

Shuswap Trails Roundtable Cumulative Effects Project Scoping



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TABLE OF CONTENTS

Background	4
Research Conducted	5
Key Findings Of The Research	7
Business Case.....	8
Partnership Opportunities	9
Recommended Project Scope.....	9
Approach: Scenario Planning Using ALCES Online	9
Potential Project Objectives.....	10
Proposed Study Area	11
Simulation Timeframe.....	11
Process.....	12
Work Plan	12
Model Setup and Scenario Definition	13
Range Of Natural Variation.....	14
Backcasting.....	14
Base Case (Business As Usual)	15
An example of a spatial simulation in the ALCES Online model is shown in Figure 4.....	16
Learning Scenarios & Sensitivity.....	16
Best Combinations Scenario	16
Deliverables	16
Key Assumptions.....	17

Investment Budget and Schedule 18

 Estimated Project Consulting Cost 18

 Estimated Schedule 19

Index of Tables

Table 1 Phase Cost Breakdown..... 18

Index of Figures

Figure 1 Interconnectedness Of Trails & Other Land Uses / Natural Disturbance 4

Figure 4 Spatial Fragmentation of the landscape 1910, 1960, 2010, 2060 as simulated in ALCES Online
..... 15

Figure 5 Summary Cost Breakdown 19

Figure 6 Summary Level Project Gantt Chart 19



Background

The purpose of the Shuswap Regional Trails Strategy is to protect, enhance and recognize trails as an integral part of the Shuswap lifestyle, culture and economy. This strategy is intended to ensure trails are appropriately authorized, mapped, developed, maintained, and promoted. Further, the strategy hopes to enable the protection and promotion of First Nations interests, reduce/repair ecological damage from all trail use, and contribute to managing land access appropriately.

This ambitious strategy is a working example of how all orders of government, industry sectors and stewardship groups can collaborate in trail management. And while the strategy is ultimately aimed at identifying processes and actions that yield common benefits and minimize unintended negative consequences associated with land and water (setétkwe) based trails, it has the potential to become de facto guidance for holistic watershed management in the Shuswap.

The reason for this is that trails are influenced by many other land uses and natural disturbance and vice-versa as illustrated in Figure 1.

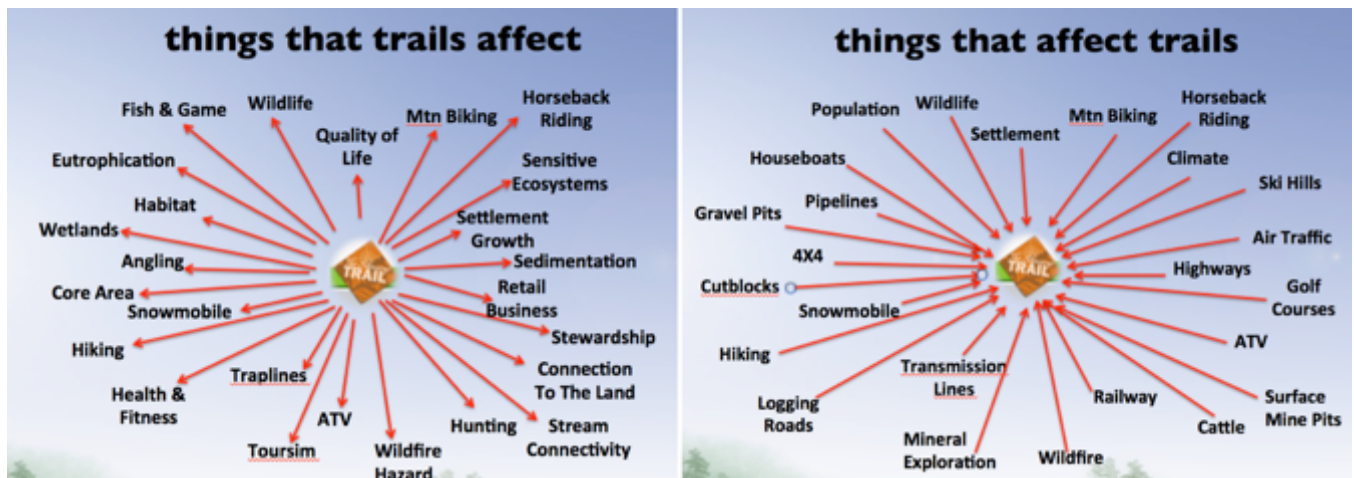


Figure 1 Interconnectedness Of Trails & Other Land Uses / Natural Disturbance

Secwépemc people have long been the caretakers and stewards of these lands and waters and their traditional laws and stewardship principles embody the interconnectedness of all things. And so, in the development of this strategy, it has been identified that it is necessary to look at and understand the cumulative effects of all land uses and natural disturbance on important values in the watershed – that it is not enough to look at recreational trails as one land use in isolation of the rest of the watershed system.

