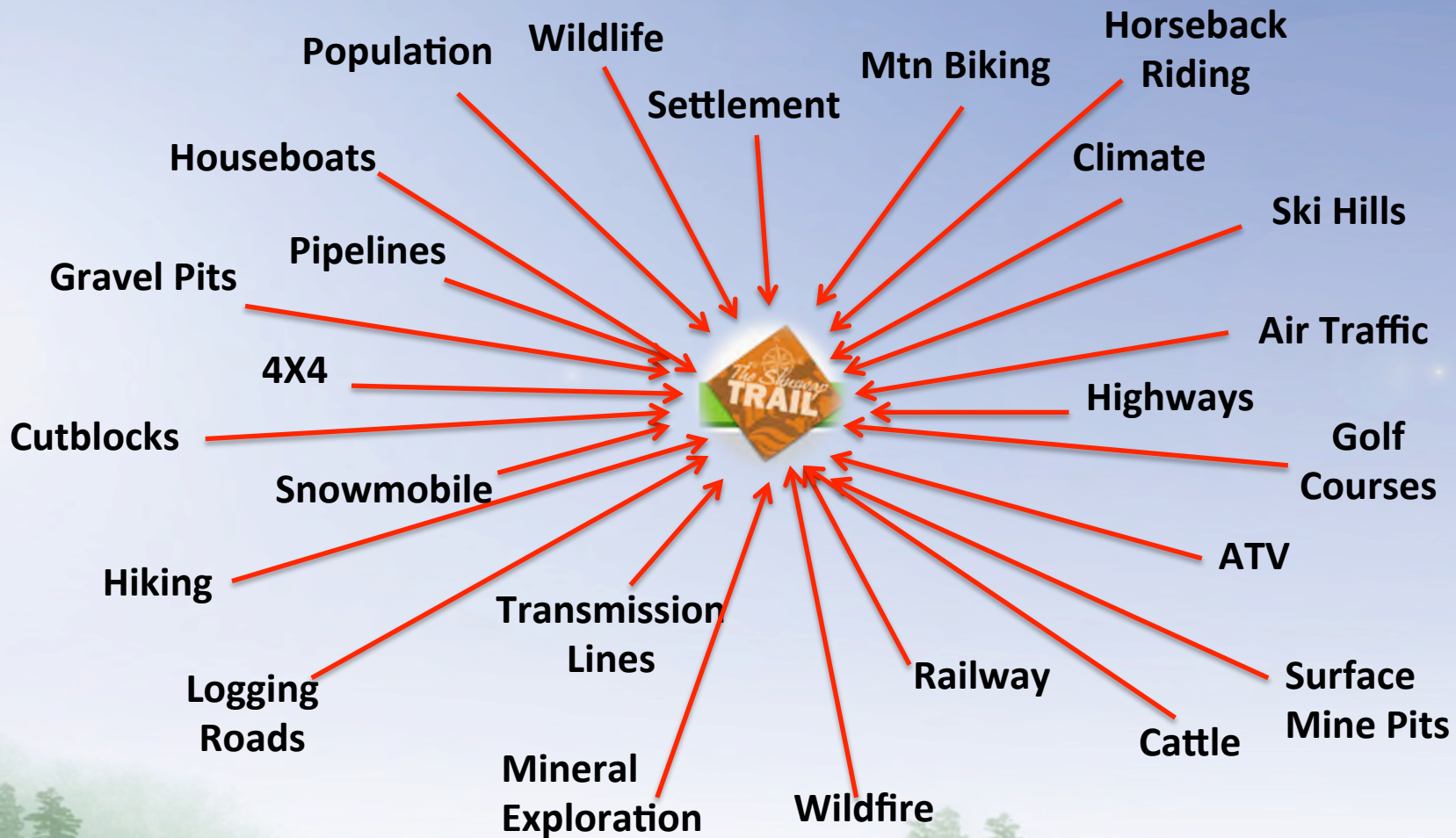
Meaningful Time & Space



10 back and forward=13%, 25 forward=17%



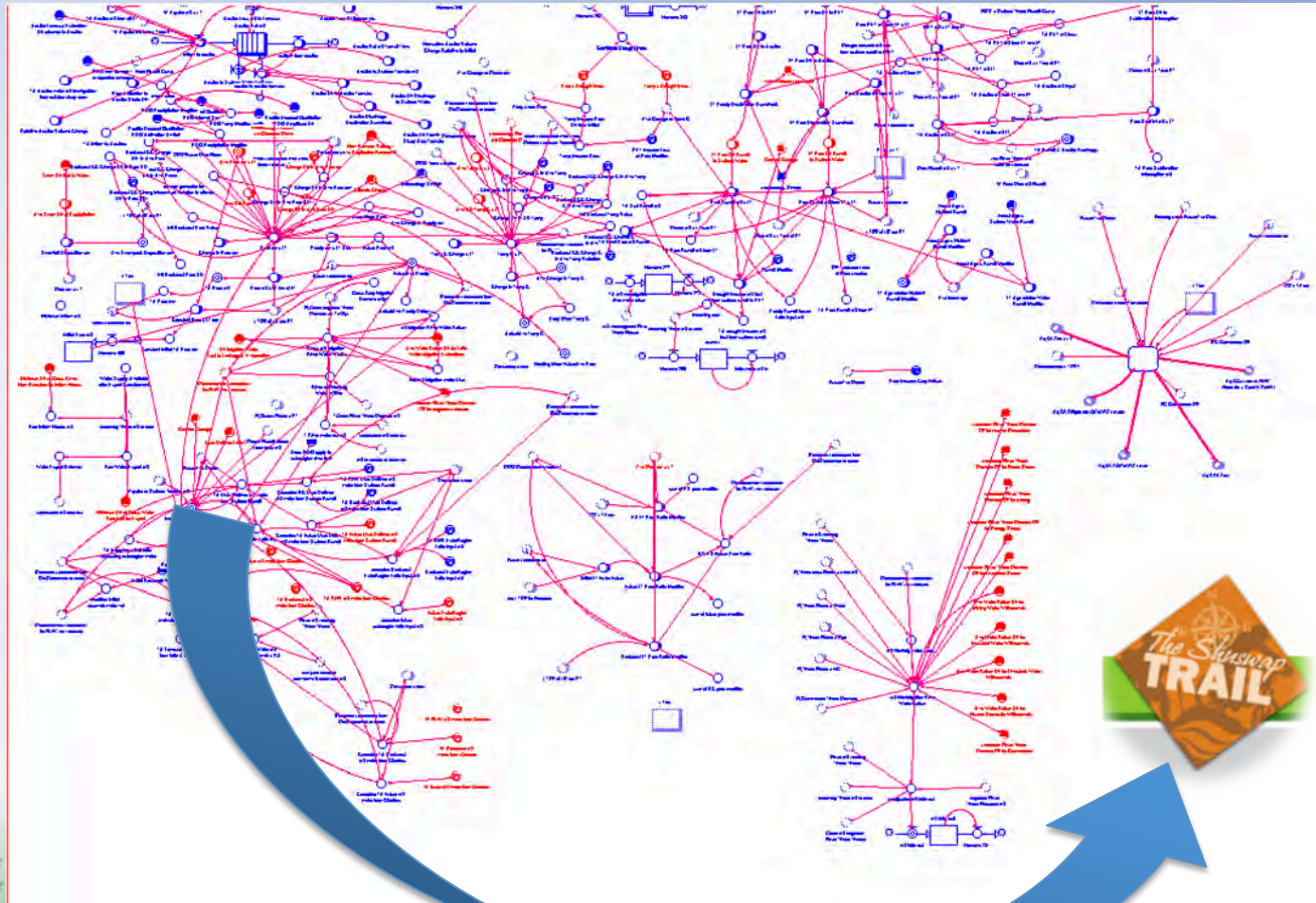
things that affect trails



things that trails affect



Trails are part of a complex system



ALCES Online Helps Us Do The Math And:

Visualize

- Map through time how land use has changed
- Explore “What-If” scenarios to learn about your area’s system dynamics

Customize

- adjust land use rates & practices
- Evaluate natural disturbance and climate change

Compare

- Contrast alternative strategies
- Evaluate the best path forward

Tell Good Stories

Convey ideas, concepts values and objectives through visual and audio media



2 CE Stories re: Trails Edge & Wildfire



Examples of the potential Negative Effects of Edge

- Water Dynamics
 - Discontinuity
 - Sediment transfer
 - Flashier weather response
- Predator corridor
- Invasive Weeds
- Hunting, fishing & ATV pressure
- Viewscapes

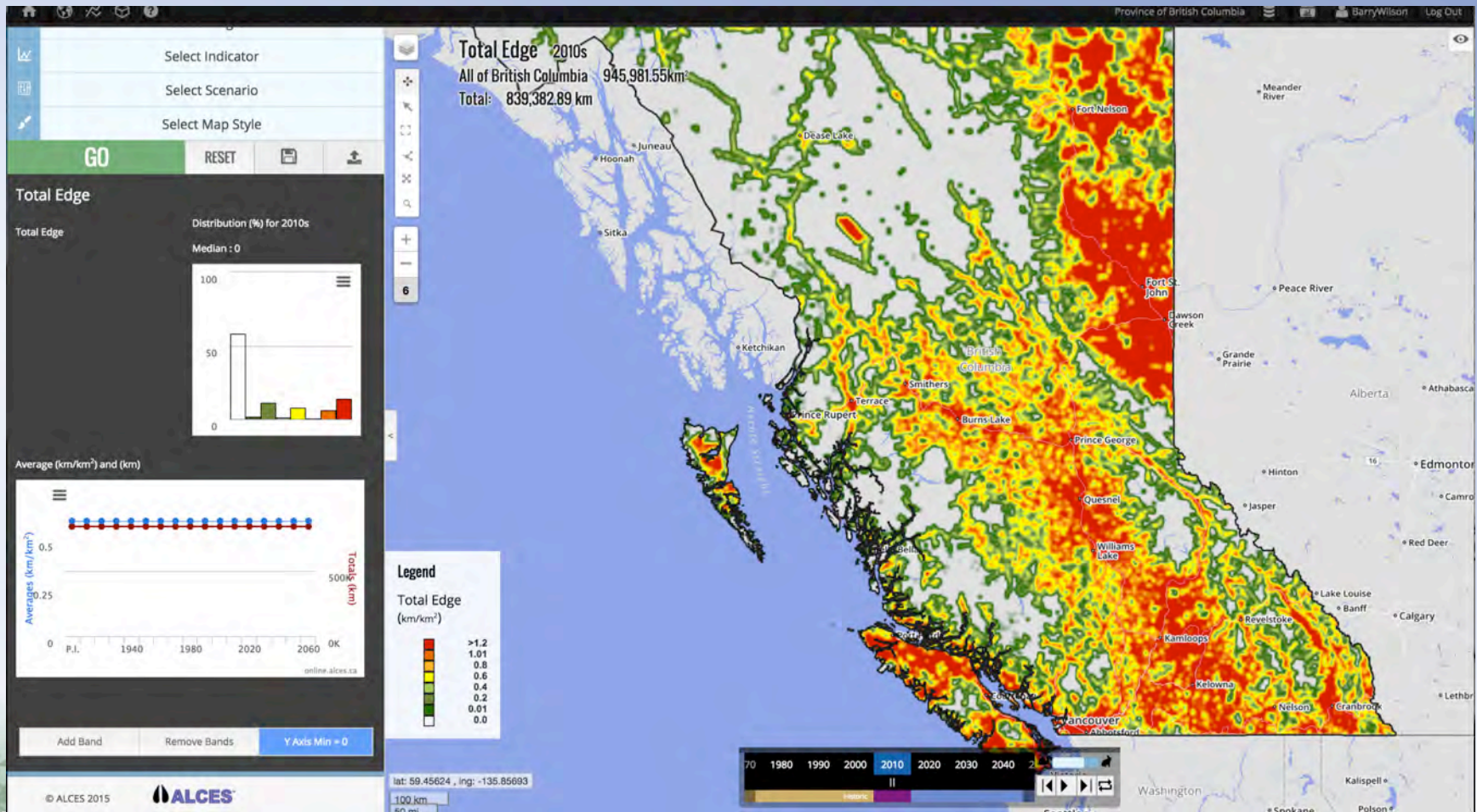


Examples of the potential Positive Effects of Edge

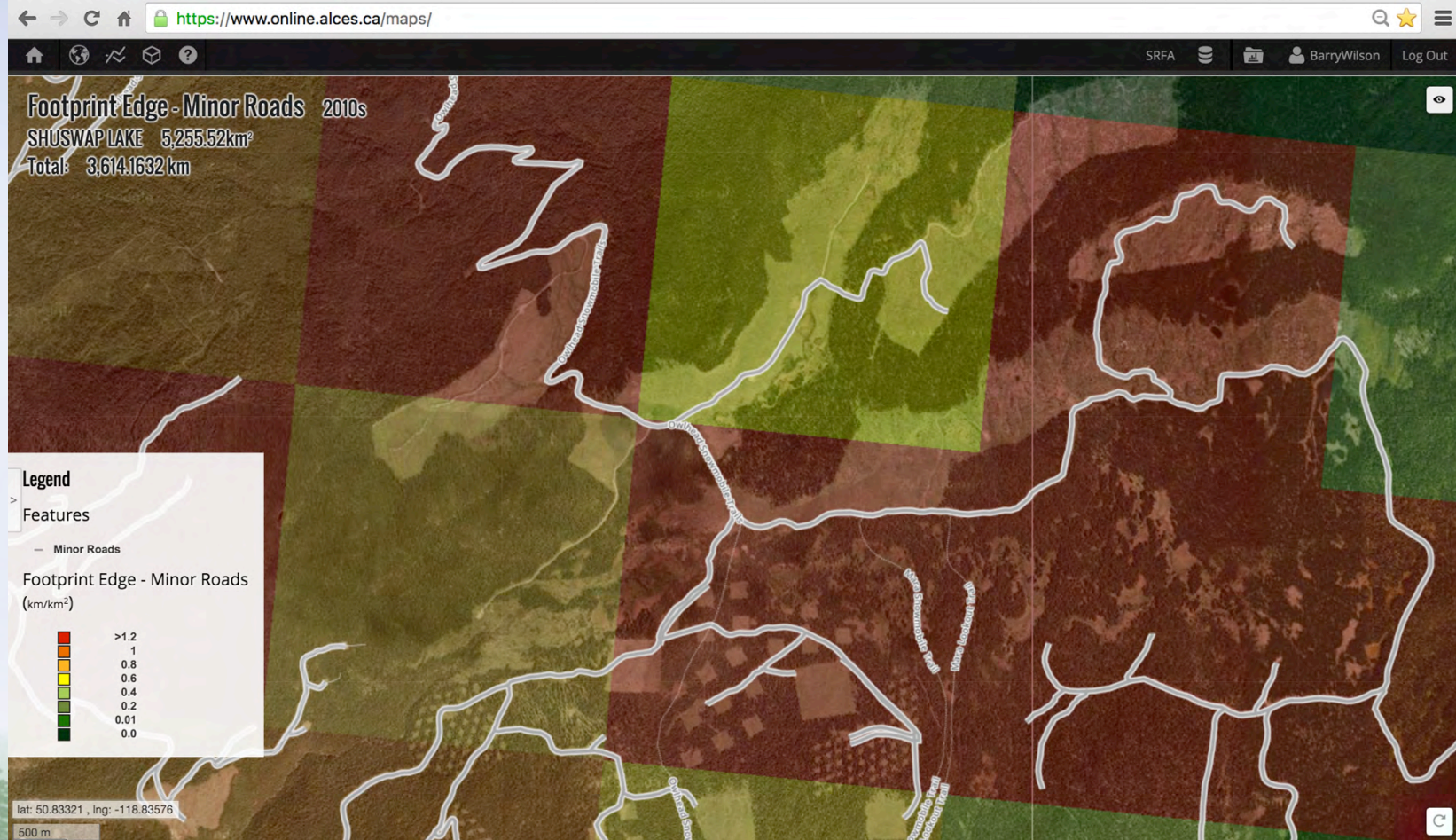
- Economics
 - Employment
 - GDP
 - Royalties/Stumpage/Taxes
- Improved Access To Goods & Services
- Increased opportunity for hunting, fishing & outdoor recreation
- Quality Of Life
- Time On The Trail!!



