

Municipality of North Cowichan

Committee of the Whole

AGENDA

Tuesday, July 7, 2020, 6:00 p.m.
Electronically

Pages

1. CALL TO ORDER

This meeting, though electronic, is open to the public and all representations to the Committee of the Whole form part of the public record. At this time, due to the COVID-19 Pandemic, public access to Council Chambers is not permitted, however, this meeting may be viewed on the District's lived stream webcast at www.northcowichan.ca/agendas.

1.1 Open Meeting Transparency Resolution

Purpose: To comply with subsection 7(6) of Ministerial Order No. M192 by adopting a resolution that provides the rationale as to why a physical space is not being provided for the public to observe the meeting and describes the measures the Municipality of North Cowichan has taken to ensure openness, transparency, accessibility and accountability for this meeting.

Recommendation:

That pursuant to Ministerial Order No. M192 and the procedures established by the Municipality of North Cowichan to protect the health and safety of the public and municipal staff while they perform work within the Municipal Hall, the attendance of the public at today's Committee of the Whole meeting cannot be accommodated because of the limitations placed on mass gatherings by the Provincial Health Officer; our inability to provide for adequate physical distancing between members of Council, staff, and the public or to create separate entrance and exits with one-way walkways for the public in Council Chambers; and further that to ensure openness, transparency, accessibility and accountability for this meeting, the Municipality of North Cowichan:

- is livestreaming the meeting to enable the public to hear and see the proceedings;
- is allowing the public to submit input on agenda items by email;
- is allowing the public to submit questions during the Question Period portion of the meeting, in real time;
- has provided notice of today's meeting, including how the public may view and participate in the meeting;
- has made the meeting agenda, as well as all other relevant documents, available on the municipal website prior to today's meeting; and
- will be archiving the meeting video for future viewing by members of the public.

2. APPROVAL OF AGENDA

Recommendation:

That the Committee of the Whole agenda be adopted as circulated [or as amended].

3. ADOPTION OF MINUTES

3 - 5

Recommendation:

That the minutes of the Committee of the Whole meeting held June 24, 2020 be adopted.

4. PUBLIC INPUT

The Chair to acknowledge receipt of submissions circulated to Council prior to the meeting, that were sent to Agenda@northcowichan.ca and state the agenda item the public input is in relation to on this agenda.

5. BUSINESS

5.1 UBC Partnership Group Presentation

6 - 88

Purpose: To receive a presentation from the UBC Partnership Group to provide an update on the Strategic Forest Planning Review and Technical Analysis on the Municipal Forest Reserve (copies of the presentations and feasibility study presented at the June 30, 2020 Forestry Advisory Committee meeting, along with the draft minutes from that meeting have been provided for Council's information).

5.2 Safer Community Office Update

89 - 128

Purpose: The Manager of Fire and Bylaw Services and the Senior Bylaw Compliance Officer to present an overview of the objectives achieved to date under the Safer Community Plan (copies of the presentation and the Safer Community Plan have been provided for Council's information).

6. NEW BUSINESS

7. QUESTION PERIOD

A 10-minute recess to be provided to give the public an opportunity to submit their questions by email to QP@northcowichan.ca regarding the business discussed at this meeting. Questions will be read out in the order they are received.

8. ADJOURNMENT

Recommendation:

That the meeting be adjourned at ____ a.m./p.m.

Municipality of North Cowichan Committee of the Whole MINUTES

**June 24, 2020, 6:00 p.m.
Electronically**

Members Present	Mayor Al Siebring Councillor Rob Douglas Councillor Christopher Justice Councillor Tek Manhas Councillor Rosalie Sawrie
Members Absent	Councillor Debra Toporowski Councillor Kate Marsh
Staff Present	Ted Swabey, Chief Administrative Officer (CAO) Sarah Nixon, Deputy Chief Administrative Officer (D/CAO) David Conway, Director of Engineering Rob Conway, Director of Planning and Building Michelle Martineau, Corporate Officer Chris Hutton, Community Planning Coordinator

1. CALL TO ORDER

There being a quorum present, Councillor Justice called the meeting to order at 6:01 p.m.

IT WAS MOVED AND SECONDED:

That pursuant to Ministerial Order No. M192 and the procedures established by the Municipality of North Cowichan to protect the health and safety of the public and municipal staff while they perform work within the Municipal Hall, the attendance of the public at today's Committee of the Whole meeting cannot be accommodated because of the limitations placed on mass gatherings by the Provincial Health Officer; our inability to provide for adequate physical distancing between members of Council, staff, and the public or to create separate entrance and exits with one-way walkways for the public in Council Chambers; and further that to ensure openness, transparency, accessibility and accountability for this meeting, the Municipality of North Cowichan:

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- will be archiving the meeting video for future viewing by members of the public. **CARRIED**

2. APPROVAL OF AGENDA

IT WAS MOVED AND SECONDED:

That the Committee of the Whole agenda be approved.

CARRIED

3. ADOPTION OF MINUTES

IT WAS MOVED AND SECONDED:

That the minutes of the Committee of the Whole held June 9, 2020 be adopted.

CARRIED

4. PUBLIC INPUT

No public submissions were received.

5. WORKSHOP

5.1 Presentation from MODUS Planning Design & Engagement

The OCP consultants from MODUS, Rob Barrs and Suzy Lunn, facilitated the workshop with the Committee of the Whole and responded to questions and comments regarding their gap analysis and engagement plan which was the focus of their presentation. A copy of the presentation and supplemental documents was included in the agenda.

The consultants and staff responded to questions of Council in relation to the impact of COVID-19, form and character guidelines for single family developments to improve walkability, using a climate lens that does not just focus on greenhouse gases but growth and strengthening the environment, being intentional about who we are planning for and what kind of community we want to be by balancing the needs of current and future residents, demographic projections, local area plans, economic growth, environment and culture, high tech, attracting new business and supporting local entrepreneurs and artisans, technical and business training, sustainability, density, growth centres and where growth should be focused, public engagement platforms and how the public will be directed to the website, public engagement during the summer months, use of OCP Ambassadors, participating in other organizations meetings, and increasing the diversity of the Ambassador volunteers.

Councillor Manhas had technical difficulties and lost his connection at 6:59 p.m. and was able to rejoin the meeting at 7:01 p.m.

5.2 Official Community Plan (OCP) Update - Gap Analysis

IT WAS MOVED AND SECONDED:

That the Committee of the Whole accept the OCP Policy Gap Analysis report for review and comment.

CARRIED

5.3 OCP Volunteers Membership Appointment

IT WAS MOVED AND SECONDED:

That it be recommended to Council:

That staff initiate call for replacement volunteers to participate on the OCP Advisory Committee or as an OCP Ambassador on either of the Quamichan, Berkey's Corner, and

South End Centre teams.

CARRIED

5.4 OCP Update – Engagement Plan

IT WAS MOVED AND SECONDED:

That the Committee of the Whole receive the draft OCP Engagement Plan for its review and comment.

CARRIED

6. NEW BUSINESS

No items.

7. QUESTION PERIOD

Councillor Justice called for a recess at 8:11 p.m. to allow viewers to submit questions via email on the matters discussed during the meeting. No questions submitted when the meeting reconvened at 8:22 p.m.

8. ADJOURNMENT

IT WAS MOVED AND SECONDED:

That the meeting be adjourned at 8:23 p.m.

CARRIED

Certified by Corporate Officer

Signed by Mayor

UBC Strategic Forest Planning Review and Technical Analysis: North Cowichan Municipal Forest Reserve

Drs. Brad Seely & Clive Welham
3GreenTree Ecosystem Services Ltd.
& Faculty of Forestry, UBC

Dr. Peter Arcese, Prof./FRBC Chair
Forest & Conservation Sciences, UBC

Dr. Stephen Sheppard, Prof.
Dr. Verena Griess, Asst. Prof.
Forest Resources Management, UBC