To this end, the Shuswap Trails Roundtable (STR) asked local Systems Ecologist Barry Wilson of CE Analytic Ltd. to assist them with scoping the development of cumulative effects assessment tools and processes to help the group better understand cause/effect and the cumulative effects of all land uses and natural disturbance relating to recreation trails and the activities connected to them. This document is the deliverable emerging from that scoping exercise.

Research Conducted

On December 2, 2015, Mr. Dave Nordquist of the Adams Lake Indian Band and Barry Wilson delivered a presentation to STR members in Enderby, British Columbia providing an overview of the development of a Secwépemc ALCES Online cumulative effects model – work that had been undertaken under the Secwépemc Reconciliation Framework Agreement (RFA). The presentation provided a glimpse into the changes in the cumulative effects of land use since pre-contact¹, and the potential changes 50 years into the future in the Secwépemc Traditional Territory within British Columbia. The presentations are available online here:

http://www.shuswaptrailalliance.com/userfiles/file/DaveNordquist_ShuswapRoundtable.pdf

http://www.shuswaptrailalliance.com/userfiles/file/BarryWilson_ALCES_ShuswapRoundtable%20smlr%20vs.pdf

Following the presentations, STR members split into working groups and identified a number of opportunities for including cumulative effects assessments directly in the Shuswap Regional Trails Strategy. Following are highlights of those identified opportunities:

- Create Educational Awareness
- Help determine the type, appropriateness, amount or intensity of land uses in the watershed
- To help set land management priorities, establish indicators, set targets and thresholds
- To learn and understand how one land use affects other land uses and users and use this knowledge to help set priorities for land management zones to avoid conflicts
- Identifying and managing for historic and cultural values and uses
- Connecting the Strategy to other plans like Official Community Plans

¹ The term “pre-contact” is used here to refer to a period of sole indigenous occupation of the study area, prior to the arrival of immigrants of primarily European descent.

- Contributing to the Greenways strategy to guide future urban growth
- Evaluating the capacity of current and planned trail networks to meet current and future demand
- Identify areas that need to remain undisturbed
- Assess and evaluate deactivation and rehabilitation opportunities for existing roads and trails on the landscape
- To serve as a clearinghouse of information to challenge currently held assumptions and contribute to new research.

To support the development of this scoping exercise, a subcommittee of the Shuswap Regional Trails Strategy Working Group was struck at the June 20, 2016 meeting of the STR held in Salmon Arm BC. Subsequently, Barry Wilson reviewed the Draft Regional Trails Strategy as at October 2, 2015.

Following this, he developed an online survey to assist with understanding the perspectives of the STR on this issue better. The 68 attendees of the December 2015 meeting were invited to participate in the online survey and 26 people (38% responded). The survey explored a number of key aspects including the definition of cumulative effects, a ranking of the opportunities identified in December, key priorities, negative unintended consequences of overlapping land use already observed in the watershed, key geographic areas of concern, funding sources, whether or not to address climate change and the importance of the STR as a leader in innovative, collaborative, community-based land use planning in British Columbia. Barry Wilson then summarized the survey results and reviewed them with the subcommittee to further refine interpretation and application of the results for the purposes of informing this project scoping. Where appropriate, these results are referred to herein as the cumulative effects survey results. The survey was not prepared by statisticians or demographers and so cannot be considered to be statistically accurate – rather it was simply intended as a means to gather more input from the STR members for this scoping work.

Finally, while Barry was already very familiar with the Sir Wilfred Laurier Memorial of 1910, it was reviewed again in the context of this project. The Memorial is a significant milestone in the recent history of the Secwépemc people and the content is considered highly relevant and important to this project. This is underscored by the fact that quotes from the Memorial are referenced in the Shuswap Trails Strategy.

Key Findings Of The Research

There was 100% agreement among survey respondents with the following definition of cumulative effects: **"Cumulative effects are the changes, both benefits and liabilities, caused by our actions today in combination with other past and reasonably foreseeable human and natural disturbances."**

Given the 11 choices survey respondents were provided with in the survey, the 5 highest ranked priorities for land use planning in the Shuswap Watershed are as follows:

- Control of Invasive Species
- State of environmental and/or cultural Sensitive Area integrity & protection
- Wildlife habitat integrity
- State of the economy & jobs
- Water quality

Given the 11 choices survey respondents were provided with in the survey, the 5 highest ranked opportunities for including a cumulative effects assessment in the Shuswap Regional Trails Strategy are:

- To help determine the type appropriateness, amount or intensity of land uses in the watershed
- To identify areas that need to remain undisturbed
- To learn and understand how one land use affects other land uses and users and apply this knowledge to help set priorities for land management zones to avoid conflicts
- To establish monitoring measures, and to set targets and/or thresholds
- To connect the Strategy to other plans like Official Community Plans

Survey respondents were asked to identify unintended consequences of concern from overlapping land uses they are currently observing. Three-quarters of responses can be categorized as follows:

- Conflicting land uses – 29%
- Habitat or Sensitive Area degradation – 27%
- Water quality degradation – 16%

87% of respondents feel that the potential implications of climate change need to be included in the assessment.