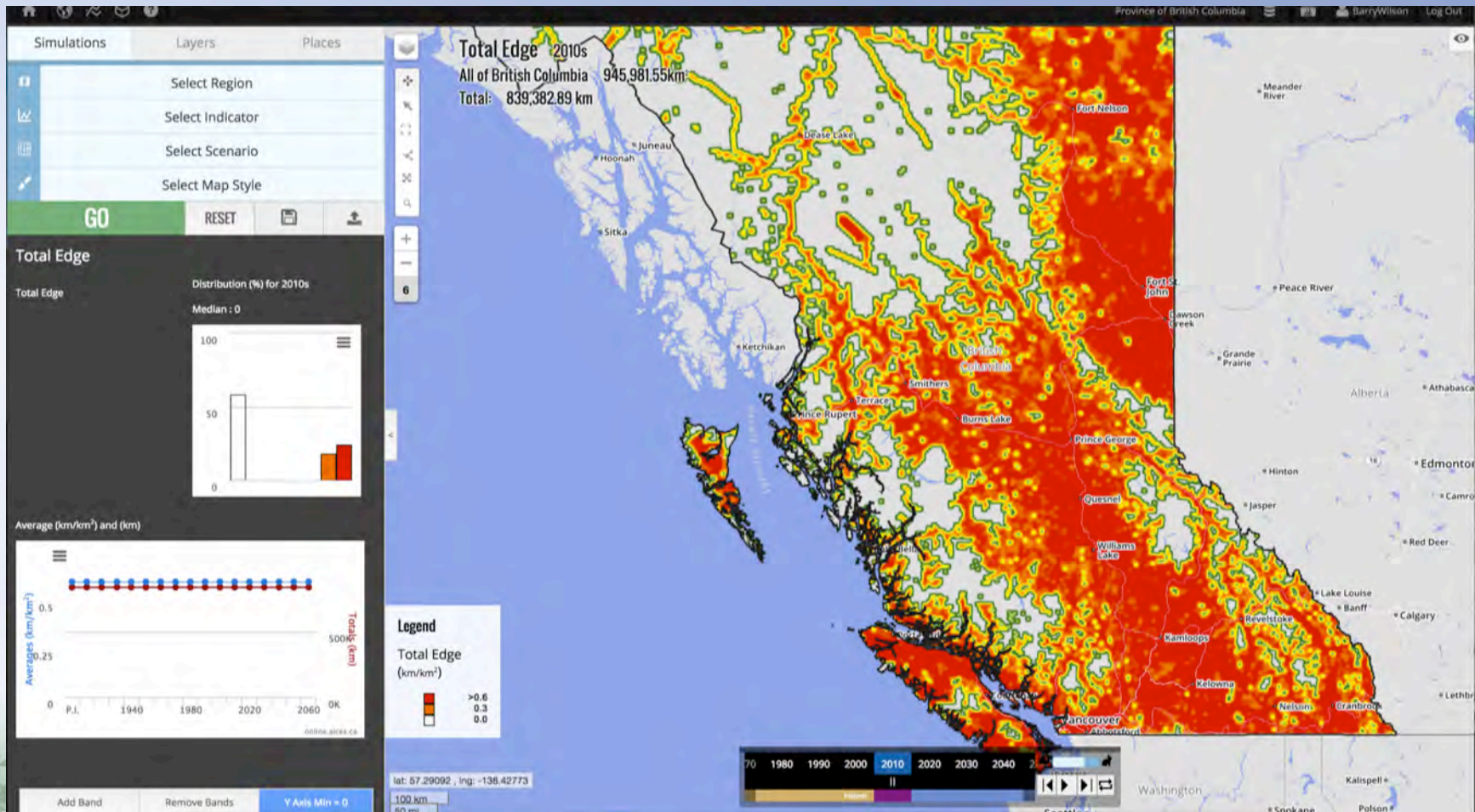
Linear Edge Density



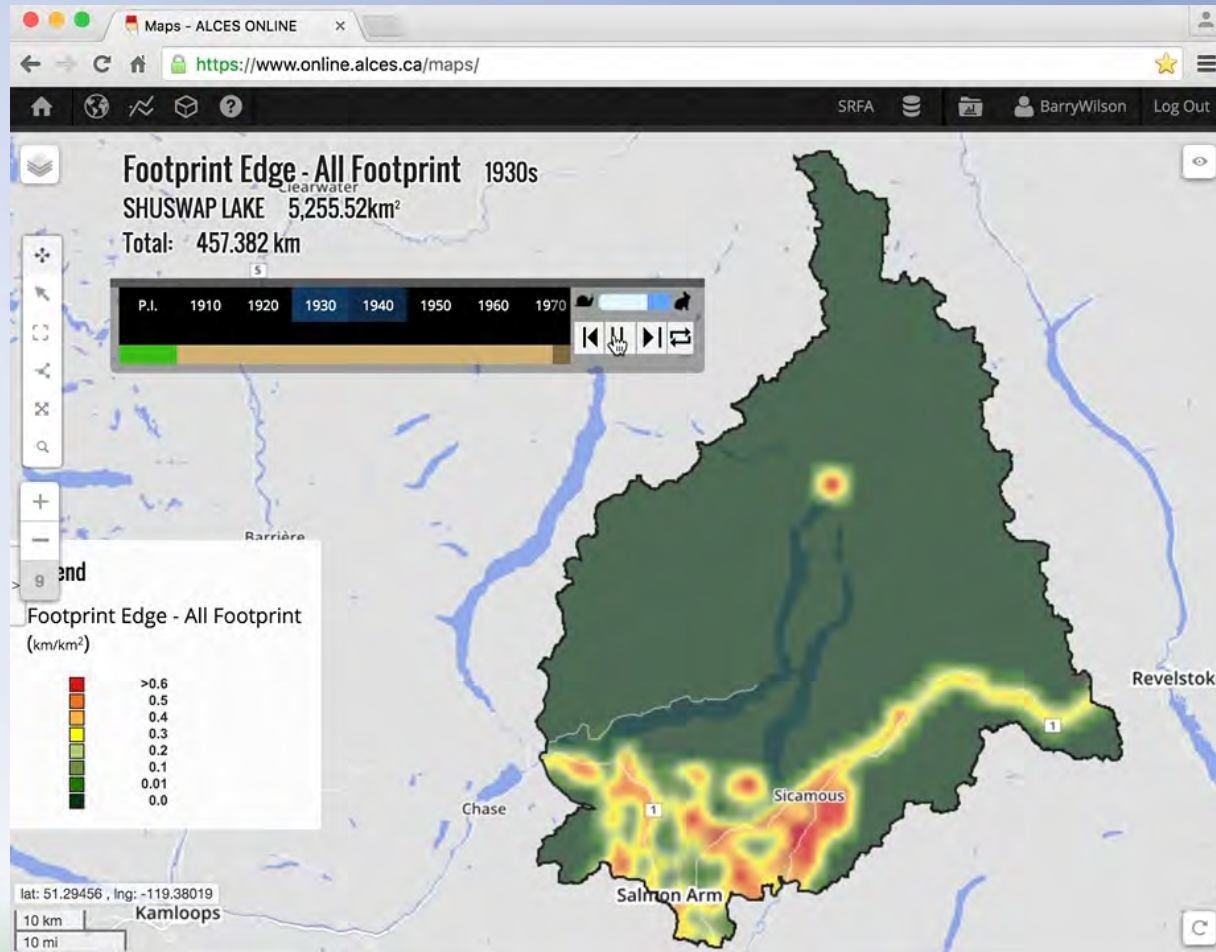
Minor Road Edge Density