Goals & Objectives

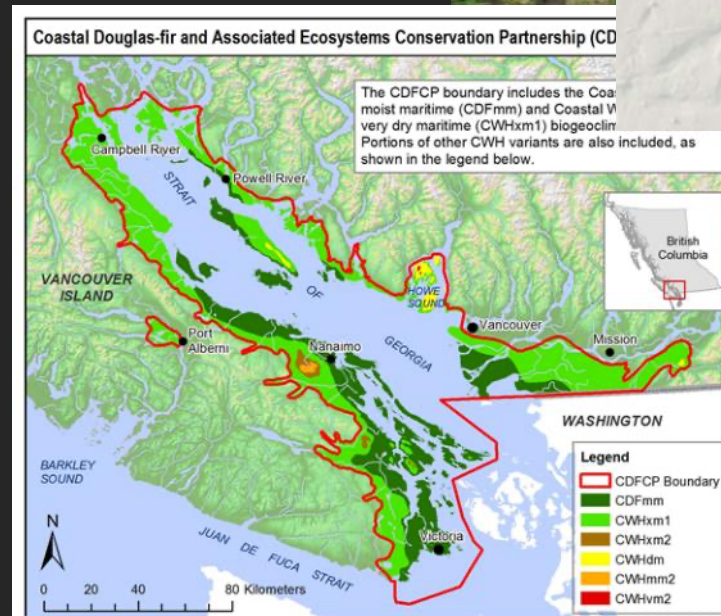
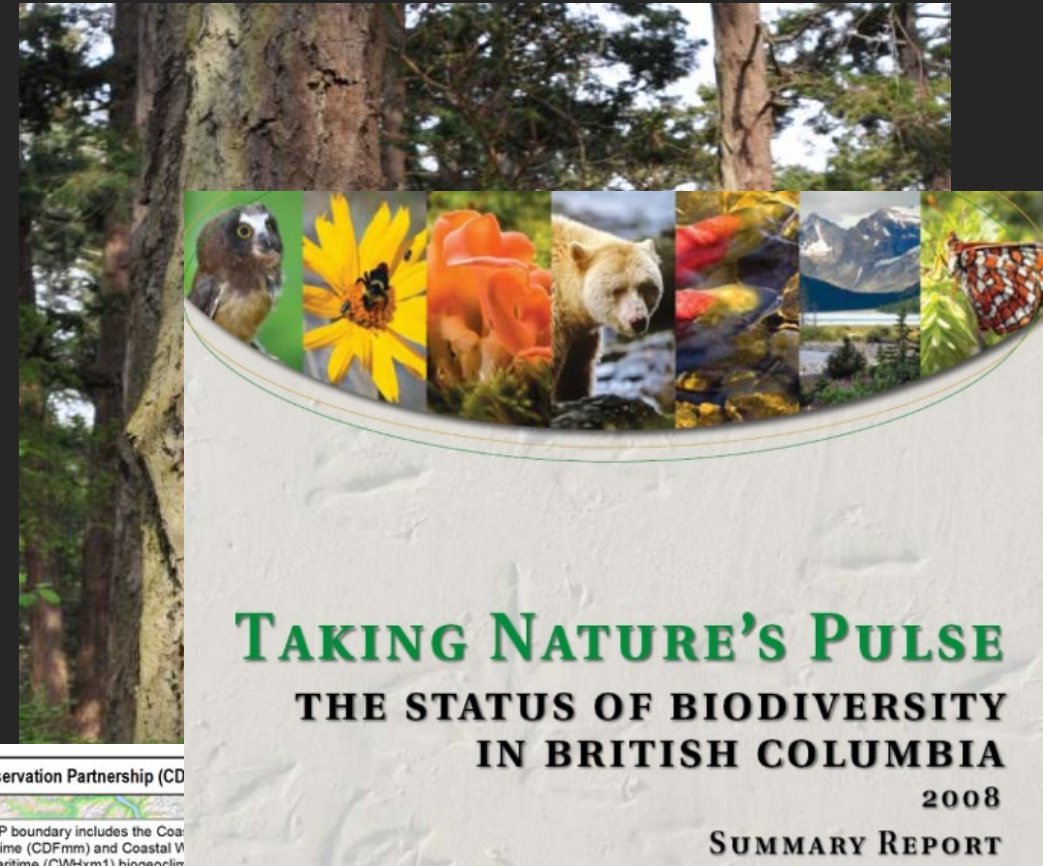
1. Review past management activities & regional context
2. Develop spatial data resources
3. Understanding management goals and evaluating outcomes
4. Multi-objective scenario analysis
5. Assess feasibility of developing a C project
6. Support for development of forest management plans



Regional Context:

Coastal Douglas-fir Forests of the Georgia Basin

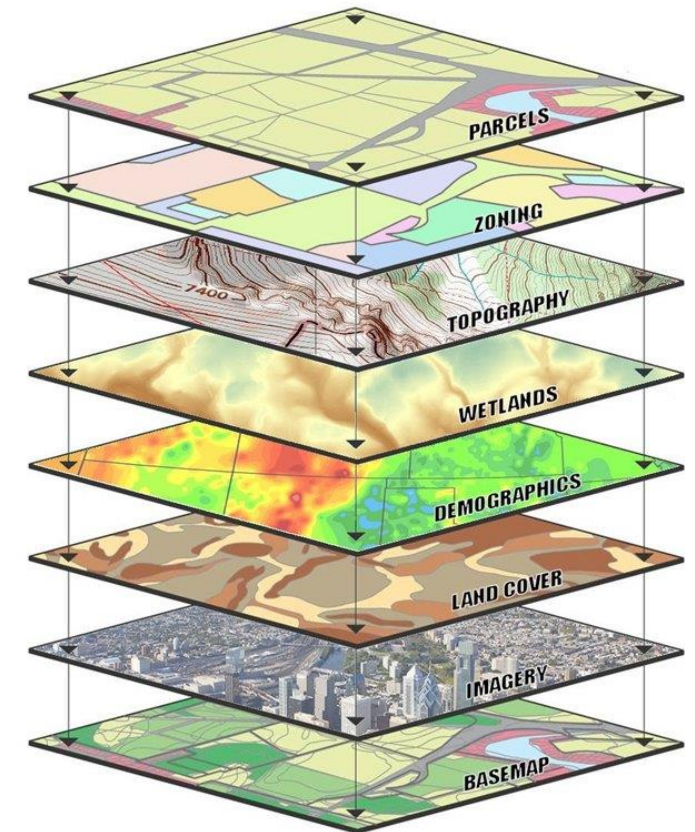
- 49% Converted to Human Use
- < 3% Pre-settlement Forest Intact
- > 80% Privately-owned
- >153 Species At Risk
- **Most Imperiled Ecosystem in BC**



Evaluation and Development of Spatial Data Resources

Mapping Key Forest Resources

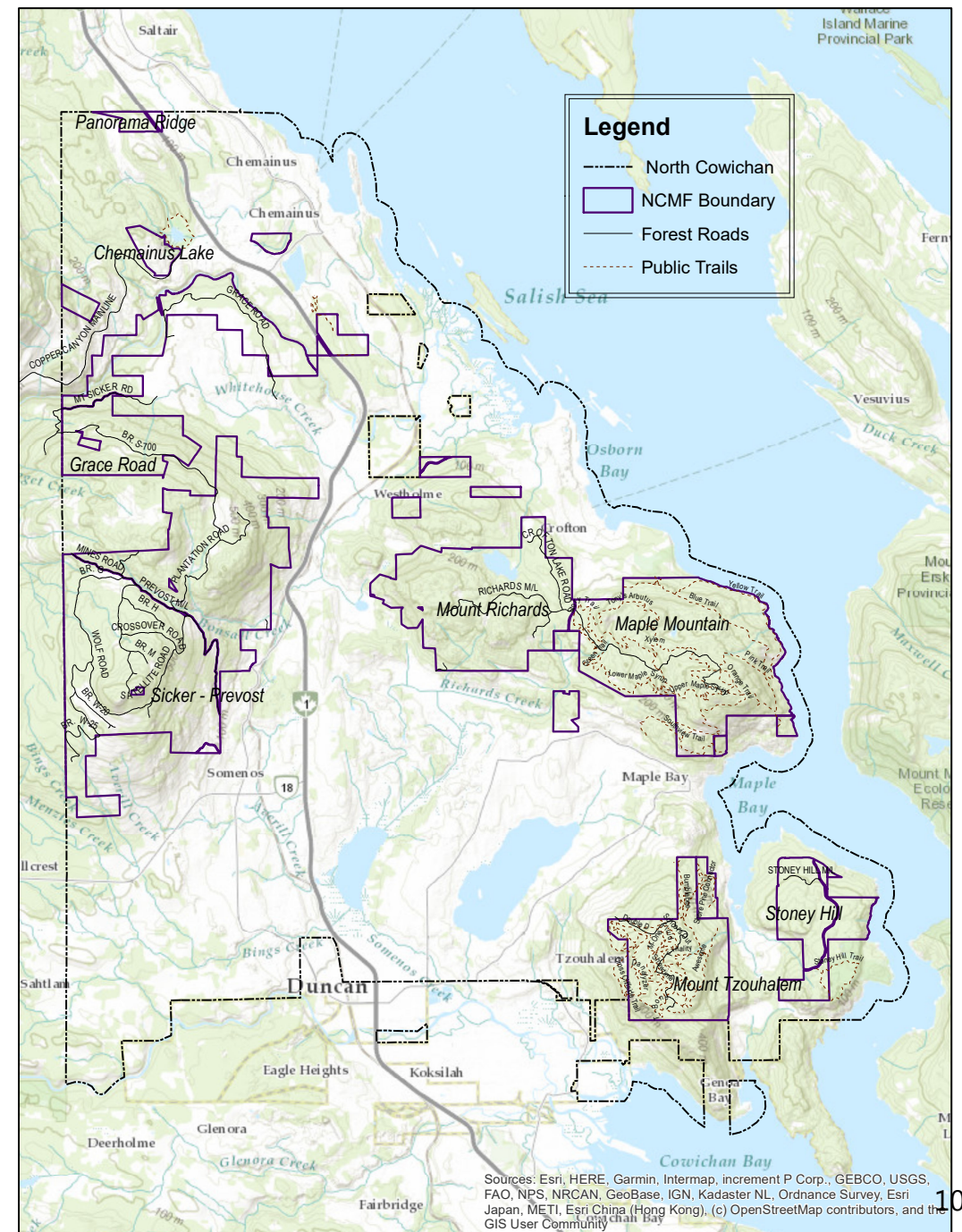
- Ownership boundary layers
- Forest vegetation mapping (stratified by tree species & stand age)
- Past management (harvest blocks)
- Streams and water bodies
- Important watersheds
- Sensitive ecosystems and habitats
- Visually sensitive areas
- Roads and trails
- Protected and Culturally important areas