Respondents were asked to provide their perspective on funding sources that should be pursued to fund a Shuswap Trails Roundtable Cumulative Effects Assessment. The highest response category was Government sources; listed highest to lowest – BC Government, Federal Government and Municipal Government. Next highest identified sources were grants, corporate partnerships and STR Member Contributions. Community fundraisers, online crowdsourcing, philanthropists and pro bono filled out the remainder of suggestions.

70% of respondents identified that it is either a high value or critical that the STR be seen as a leader in the application of cumulative effects assessments in innovative, collaborative and community-based land use planning in BC.

Business Case

Developing a full business case for this proposal is beyond the scope of this work. However, as the pace and scale of proposed development activities within the Shuswap watershed continues to increase, it is vital that there be a strong understanding of the changes that may happen over time to all resources. A holistic understanding of cumulative benefits and liabilities of alternative land management strategies by the members of the STR will enable better and more efficient land and resource management in the watershed. Some of the benefits include:

- Streamlining project referral processes leading to faster approvals and lower development costs
- Greater multi-interest buy-in and support
- Increased investment certainty and clarity of risks
- Home grown solutions informed by learning from our past
- Fewer unintended or unforeseen conflicting land uses
- Increased inter-agency cooperation and reduced duplication
- Better protection of rare and threatened ecosystems through increased understanding
- Opportunities for innovation and synergies among land users – e.g. cost sharing for road development, maintenance and decommissioning
- Enhanced opportunity for private/public partnerships
- Identifying potential improvements to existing legislative processes and requirements for land management
- Harness big data from multiple sources for regional perspective and tactical detail
- Leading edge visualization to make it easier to understand and communicate landscape dynamics using multi-media
- Value-relevant scalability
- Providing direction to key research needs and opportunities

The approach proposed goes well beyond Geographic Information Systems (GIS). A significant benefit of the cumulative effects approach using the ALCES tools is the collaborative development of scenarios to explore the long-term consequences of different land-uses on the economic, ecological, and social fabric of defined landscapes. The ALCES tools are unique in the world for their capability to simultaneously simulate multiple proposed development projects in combination with other land and aquatic activities, natural disturbance and climate change.

Partnership Opportunities

This work could greatly benefit and assist a number of other initiatives within the Shuswap Watershed that could become active partners with the STR. Some examples include works undertaken by Sexqéltkemoc Te Secwépemc, the Shuswap Watershed Council, Forest Stewardship Plan development, twinning of the Trans Canada Highway, the Agricultural Land Reserve, the Columbia Shuswap Regional District, the City of Salmon Arm, the Ministry of Forests, Lands and Natural Resource Operations and a wide range of organizations that make up the 217 members of the STR.

There are many examples from around the world of how this cumulative effects approach has been or is being used to help multi-stakeholder groups find common ground and consensus on a path forward that breaks the zero sum paradigm to provide more wins than losses. Recent examples that Barry Wilson has been directly involved in include the Secwépemc RFA ALCES Online Cumulative Effects model, An Assessment Of The Cumulative Effects Of Land Use & Management in St'kemplupsemc Te Secwepemc Traditional Territory, the Alberta Land Use Framework (South Saskatchewan, North Saskatchewan and Lower Athabasca Regional Plans, South Athabasca Sub-regional Plan), the Cumulative Environmental Management Association's Terrestrial Ecosystem Management Framework, The Chief Mountain Study, a Life Cycle Assessment Comparing Forest Based Biomass With Lignite Coal Combustion For Electricity in Ontario, Asset Planning For SAGD Oilsands Development, the Spius Creek Watershed Risk Assessment, the Robson Valley Enhanced Forest Management Pilot Project and Scenario Planning For The Lakes & Morice Innovative Forest Practices Agreement.

Recommended Project Scope

Approach: Scenario Planning Using ALCES Online

None of us has a crystal ball enabling us to predict the future. Our ability to anticipate future outcomes is limited by our understanding of the complex systems we are a part of that are in constant flux and subject to both cyclical and random disruptors – and in reality, our understanding of these systems is shallow. And yet, we know that the choices we make today will directly influence the outcomes of the future. So, how do we go about planning for an unpredictable future with less than a full understanding of the dynamics at play?

Scenario planning was developed as a strategy to deal with the impossibility of knowing precisely how the future will play out. The approach is founded in the idea that in the face of this uncertainty, it is a good idea to find and implement one or more strategies that play out well across several possible futures – covering our bases if you will. In practice, this means we need to work through a process of testing a number of scenarios, each one diverging in emphasis from the others in order to explore the plausible solution space of the future. In the end, we hope to uncover the driving forces of change and the key uncertainties that could significantly alter them.