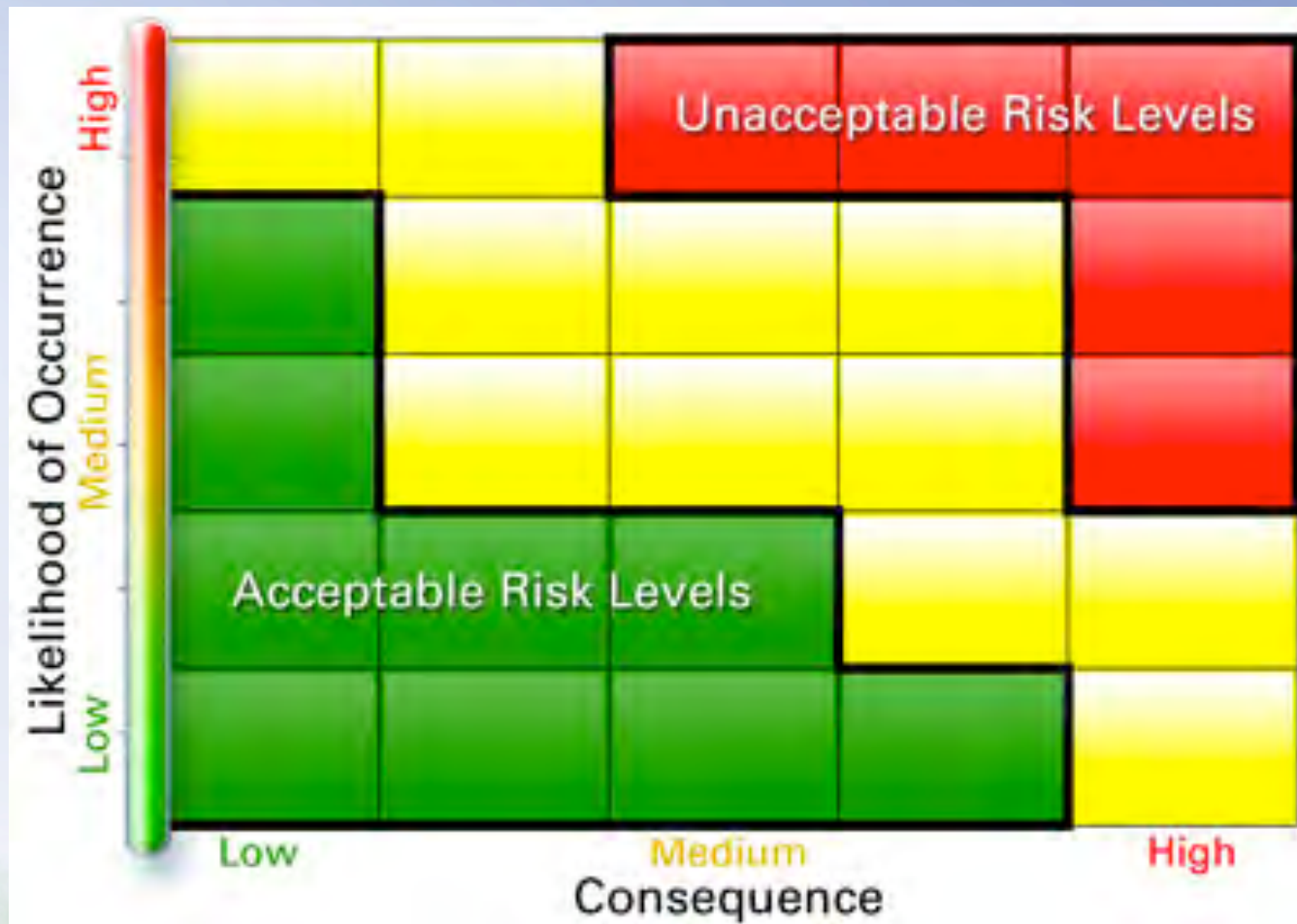
Grizzly Bear LED Threshold



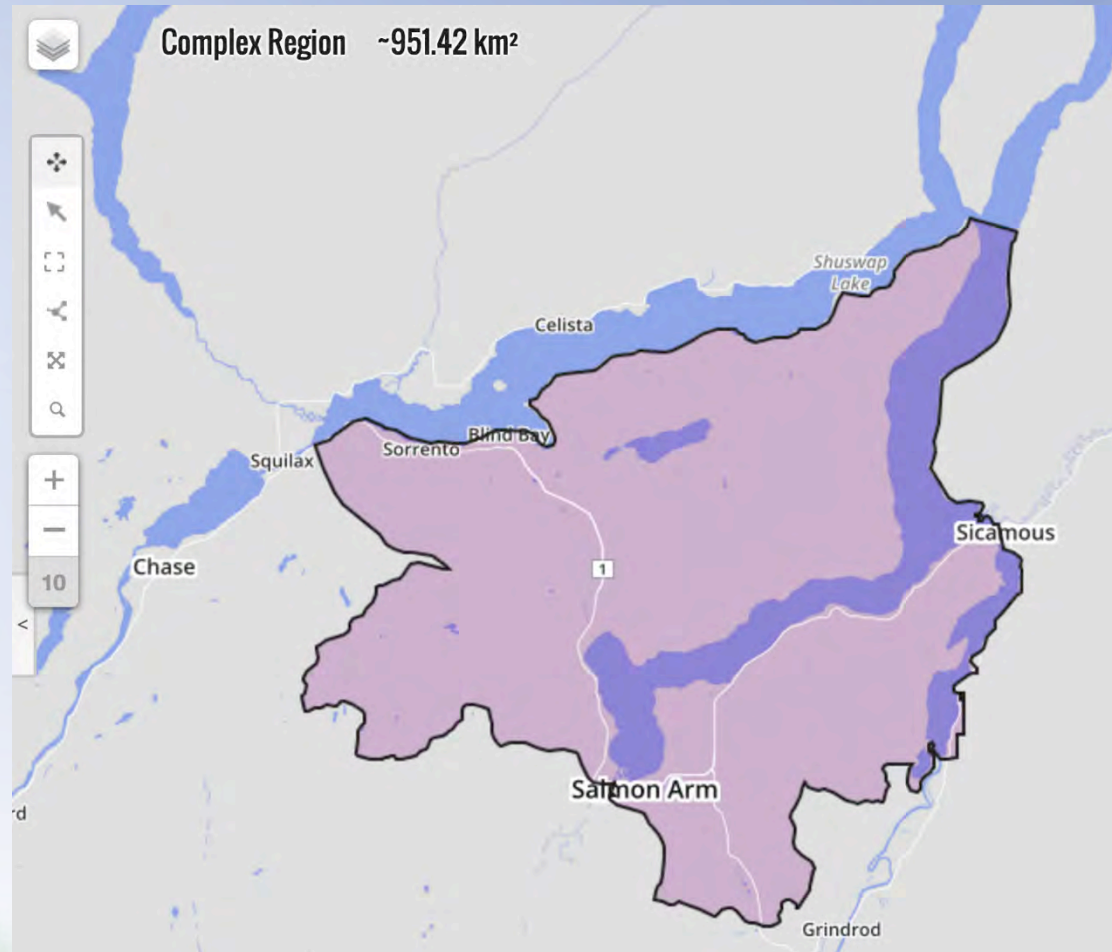
Grizzly Bear LED Max Threshold Red – SRFA Model