Evaluation and Development of Spatial Data Resources

Location of North Cowichan Municipal Forest Reserve

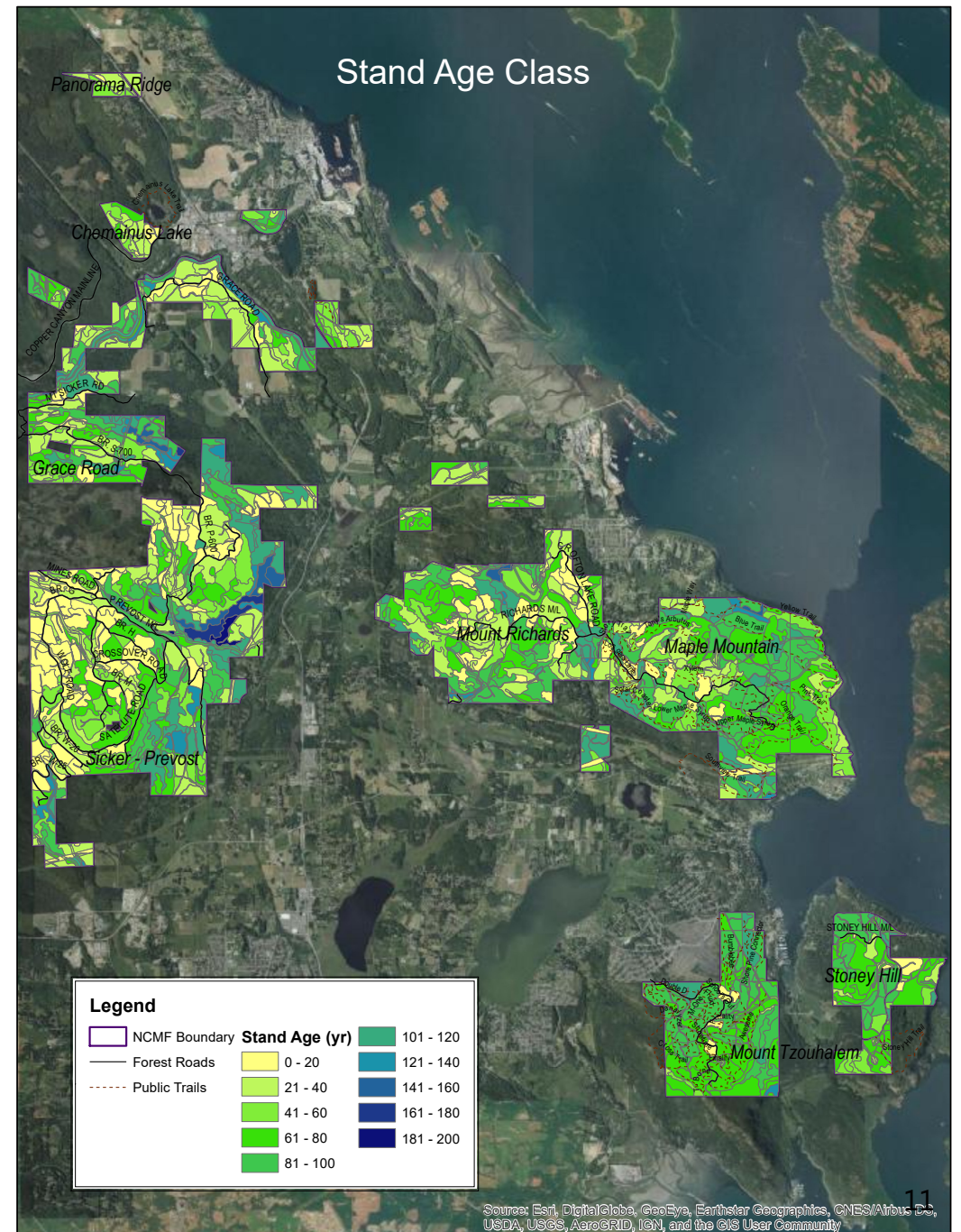
- Consists of 6 main holdings around local mountains
- ~ 5,470 ha
- Multi-objective management
- Annual logging allowance of 20,000 m³ per year



Evaluation and Development of Spatial Data Resources

Forest Vegetation Mapping

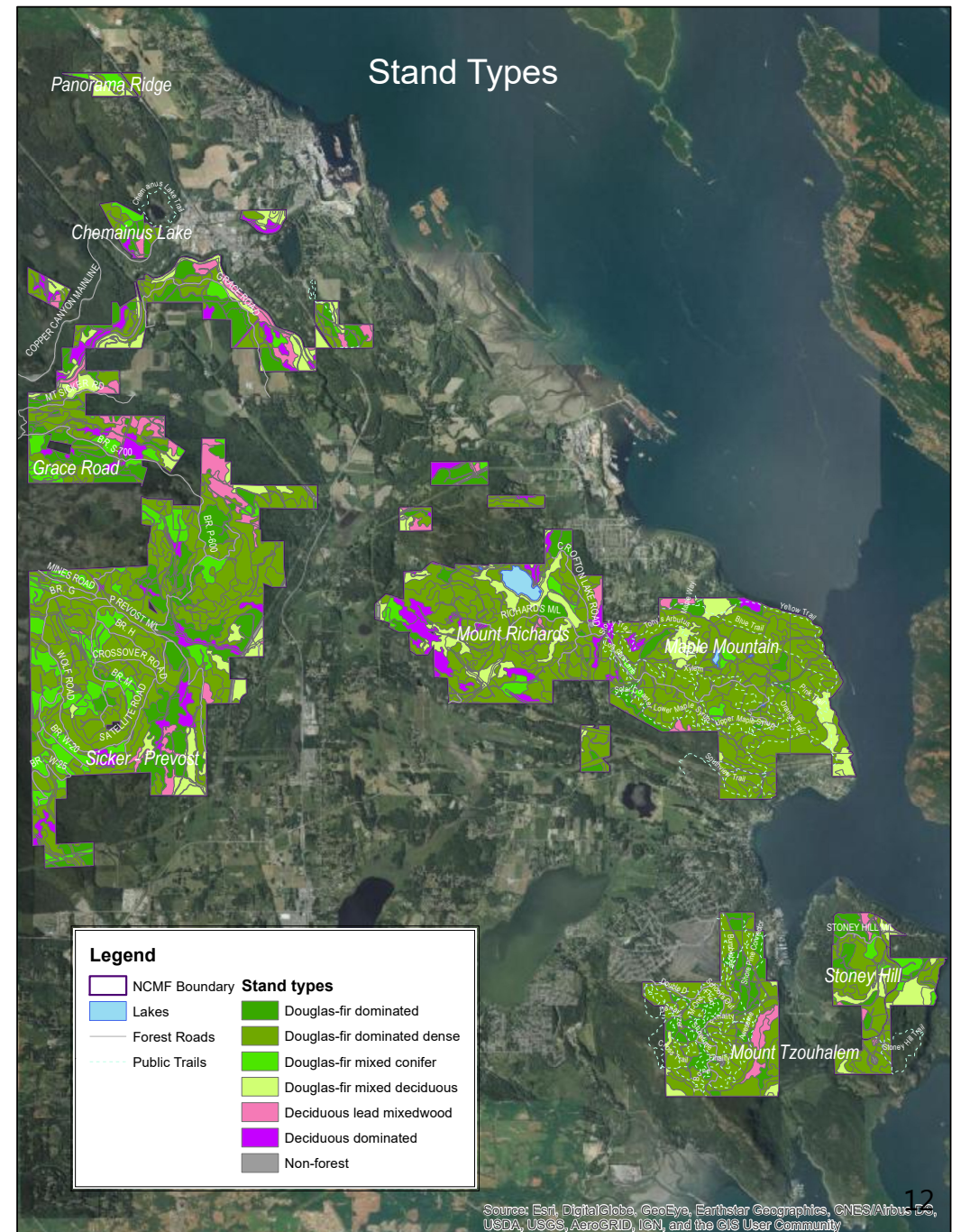
- Stand Age Class
- Age correlated with many stand features
 - Harvestable volume
 - Stand structure
 - Biomass and Carbon
 - Biodiversity