There are 5 key drivers of change that need to be considered; social, economic, ecological, technical and political. These forces of change manifest themselves in the form of land or water use by humans or natural disturbance. We measure the effects these changes could bring by using indicators that tell us how important values respond to the changing conditions – kind of like the indicator gauges on the dashboard of your car. Here's where it gets challenging.

We know that everything is connected to everything, meaningful timelines for natural systems can extend into centuries and watersheds are vast landscapes. And so the orders of complexity associated with the simultaneous interaction of all these forces across time and space adds up to a level of complexity that is very difficult if not impossible to manage in one's mind without the help of analytical tools and processes.

Based upon my 27 years of experience in land management planning, the single best tool available to assist planners and decision-makers with handling this complexity in a scenario planning approach is the ALCES Online simulator. ALCES is an acronym for A Landscape Cumulative Effects Simulator. For over two decades, governments, businesses, multi-stakeholder groups and organizations around the world have used this cumulative effects model working collaboratively towards balanced land use. Most recently, the Secwépemc RFA Bands have been working extensively with this powerful software to assess cumulative effects and support strategic planning within their Traditional Territories, which incidentally fully include the Shuswap Watershed. Building on the stewardship leadership of the Secwépemc Nation, ALCES Online is uniquely and ideally suited as the primary tool to support a cumulative effects analysis project for the STR. Using this platform would allow existing planning investments to be leveraged for even more value by more of us. And by using the same software and databases, an STR Cumulative Effects project would greatly help move the bar forward and improve our collective understanding of the complex but vital interactions of all human land uses and natural disturbance in the watershed which will greatly benefit everyone.

Potential Project Objectives

The project's objectives should be ratified through a structured process with the STR. However, the following key elements are offered as a starting point.

1. To increase landscape dynamics understanding within the Shuswap Watershed using scenario planning.
2. To establish a spatial, online strategic landscape analysis tool that creates maps, graphs, histograms and imagery to very quickly and on demand:
 - a. show historic changes from pre-European contact to present,
 - b. show future changes associated with proposed activities under different management strategies,
 - c. assess the risk to key values associated with uncertainty including climate change.
3. To assist long-term stewardship of multiple land uses within the finite boundaries the Shuswap Watershed by:

- applying traditional Secwépemc laws & oral knowledge through a systems view of the watershed
- identifying specific strategies, actions, monitoring and planning that can reduce conflict, increase shared benefits and avoid negative, unintended consequences.
- provide valuable input into natural resource management planning in the Shuswap Watershed
- combine historic and contemporary traditional and western science knowledge
- inform individual project development referral responses
- identify strategies that lead to long term resilience of culture, economy & environment
- identify future research priorities

Proposed Study Area

As per Shuswap Trail Alliance Overview Map shown in Figure 2 Overview Map, the recommended study area includes the Shuswap Watershed covering roughly 13,300 km². Utilizing the existing ALCES Online high-resolution data set, we know that nearly 2% of the study area is currently occupied by linear footprint, which translates into roughly 25,000 km's of linear edge – about 5 times the width of Canada. The vast majority of this is attributable to logging roads, but the data suggests that approximately 3,200 km's of trails currently exist within the study area. 71 % of the area is forested and lakes occupy a further 5%.

A key benefit of the ALCES Online tools is that sub-watershed areas can be assessed separately within the watershed as required – for example looking at key hot spot planning areas like the Mt. Ida Sacred Area.

Simulation Timeframe

Forecasting is the estimation of what will happen in the future. Forecasting with a holistic landscape simulation model is a key component of the scenario planning approach. However, without an understanding of the historic dynamics of ecosystems and industrial land-use practices, it is difficult to construct a meaningful “reference” point against which to compare future landscapes influenced by one or more land-uses. Backcasting is a unique capability of the ALCES Online tools. Backcasting is similar to forecasting but looks back in time rather than into the future.