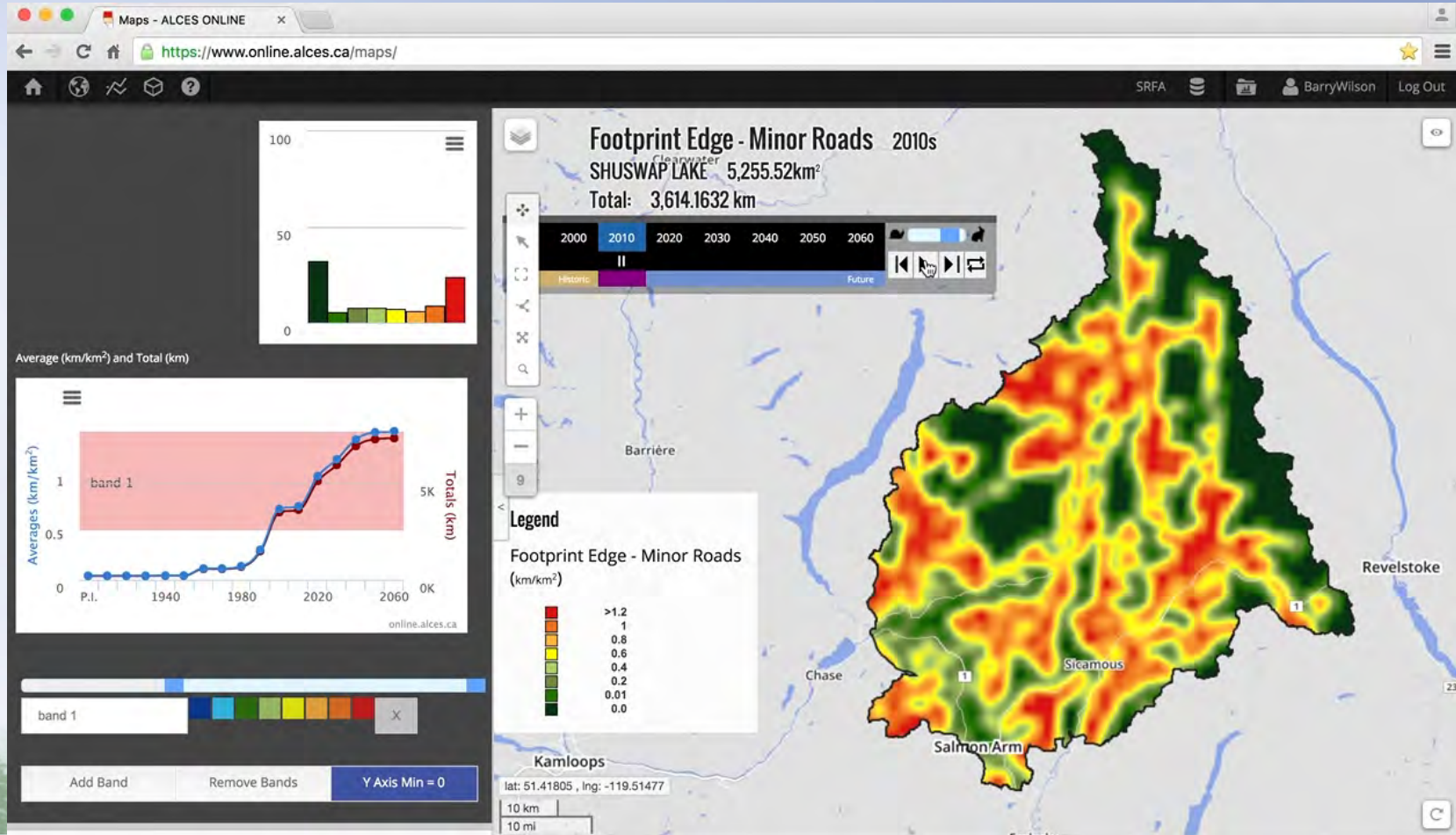
Risk Matrix



Shuswap Grizzly Bears Extirpated



Forecasting Only Logging Roads Grizzly Bear LED Max Threshold Yellow, Double Max Threshold Red – SRFA Model





KEY DRIVER – WILDFIRE
KEY VALUE – PUBLIC SAFETY

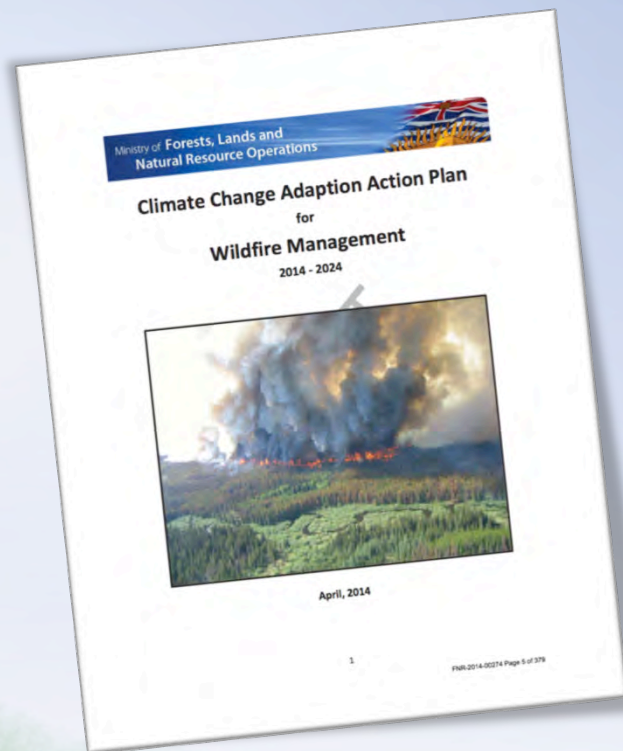
Fire Suppression is Dramatic

- Historic Fire Rate is 85% higher than the last 50 yrs
- **crews are successful in containing 92 % of all wildfires in B.C. within the first 24-hours of discovery**
- Avg is 0.076 %/yr for all forest types.