Evaluation and Development of Spatial Data Resources

Forest Vegetation Mapping

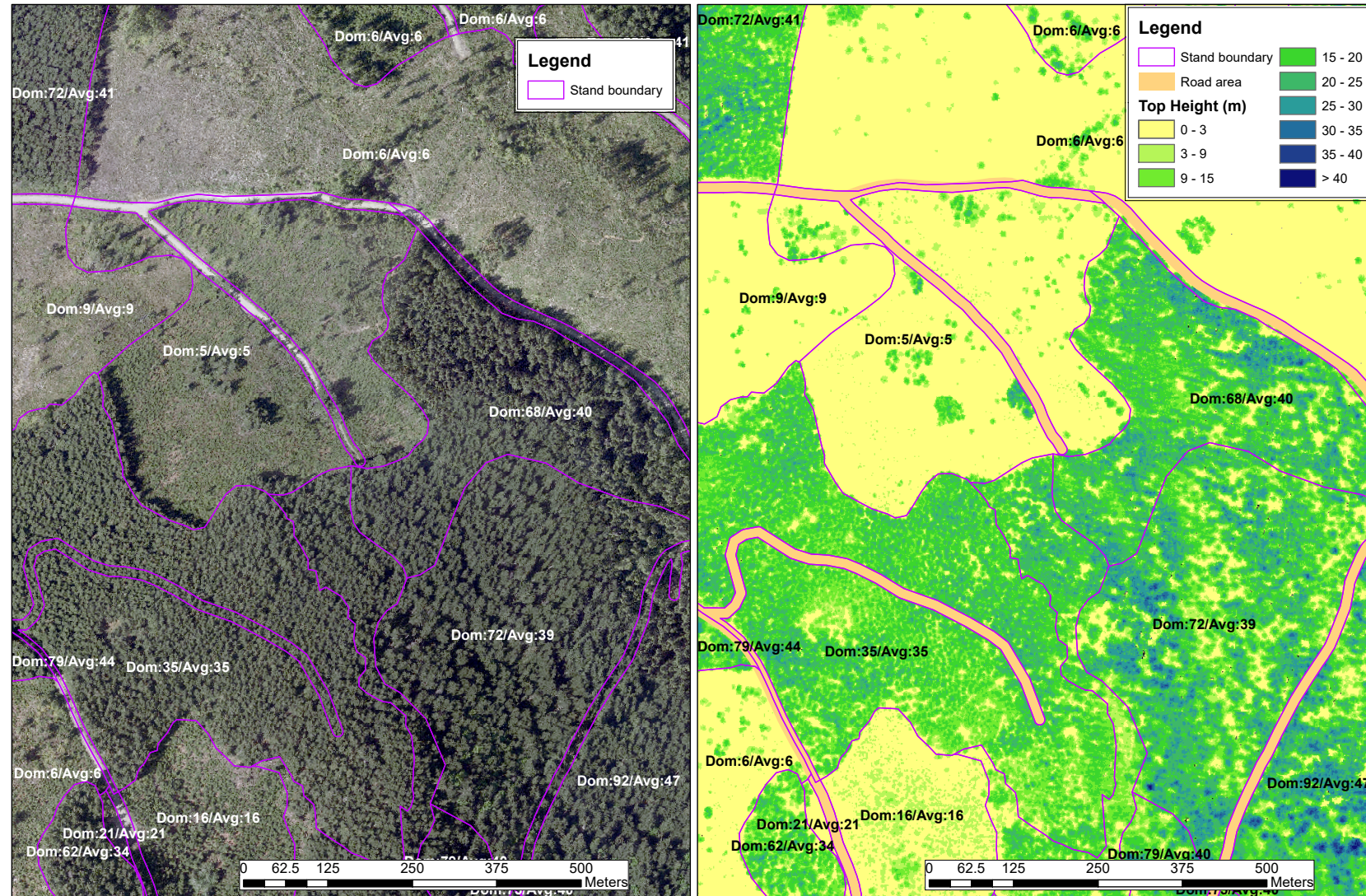
- Stand Age Class
- Age correlated with many stand features
 - Harvestable volume
 - Stand structure
 - Biomass and Carbon
 - Biodiversity
- Stand Types (species groups)



Evaluation and Development of Spatial Data Resources

Forest Vegetation Mapping

- Methods for verifying forest cover and estimating age
 - High resolution orthophotos
 - Laser-measured canopy height
 - Tree height is a good predictor of age



Understanding Management Goals & Evaluating Outcomes

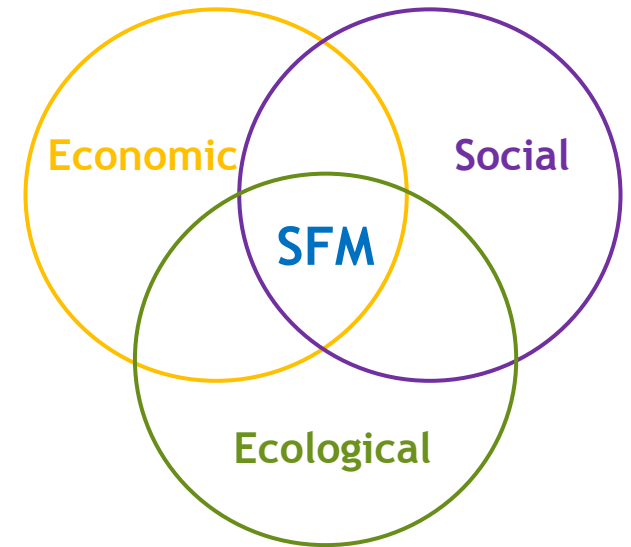
Criteria and Indicators

- **Criteria** used to define specific services and values associated with forest resource
- **Indicators** used to evaluate degree to which specific criteria have been achieved

Public Engagement

- Foster a deeper understanding of local forests
- Which criteria area most important?
- How should criteria be weighted?
- What kinds of management options should be examined?

Sustainable Forest Management (SFM)



Understanding Management Goals & Evaluating Outcomes

Draft Set of Criteria and Indicators: Ecological

Criterion	Indicator
1.1 Sensitive Ecosystems	1.1.1 Area of sensitive ecosystems (SEI) impacted by harvest (ha or %) 1.1.2 Condition of woodland ecosystems (degree of tree encroachment) 1.1.3 Degree of disturbance in riparian areas (%)
1.2 Protection/Enhancement of Mature & Old Forest	1.2.1 Area with mature and old forest features (ha or %)
1.3 Bird habitat conservation	1.3.1 Quantification of bird habitat by species or groups (ha)
1.4 Ecosystem Carbon Storage / Emissions	1.4.1 Total ecosystem C storage within the Municipal Forest (MT C) 1.4.2 Quantification of net CO2 emissions (reductions) associated with forest management (t CO2e)
1.5 Water Quality	1.5.1 Total disturbed area in key watersheds (ha or %)
1.6 Regional Habitat Connectivity	1.6.1 Least cost pathway analysis for different habitat types incorporating adjacent conservation areas

Understanding Management Goals & Evaluating Outcomes

Draft Set of Criteria and Indicators: Economic

Criterion	Indicator
2.1 Timber Revenue	2.1.1 Total annual harvested volume (m3)
	2.1.2 Estimated annual revenue per area harvested based on species and piece size (\$/ha)
	2.1.3 Estimated net revenue after accounting for expenses (\$)
2.2 Timber Employment	2.2.1 Total annual employment hours associated with harvesting, silviculture and processing (hr)
2.3 Carbon Revenue	2.3.1 Estimated annual revenue from C offset sales (\$)
2.4 Carbon Employment	2.4.1 Total annual employment hours associated with project mgmt (hr)
2.5 Recreation Revenue	2.5.1 Estimated annual revenue from recreation (\$)
2.6 Recreation Employment	2.6.1 Total annual employment hours associated with recreation activities (hr)

Understanding Management Goals & Evaluating Outcomes

Draft Set of Criteria and Indicators: Social

Criterion	Indicator
3.1 Visual Quality	3.1.1 Degree to which visual quality objectives are met (%)
3.2 Recreation Opportunity	3.2.1 Area in each of the ROS Classes (ha)
3.3. Trail Access	3.3.1 Km of maintained trails
3.4 Fire Risk	3.4.1 Area with different fire risk rankings (%)
3.5 Culturally Sensitive Areas	3.5.1 Degree to which culturally sensitive areas impacted by harvest (ha or %)
3.6 Other?	