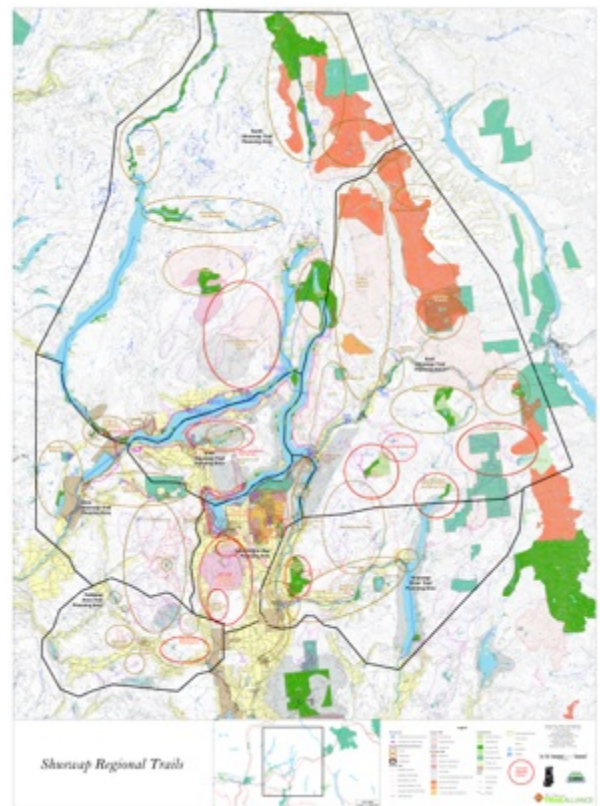


Figure 2 Overview Map

Temporal boundaries for the project need to be considered in the context of a number of factors including the lifespans of contemplated developments, forest rotations, climate change and cultural timelines. At present, the ALCES Online tools and data are well suited to a backcasting timeframe of 100 years and a forecasting timeframe of 50 years broken down into decadal increments. This is also a close approximation of 7 generations. The Range of Natural Variation estimation for benchmarking should be calculated in the pre-contact or at least pre-industrial era. See more detail on this under Work Plan.

Process

Consistent with the current protocol for the STR, a preferred model for project decision-making is a consensus-based approach utilizing a skilled facilitator with experience in land use scenario planning and structured decision-making. A primary benefit of a neutral facilitator is that there is always one person who is responsible for the development and evolution of the group and who can provide decision support and mediation if needed.

The facilitator should have 5 key responsibilities:

- to maintain or develop a cohesive team,
- to ensure opportunities for equitable participation,
- to be a process advocate
- to establish mutual understanding through a consensus based decision-making process, and
- to share knowledge of team building, coaching, conflict transformation and consensus building processes to build the capacity of the group.

Some suggested Guiding Principles for the group include:

- equitable participation: everyone gets to attend & speak
- mutual understanding: all opinions are considered
- inclusive deliberation: all ideas are talked through
- shared responsibility: no one dominates and everyone makes an effort to create sustainable agreements
- members are accountable to their organization, come to meetings prepared, are able to attend and participate consistently, and are fully informed and up to date about the subjects to be discussed.

Work Plan

This work plan was developed as the best combination to meet the understood needs of the Shuswap Roundtable from a range of options that are possible. While alternatives, trim-downs, and scale-ups can be undertaken, the scope of work was developed through the combined effort of the members of the STR and drawing upon Barry Wilson's 27 years of integrated resource planning and cumulative effects

assessment experience in BC, with an intention of meeting the STR's identified needs in a timely and cost effective manner.

The proposed work plan has been broken down into 5 major phases in addition to Project Management. Each phase is briefly described here. A very important aspect of this work is the **active engagement of the STR members** in developing the scenario terms of reference and interpretation of the results.

Model Setup and Scenario Definition

Either 1 - 2 day facilitated workshop or 2 – 1 day facilitated workshops will be undertaken in order to set the Terms of Reference for the initial ALCES Online model setup, to select the Valued Components and their associated simulation Indicators, to define the scenario narratives, identify key modelling assumptions and anticipate any sensitivity analysis that will be needed / desired including climate change. A 1-day workshop is assumed to be 6 hours of meeting time involving a Technical Working Group that would be struck as a sub-committee of the STR.

Value Component and Indicator selection is very important because the indicators will be the primary basis for scenario performance comparison. Based on previous experience, the following criteria for indicator selection are proposed:

- *Cultural, Economic or Ecological Relevance*
 - Considered important (e.g. food, spiritual significance, quality of life)
 - Can be linked to plans and policy
 - Simple and understandable to the target audience
- *Response Variability*
 - Predictable response to stressors
 - Anticipatory, sensitive, early warning
 - *Low natural variability, high signal*
- *Management Relevance*
 - Stated in management goals etc.
 - Applicable to management decisions or thresholds
- *Feasibility of Implementation*
 - Availability of affordable, existing data & not cost prohibitive to measure
 - Low impact of measurement
 - Easy to measure, repeatable
- *Interpretation and Utility*
 - Stress response distinguishable from natural variability
 - Can help to identify causes of ecological response
 - Historic data, baseline conditions known

Range Of Natural Variation

A very powerful benefit of backcasting is the ability to simulate a pre-contact landscape and calculate a reasonable estimate of the Range of Natural Variation (RNV) for important values such as food security.