No Suppression

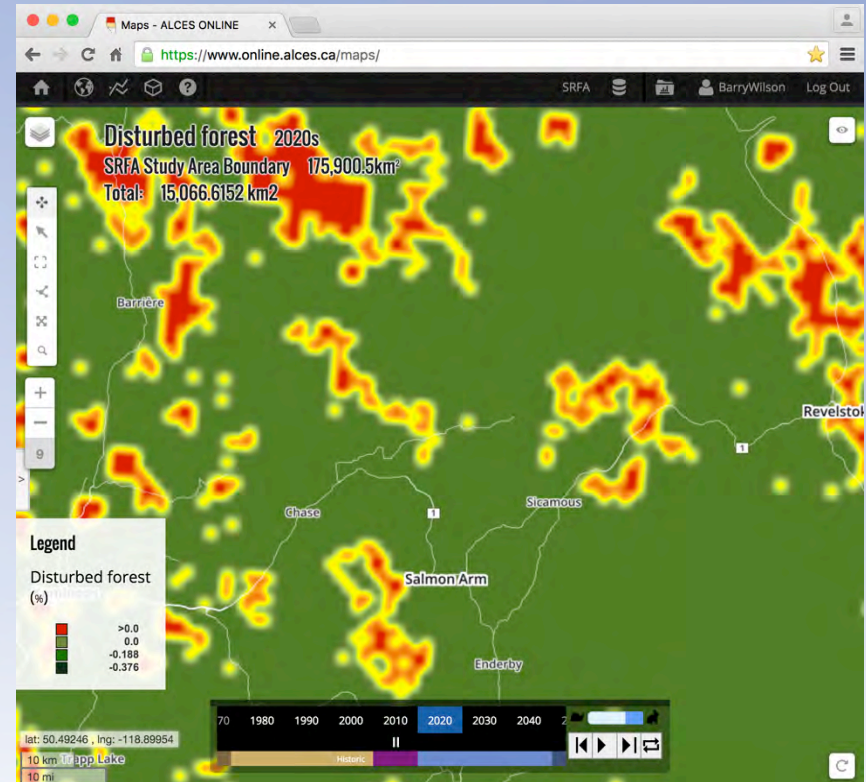
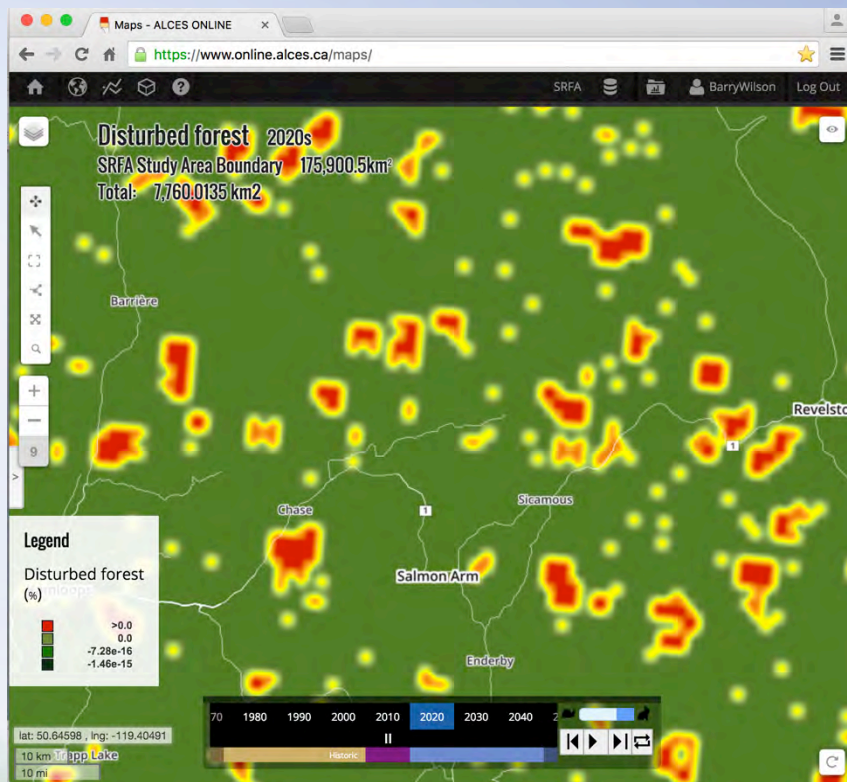


Climate Change Adaptation

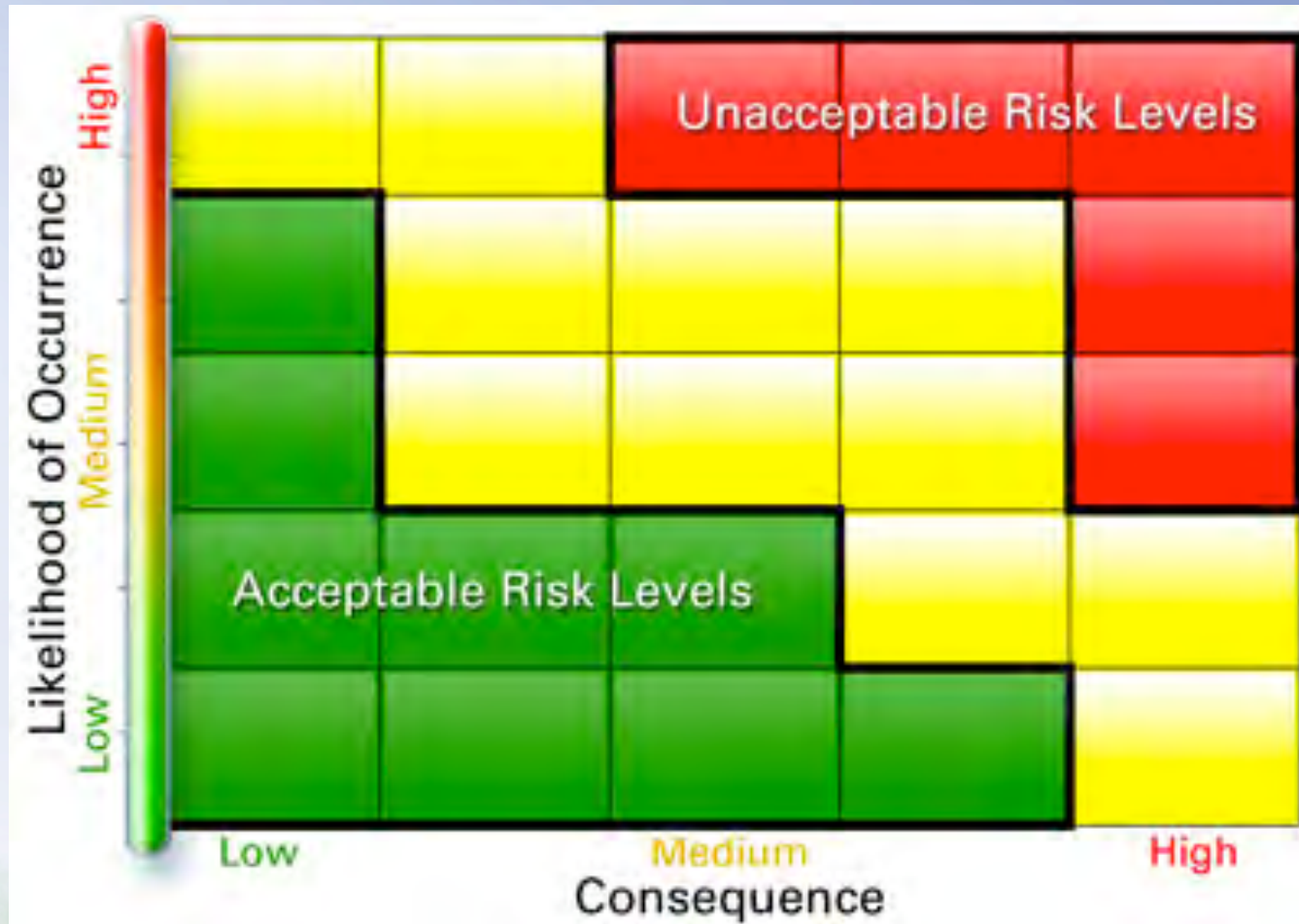


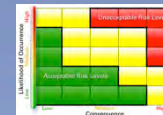
- FLNRO projects an increase of 4⁰C by 2080
- Severe wildfire predicted for the southern interior of BC including:
 - avg fire size doubling to 19,076 ha;
 - fire severity up 40% in spring, 95% in summer and 30% in fall;
 - fire season length and fire frequency up 30%;
 - severe fire behaviour up by 4 - 7%
 - decrease in fire free areas by 39%
 - The Insurance Bureau of Canada predicts that the incidence of severe wildfires will increase in B.C. by 50% or more by 2050.
 - *Could use ALCES to evaluate the risk of climate change to timber supply with an understanding of the economic mitigation costs.*