Multi-objective Scenario Analysis

Modelling Tools

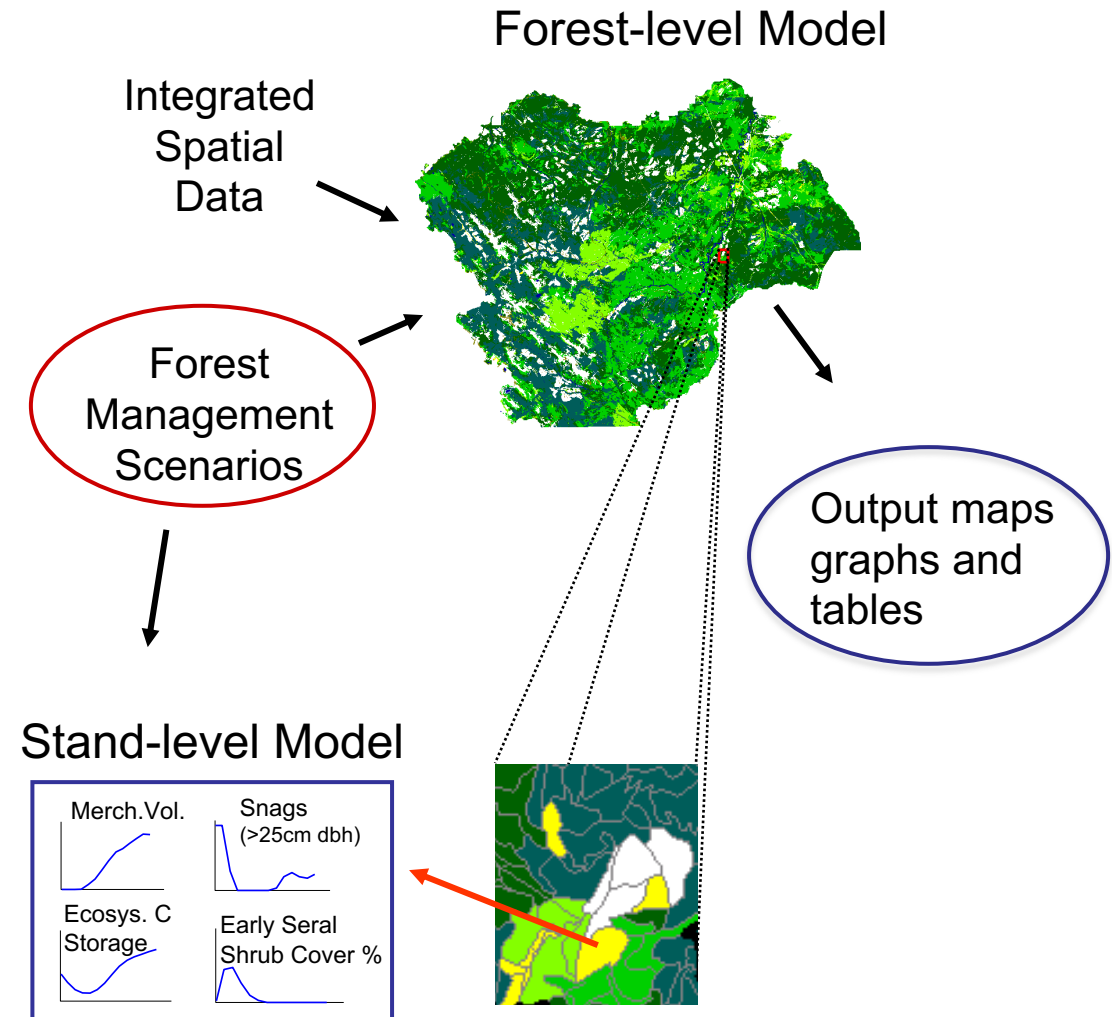
- Spatially explicit forest-level model
- Stand-level model

Scenarios

- Historical harvesting rates
- Reduced harvesting (C project)
- Others to be determined

Output

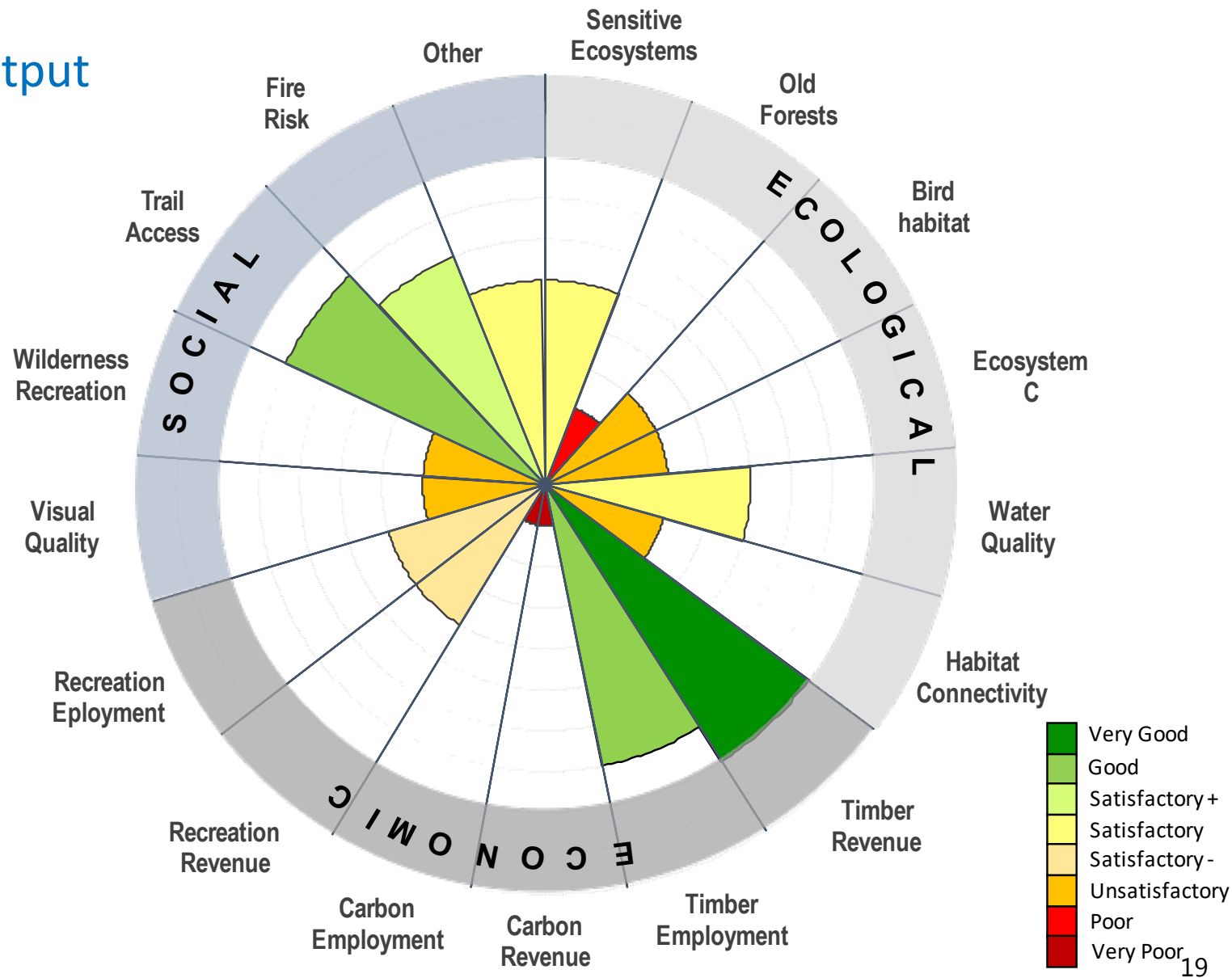
- Wide variety of descriptive variables at the stand and landscape level



Multi-objective Scenario Analysis

Example of Summarized Model Output

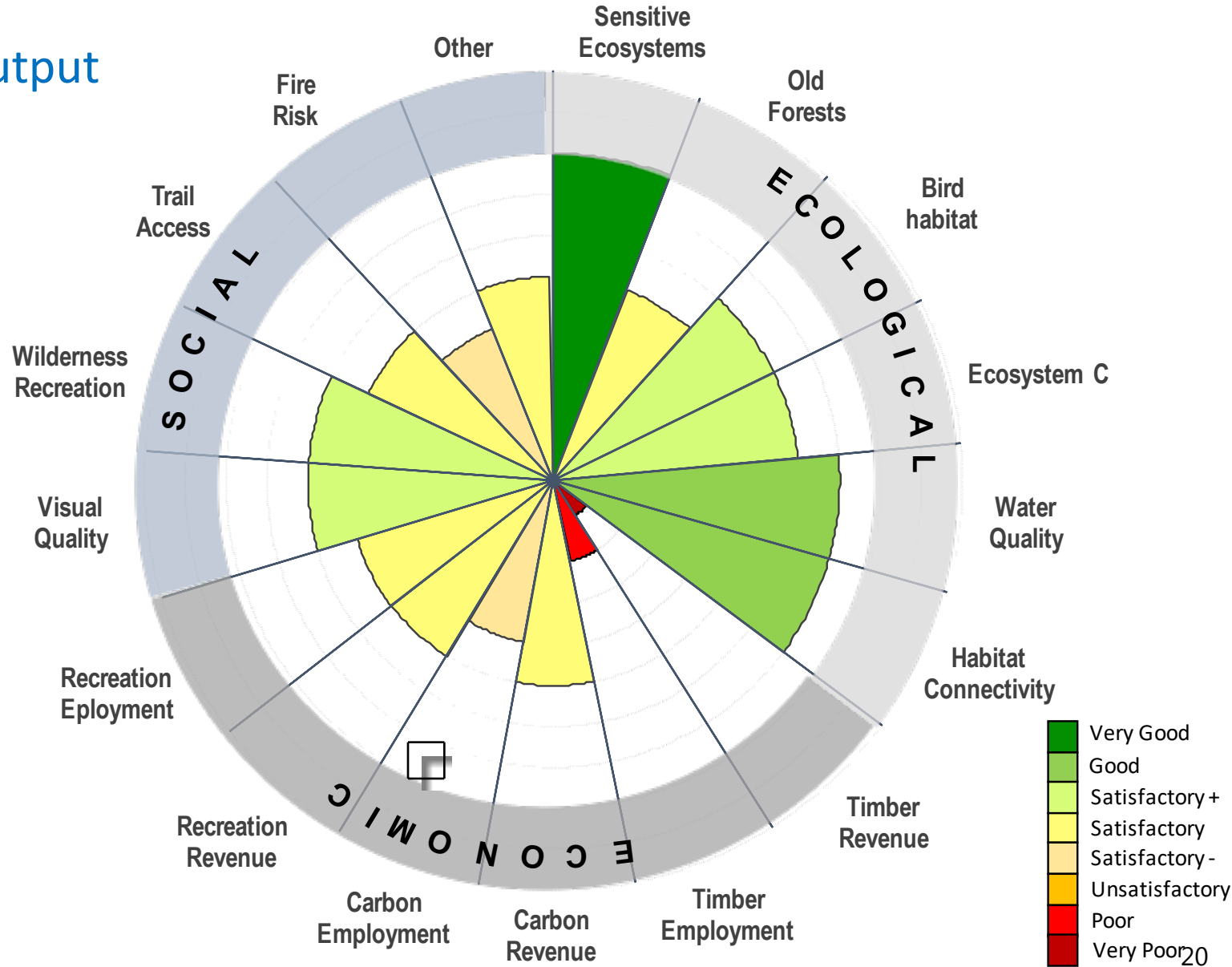
Hypothetical scenario with a focus on **Maximizing Harvesting**