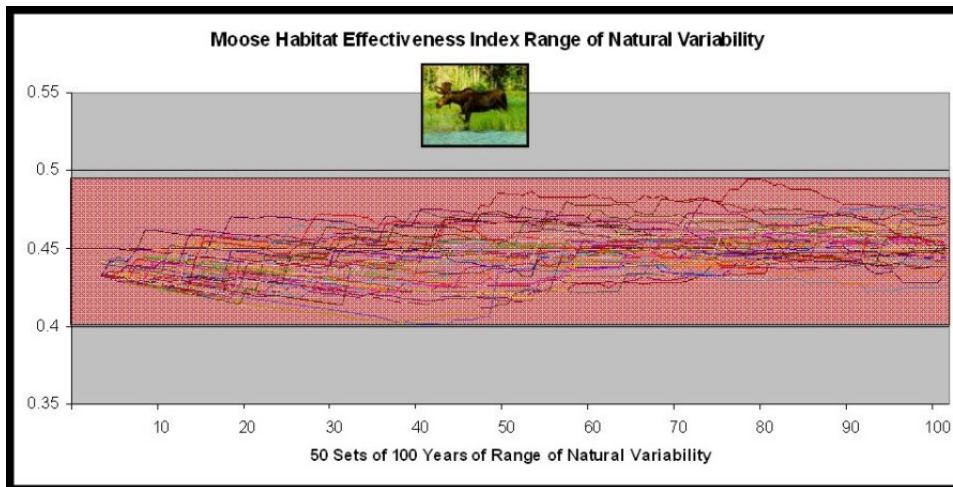


Figure 3 Example of Moose RNV

Wildfire, avalanches, floods and climatic regimes were major natural disturbance agents responsible for maintaining variation in structure and composition of the pre-contact landscape. This benchmarking work will allow the comparison of the effects of historic climate on various values with the

potential future effects of climate change. A stochastic simulation

approach will be used to capture the inter-annual variation that occurs because of random natural disturbance within a range of probability. The precise attribution of RNV models may not be possible. However, the intent is not to define an exact answer, but to compute “defendable” variation that approximates natural pre-contact landscapes.

RNVs are used to assess current and future relative risk to indicators: for instance, for wildlife indicators, RNVs represent a range of habitat conditions over which a population can be maintained. The degree by which current or future conditions depart from estimated RNV (particularly the lower boundary of RNV) is proportional to the degree of current or future risk to the indicator, as habitat values below RNV may not be sufficient to maintain pre-contact populations, or indeed any populations at all.

Backcasting

Understanding cumulative effects requires not only a view of the future, but also an understanding of the past. Backcasting, or historic land-use simulations enable people to examine and learn from history. The reconstruction of historic development can be derived from existing historic records, oral knowledge or it can be interpolated where suitable data is not available. In western Canada, the period prior to contact with European and American prospectors and settlers is an important baseline. It represents how ‘things were’ for countless generations prior to contact. Indigenous people were an important component of the landscape system hunting, gathering, and fishing to secure food, shelter and clothing and managing the landscape with natural disturbance to renew ecosystems. As caretakers of Mother Earth, they did this

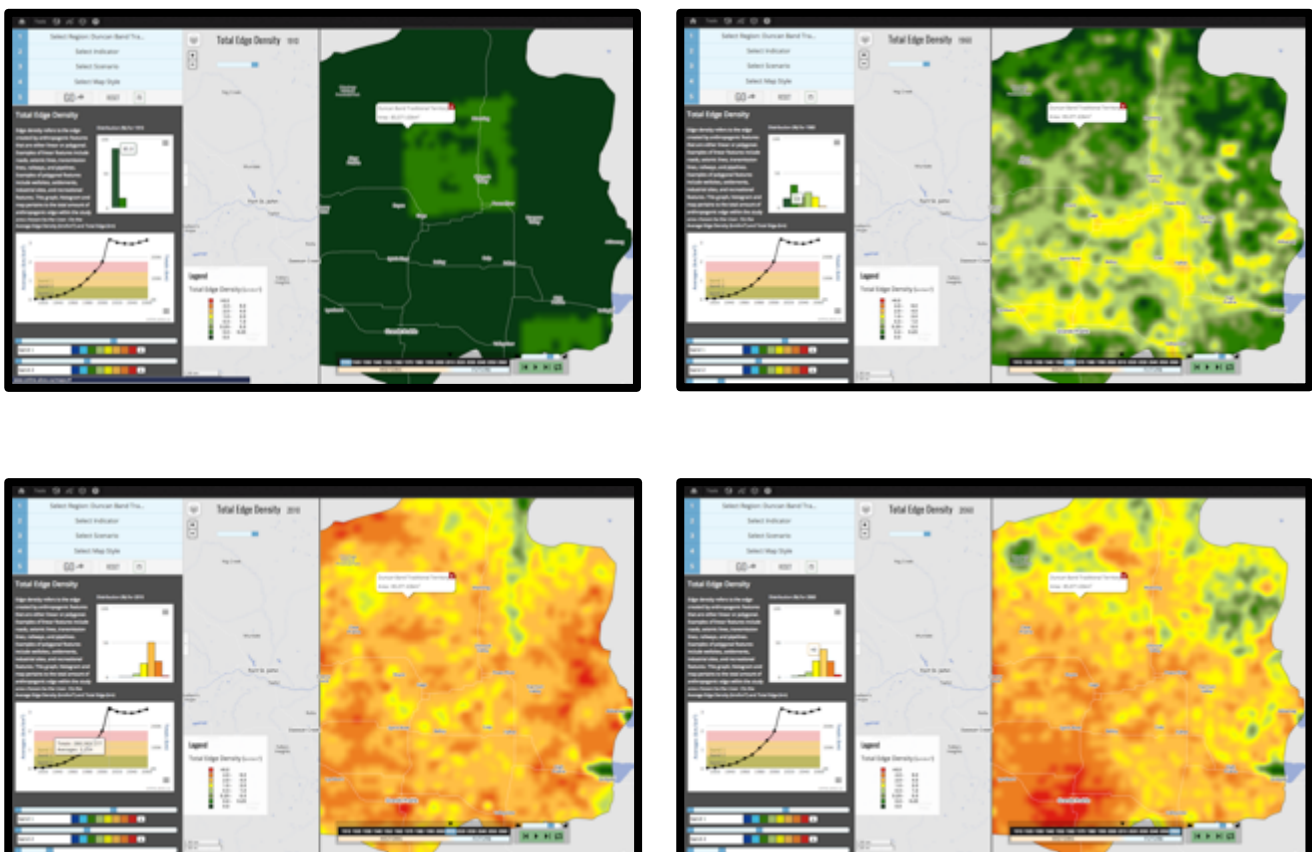
with an understanding to take only what was needed so that future generations would not be put in peril. We can look to this period as a benchmark to first of all understand the capability of the landscape to supply a broad range of ecological, social and economic goods and services, and secondly to compare it to the status of the landscape since then with the addition of significant non-indigenous immigration and the development of an industrialized society. These comparisons then provide insight into the cause and effect relationships associated with human land use.