Current Suppression vs Natural Fire Rate//Climate Change



Risk Matrix



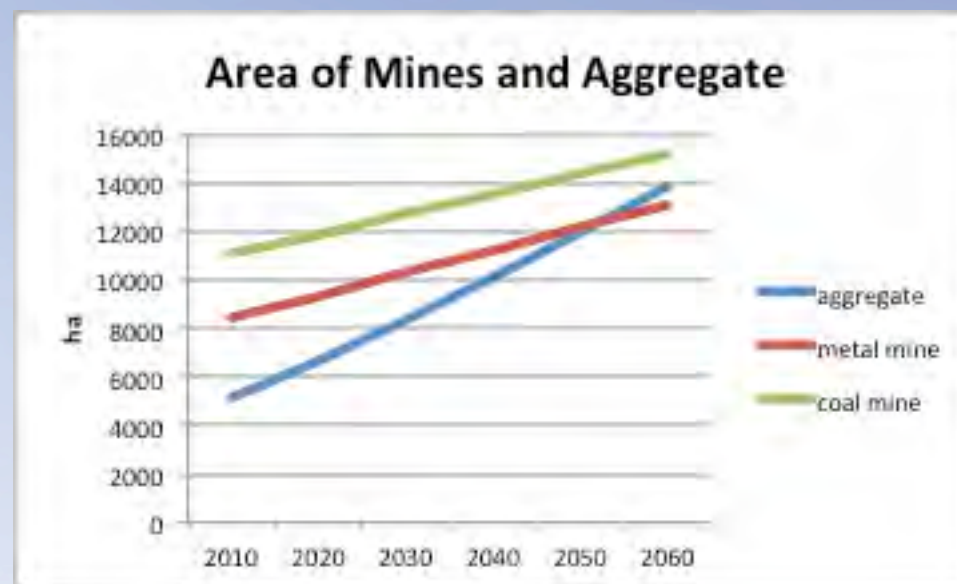


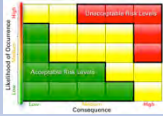
Probability of Occurrence Can Δ with Time

**Probability of
Pollution increases
with area**

Forecast suggest:

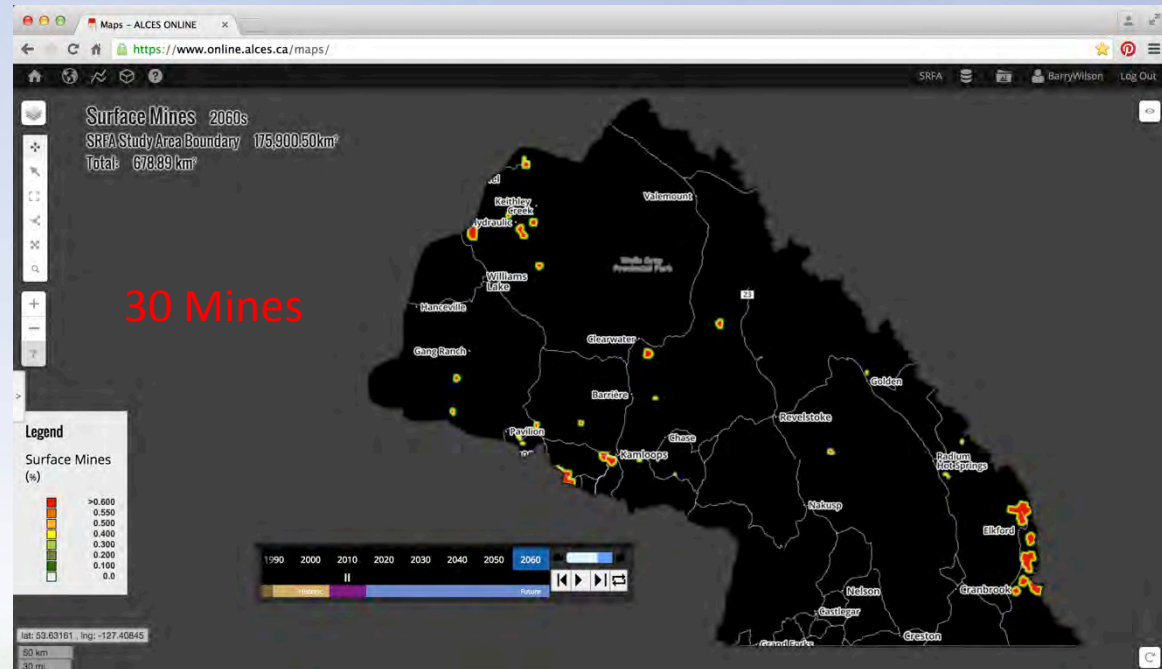
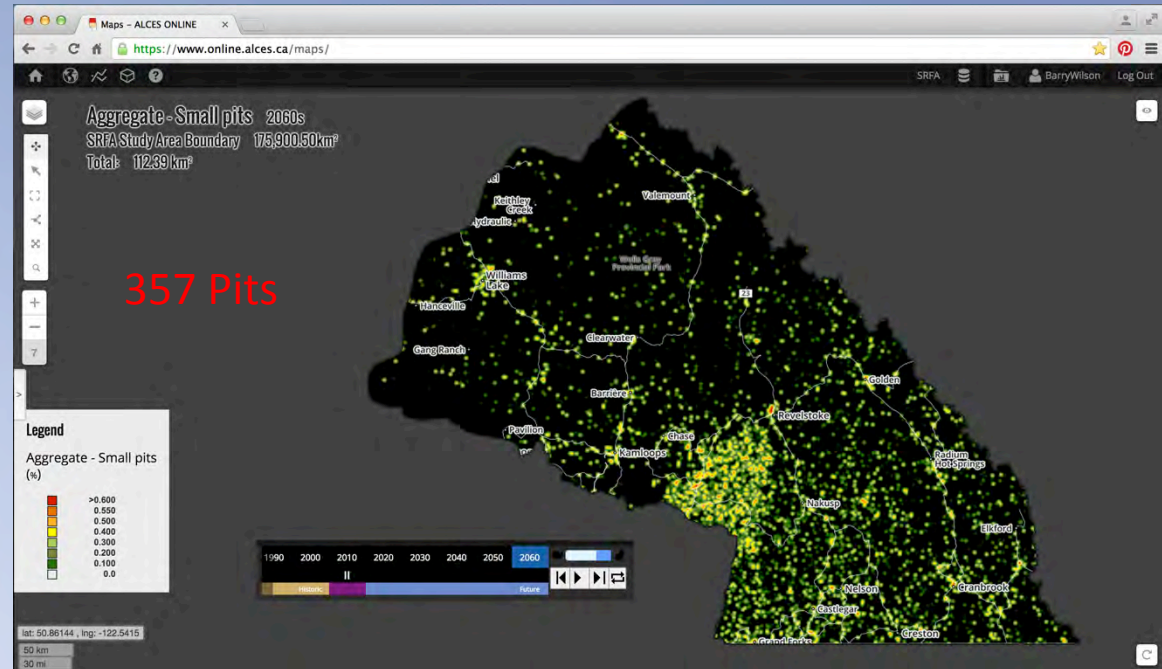
- **By 2050 Aggregate Pits > Metal Mine Area**
- **By 2070 Aggregate Pits > Coal Mine Area**