Multi-objective Scenario Analysis

Example of Summarized Model Output

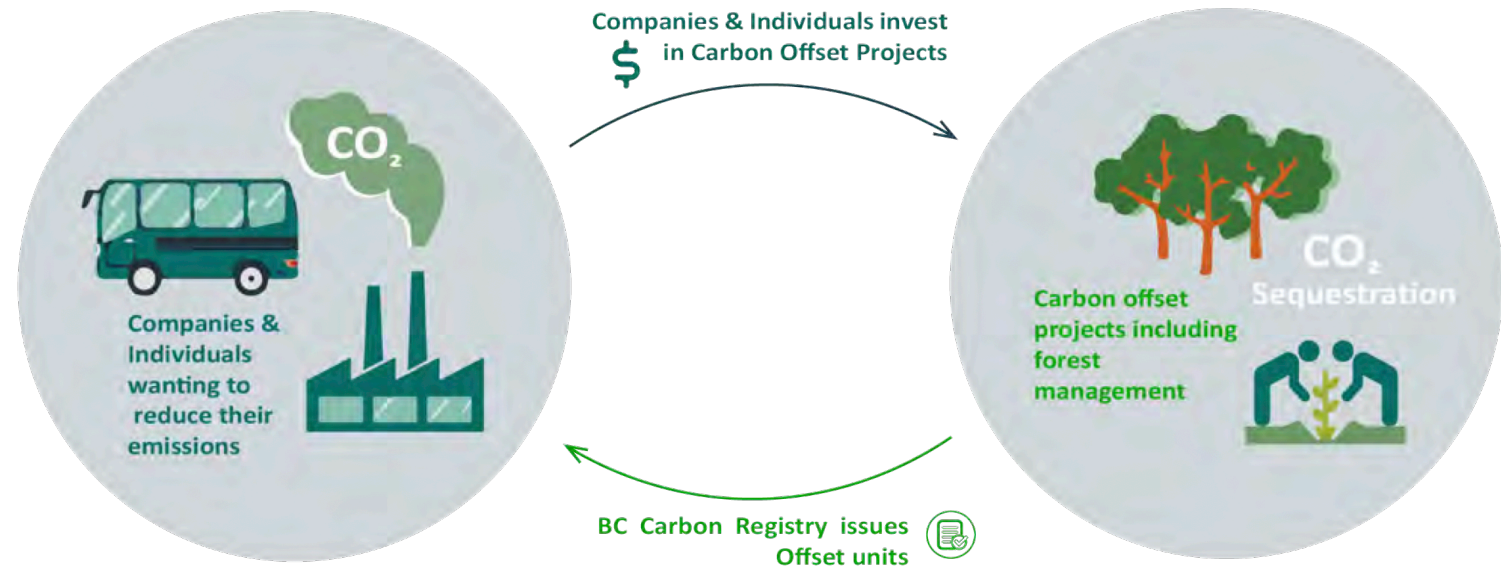
Hypothetical scenario with a focus
on **Maximizing Conservation**



Assess feasibility of developing a C Project on the NCMF

What is a Forest Carbon Project?

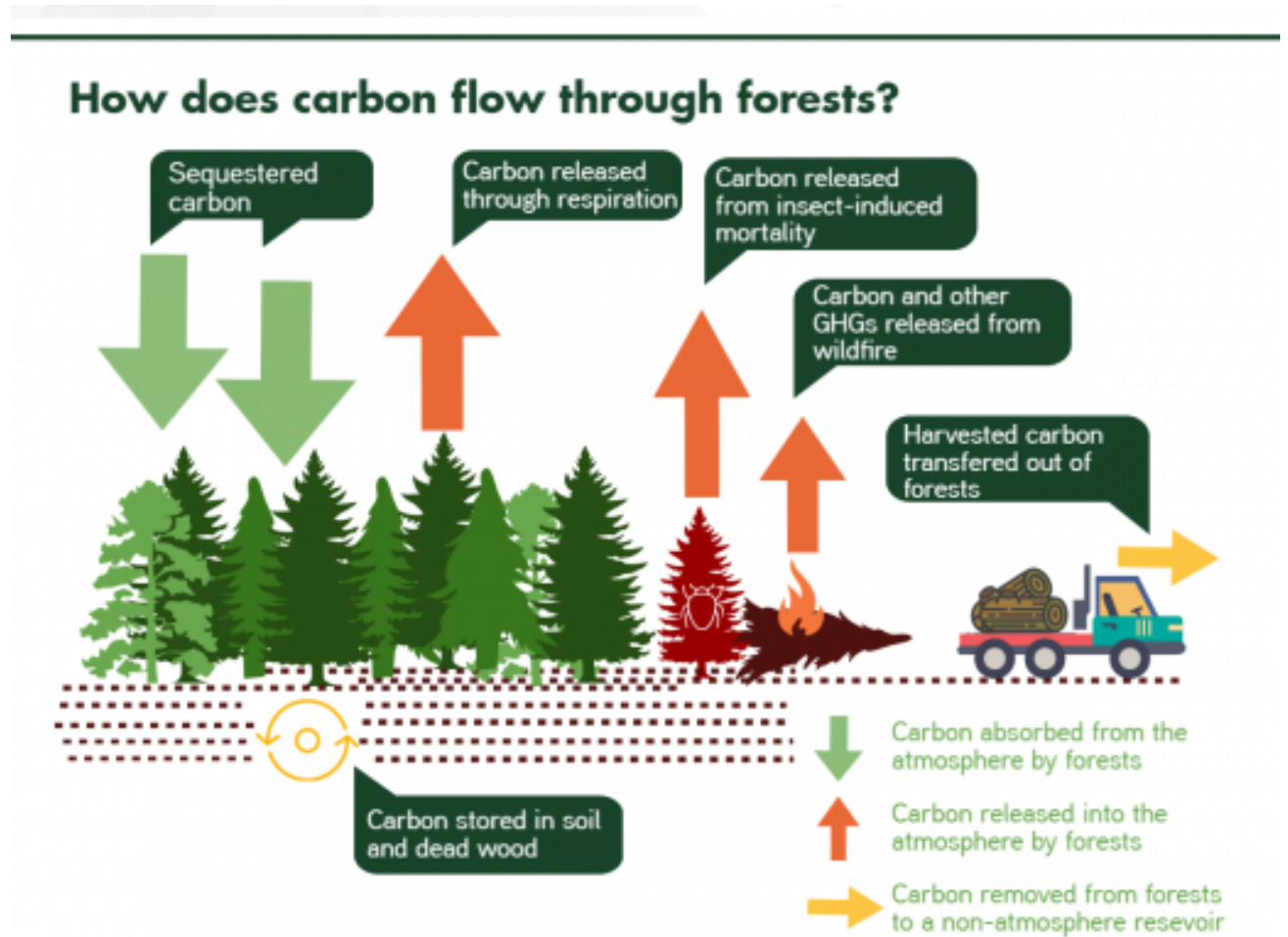
- **Deliberate** management of a forest land base to enhance and protect carbon stocks
- Must be carefully quantified & verified
- Verified offsets sold to buyers
- Often has broad benefits for ecosystem services



Assess feasibility of developing a C Project on the NCMF

Pilot Study

- Review spatial inventory data
- Evaluate key components & timelines
- Estimate costs and revenues
- Explore options for funding & identify potential buyers
- Prepare report