Important to this study is an understanding of how trails and waterways were historically used by Indigenous people to move across the land and what this meant for their culture, economies and environmental stewardship. Today, roads and highways have replaced many of these traditional transportation corridors although some can still be incorporated within the Shuswap Trails Strategy. With settlement came the wide scale dispossession of land and resources from indigenous people, which has and continues to have many significant implications including access to and knowledge of seasonal rounds food sources and medicinal plants.

Base Case (Business As Usual)

The Base Case scenario represents the way things are done today and assumes that current practices, policies, market forces etc. remain unchanged. The Base Case is a benchmark against which indicator performance in all other management option scenarios will be compared and evaluated. It is sometimes referred to as the Business As Usual scenario.

Figure 4 Spatial Fragmentation of the landscape 1910, 1960, 2010, 2060 as simulated in ALCES Online



An example of a spatial simulation in the ALCES Online model is shown in **Figure 4**.

Learning Scenarios & Sensitivity

A key element of scenario planning is comparing and evaluating alternative strategies with the Base Case and to each other. We do not undertake these scenarios to predict the future. Rather, we try to learn. We push the system hard in one direction and then another to help us understand the range of possibility, to see where certain components might break, to find synergies where the low hanging fruit of win-win outcomes are, and perhaps most importantly to uncover unintended consequences that could emerge because of system dynamics we hadn't thought of.

This kind of analysis enables the evaluation of the cause and effect relationships of specific management approaches and/or practices. For the purposes of scoping this project, it is assumed that 3 alternative scenarios will be developed in addition to the Base Case. Further work on developing scenarios needs to be completed in the Workshops but 3 potential alternative scenarios could be:

1. Maximizing trail recreation opportunity for both motorized and non-motorized travel
2. Secwépemc Traditional Laws: an emphasis on caring for Mother Earth
3. Access management through planning, zoning, education and fiscal instruments

Of course model projections into the future are never made with total certainty and so it is very important to evaluate and account for risk and uncertainty in a quantified and objective manner. Sensitivity analysis is a commonly used quantitative analysis method designed to assist with assessing risks and uncertainty. In essence, sensitivities help us understand how elastic a land base or a particular indicator is to changes in modelling assumptions. While there are a myriad of “what-if” sensitivity analyses that could be undertaken, for the purposes of this scoping, it is assumed that 2 sensitivity analyses will be undertaken and that one of those sensitivities is a Climate Change forecast.