Probability of Occurrence Can Δ with Time

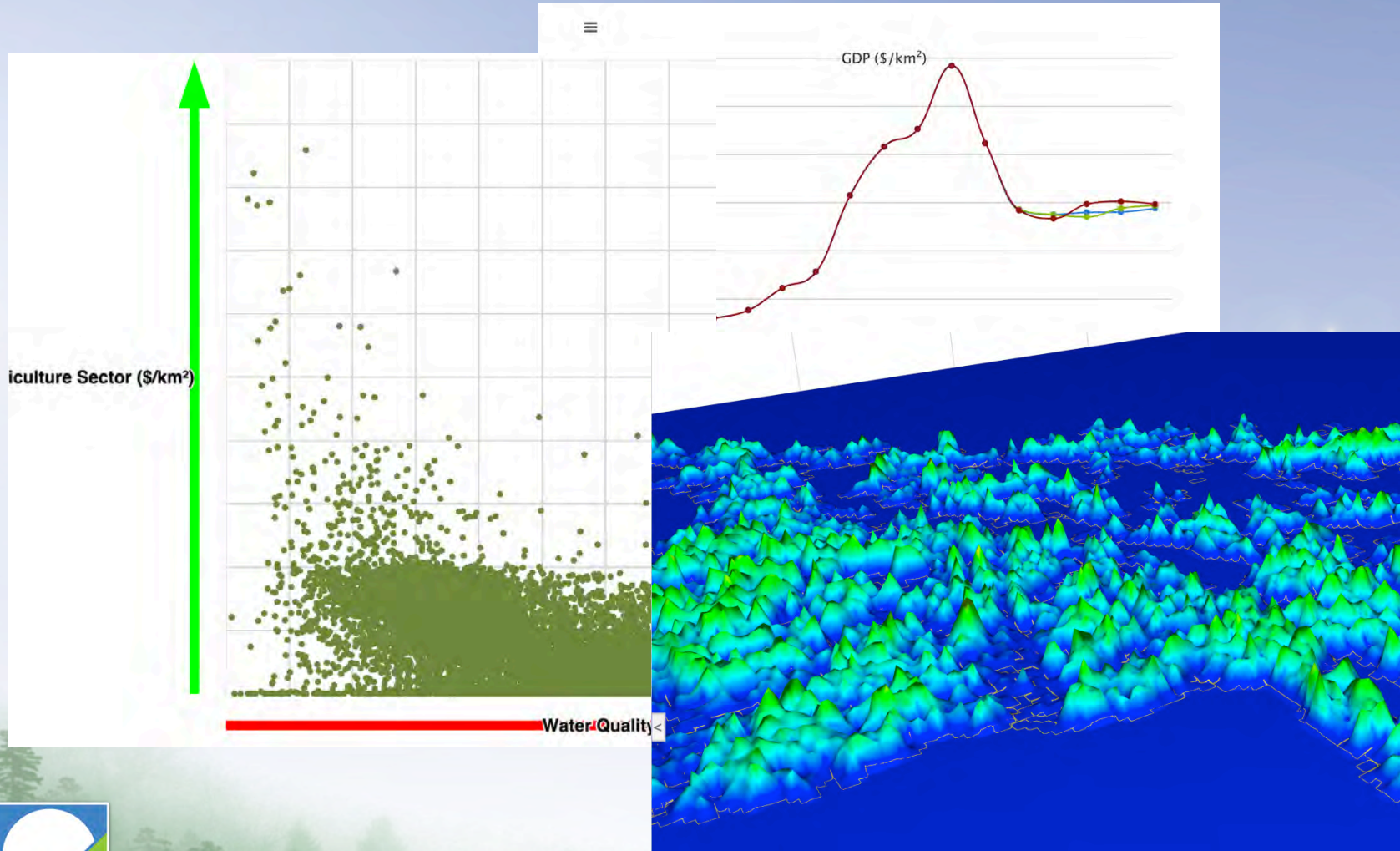
Probability of Pollution increases with frequency



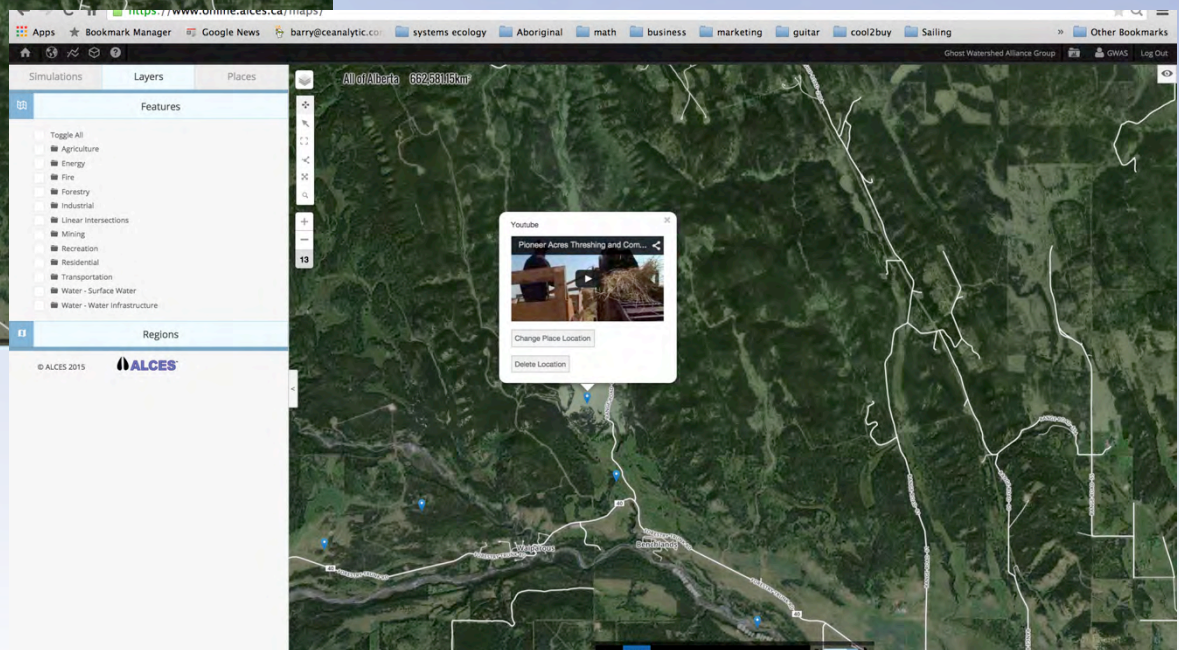
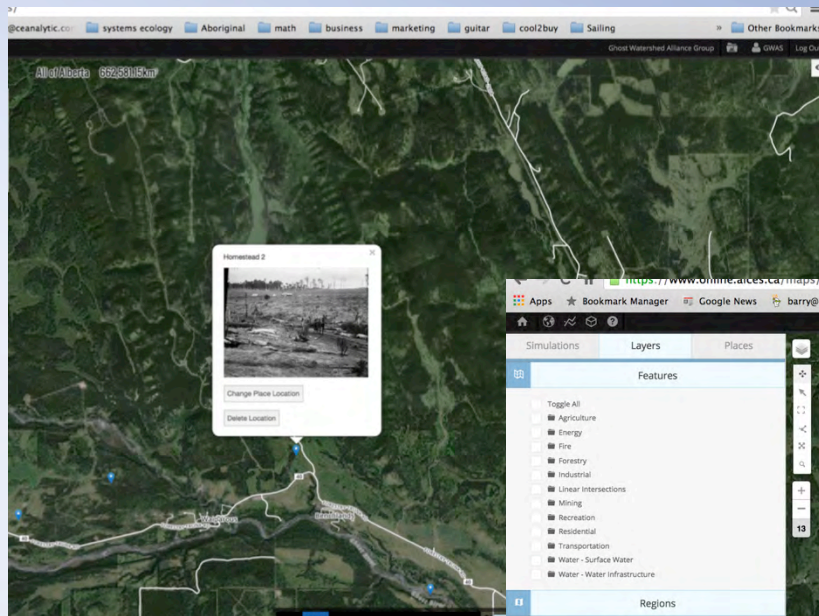
LMFATS Global Literature Review 2011 (Highest Ranked Tools)

1. Public Communications & Education
2. Stewardship
3. Land Use Zones
4. Access Management Plans
5. Footprint Removal & Reclamation
6. Identified Access Corridors
7. Land & Resource Inventories
8. Tradeable Disturbance Permits

Data Presentation



Historic Database Links & multi-media



ALCES Online Could Help Tell The Shuswap Trails Story

- Potential Applications:
 - Arena For Informed Conversation
 - Targets, Thresholds, Strategies
 - Internal & External Policy Development
 - Co-Management
 - Stewardship Plans
 - EA & FSP Referral Responses
 - Your ideas?





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