Suport for Development of Forest Management Plans

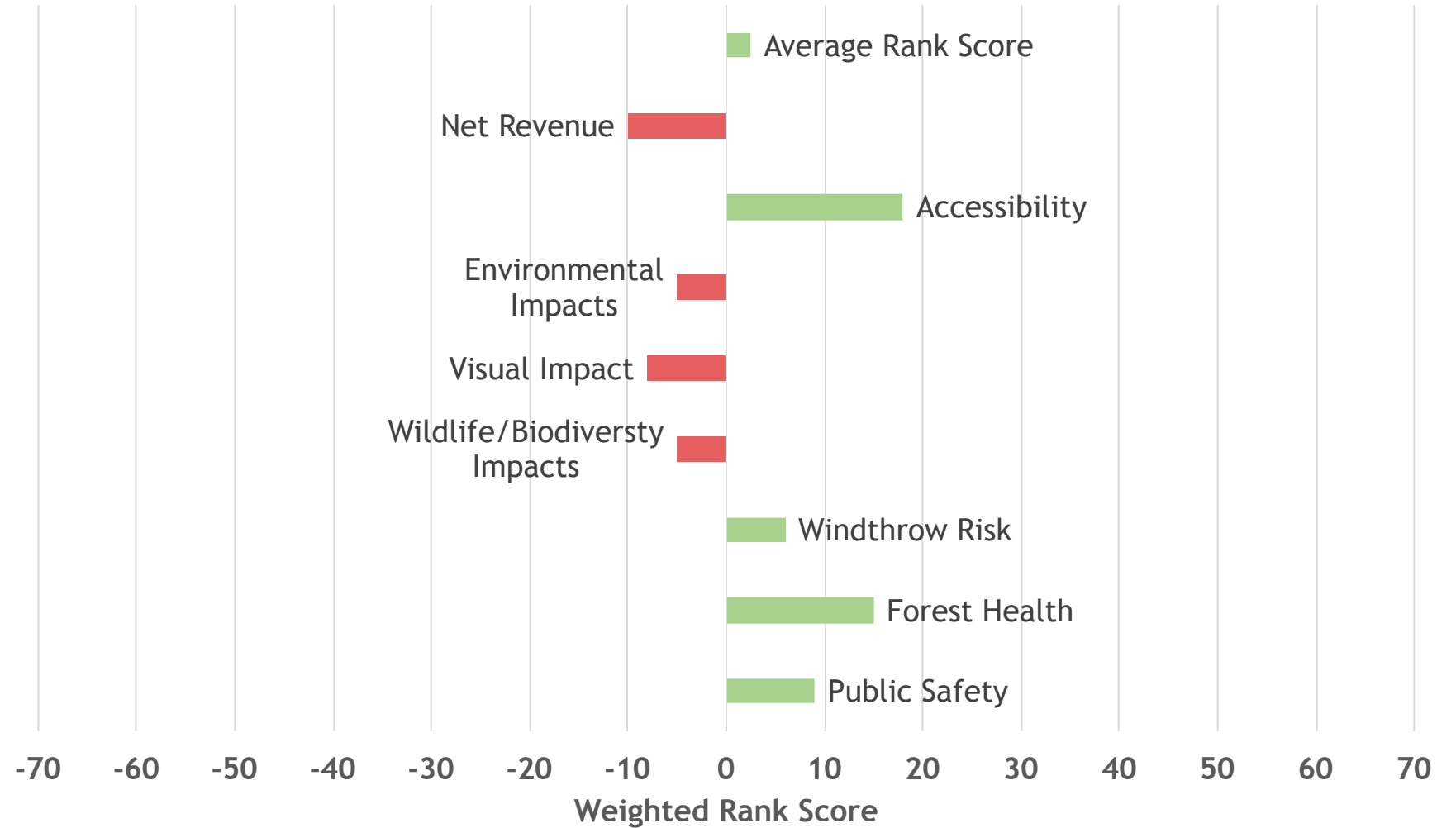
Project Outputs

- Carbon project feasibility report
- Scenario Analysis Reports
- Development of Decision-Support Tools
 - e.g. assessing merits of windthrow salvage operations
 - Preparation of forest planning tools
- Support for the establishment of potential demonstration projects
 - Windthrow salvage (and leave areas)
 - Woodlands restoration
 - Firesmart fuel reduction treatments

Suport for Development of Forest Management Plans

Windthrow Salvage DST example

- Consequence assessment
- Rank calculation
- Weighting
- Positive values favour logging





3GreenTree was engaged to undertake a feasibility analysis of the Municipal Forest Reserve as the basis for a carbon project.

Objectives were to determine:

1. Would it meet the requirements of one or more, internationally recognized standards;
2. Risks to project development or operations; and
3. Estimate the carbon credits and financial returns under different potential management scenarios.

The essence of a carbon credit project:

Carbon credits = A: Emissions of CO₂e in the baseline case
- B: Emissions of CO₂e in the project case

- Carbon credits are generated when B is less than A; the amount of credits is the difference between A and B
- One carbon credit equals one metric ton of carbon dioxide equivalent (CO₂e)

- **Baseline** case: a narrative of the annual emissions that would likely have occurred, now and in the future, if the carbon project had not been undertaken. Often referred to as the counterfactual argument.

- In the case of North Cowichan, the baseline case is an assumption that harvesting would be maintained at historical levels.



- **Project** case: a narrative of the annual emissions that would actually occur, now and in the future, as the alternative to the baseline.
- In the case of North Cowichan, the project case is a reduction in harvesting (how much?)



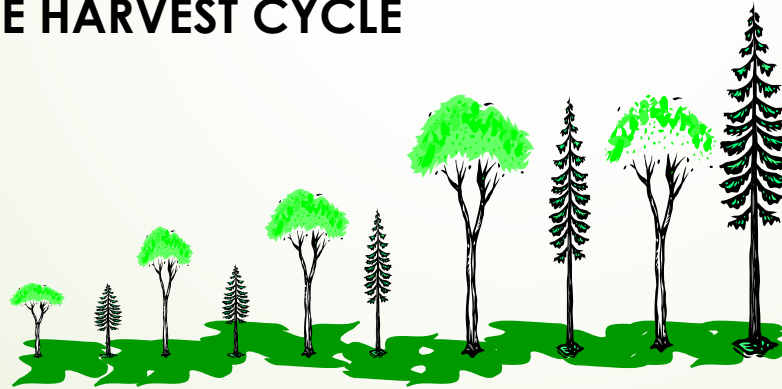
Key questions

1. How many carbon credits could a project generate?
2. How much revenue might be realized from carbon credits, as compared to traditional sources (i.e., harvesting)?

How many carbon credits could a project generate ...

Depends on how much GHG emissions in the baseline (from harvesting) can be reduced by implementing the project activities (a reduction in harvesting)

THE HARVEST CYCLE



How the carbon credit analysis was structured ...

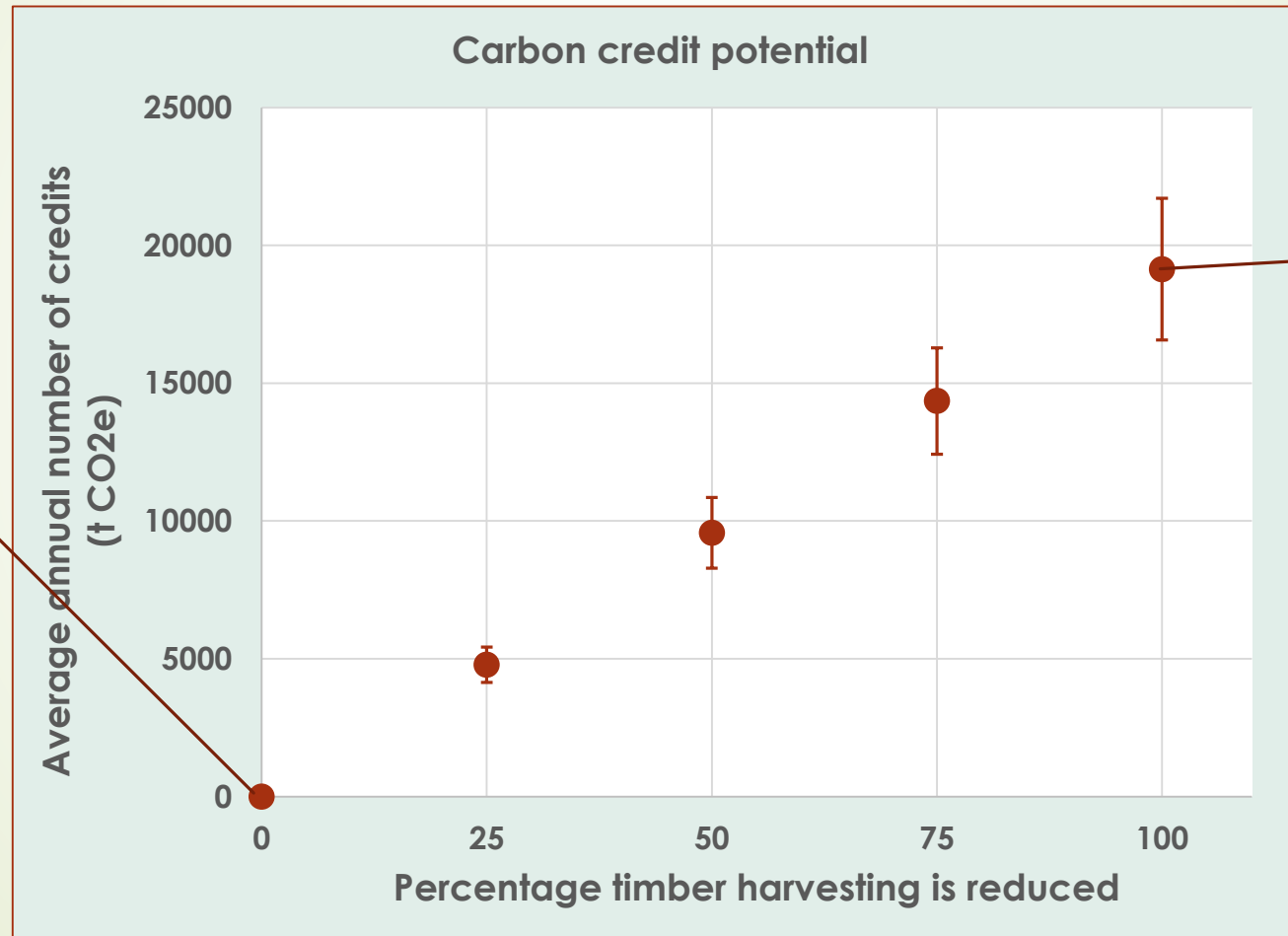
Baseline:

- Annual timber harvest volumes were derived for the MFR from previous forestry reports.
- These volumes were used to derive a schedule to simulate annual timber harvesting over the next 30 years. This is termed 'Business-as-usual' (BAU).
- Anticipated annual emissions from BAU were calculated.