Best Combinations Scenario

The Best Combinations Scenario is a synthesis of all of the learnings gathered in the previous work. It is a final scenario that weaves together the strategies that lead to likeliest achievement of the STR's goals and objectives while minimizing risk associated with overlapping land uses and uncertainty. The Best Combinations Scenario provides a quantitative and visual story of the Vision for the future, as it will play out in the watershed

Deliverables

- ALCES Online Cumulative Effects Models that can be used for future planning
- Professional Analysis Report & PowerPoint Presentation
- Data Inputs and Assumptions Package which includes a digital copy of all data, inputs, assumptions, databases and spreadsheets
- 5 Workshops

Key Assumptions

- The ALCES Online BCHD dataset will be used. It is possible that indicators chosen may require data that is not included in the current ALCES Online BCHD dataset. In this event a scope change will be necessary in order to incorporate new data layers as required. It is not possible to predict this at the time of this proposal and will have to be determined as the project unfolds.
- Data acquisition cost is excluded from these estimates.
- Key STR members will be available to participate in all the workshops
- This price estimate does not include a license for ALCES Online.
- The consulting cost budget does not include any cost estimates for meeting facilities, travel or food for STR members and is exclusive of taxes.

Investment Budget and Schedule

Estimated Project Consulting Cost

The investment budget and schedule are the best estimates of Barry Wilson in consultation with ALCES Landscape & Land Use Ltd. Works are as described in this scoping document, are subject to the Key Assumptions and do not include STR costs. These estimates are derived from the detailed scoping exercise and are intended to provide guidance for budgeting & resourcing. This is not a fixed price quote. If revisions to the scope or assumptions are needed then these estimates must be revised.

The cost for the Shuswap Roundtable Cumulative Effects Project as described, excluding any taxes is estimated to cost \$154,418.

A summary level breakdown of consulting costs is shown in.

Table 1 Phase Cost Breakdown

Phase	Phase Name	Person Days	Fees (\$)	Expenses (\$)	Total (\$)
1	Model Setup	13	17,700	220	17,920
2	RNV & Backcast	26.1	18,465	0	18,465
3	Base Case	34	41,203	110	41,313
4	Learning Scenarios & Sensitivity	46	45,335	110	45,445
5	Best Combinations Scenario	17	19,015	110	19,125
PM	Project Management	9	12,150	0	12,150
Total		146	153,868	550	154,418

As shown in Figure 5, roughly two-thirds of the project cost is allocated to building the models and completing the analysis and interpretation and 27% of the cost is allocated to Shuswap Roundtable Workshops. Overall Project Cost could be reduced by an estimated \$15,000 if Facilitation costs were funded separately.

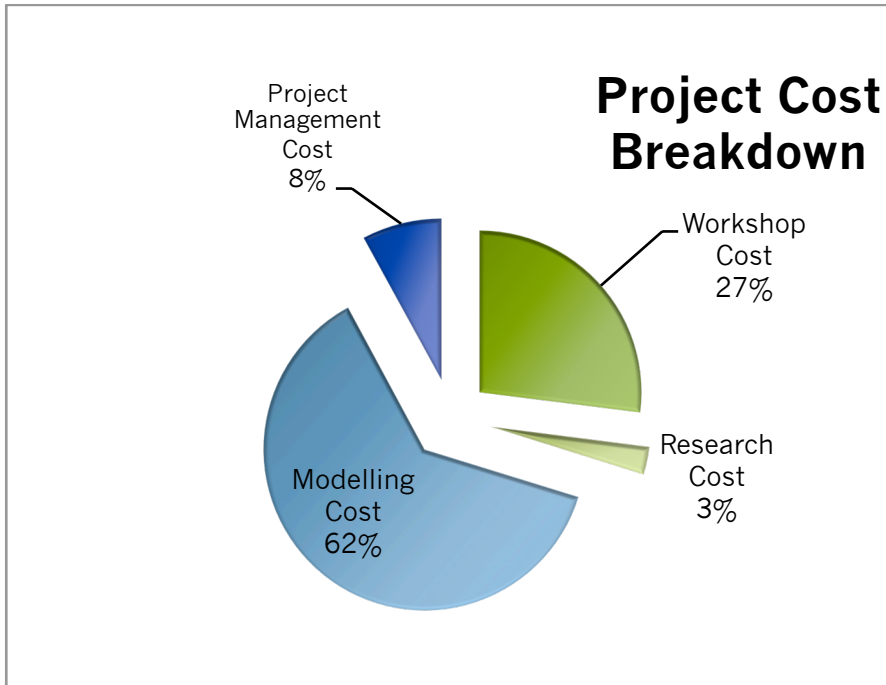


Figure 5 Summary Cost Breakdown

Estimated Schedule

The project should be able to be completed within a 9-month span. This accounts for the fact that members of a STR Technical Working Group have other responsibilities and flexibility needs to be built in to account for this, vacation and statutory holidays.

Phase	Q1	Q2	Q3	Q4
1	[Task 1: Q1 to Q2]			
2	[Task 2: Q1 to Q2]			
3	[Task 3: Q1 to Q3]			
4	[Task 4: Q2 to Q3]			
5	[Task 5: Q3 to Q4]			
PM	[Task 6: Q1 to Q4]			

Figure 6 Summary Level Project Gantt Chart