Project alternative:

- The BAU harvesting schedule was reduced by a fixed amount: 75% of BAU, 50% of BAU, etc., down to 0% (no harvesting).
- Anticipated annual emissions were calculated over 30 years, for each incremental reduction.

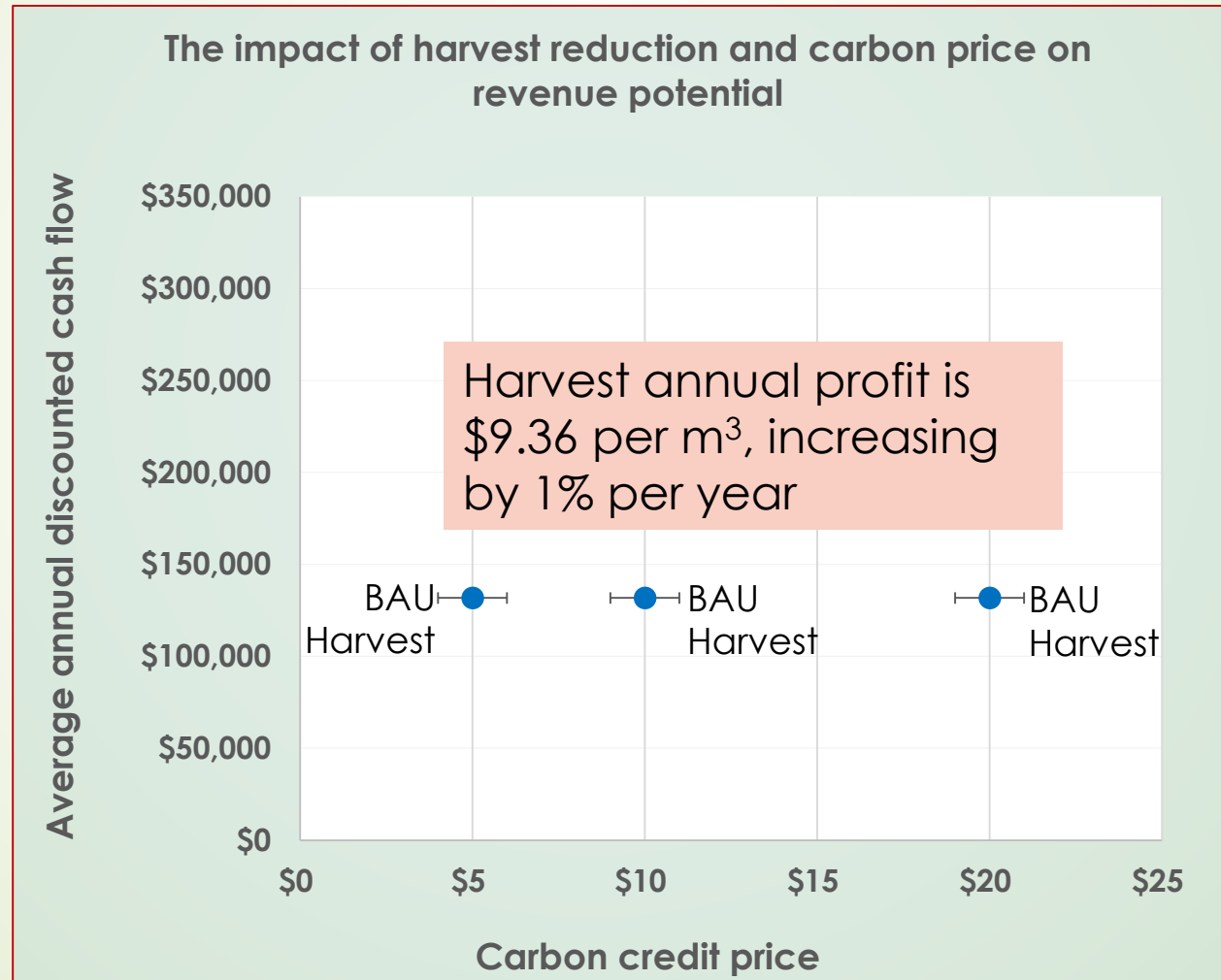
Q. 1. How many carbon credits could a project generate annually over the next 30 years ...



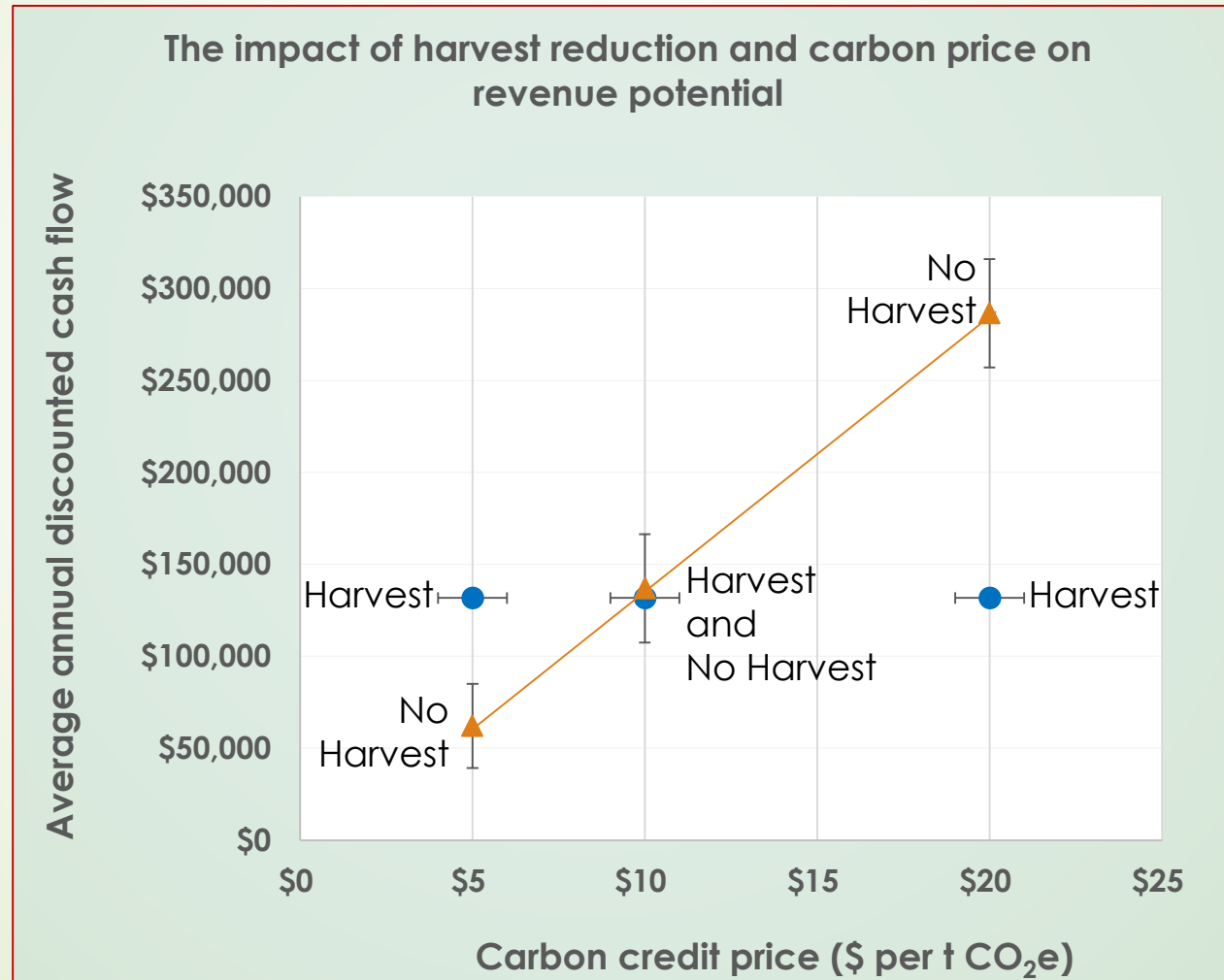
BAU
harvesting
generates no
credits

No
harvesting
generates
maximum
credits

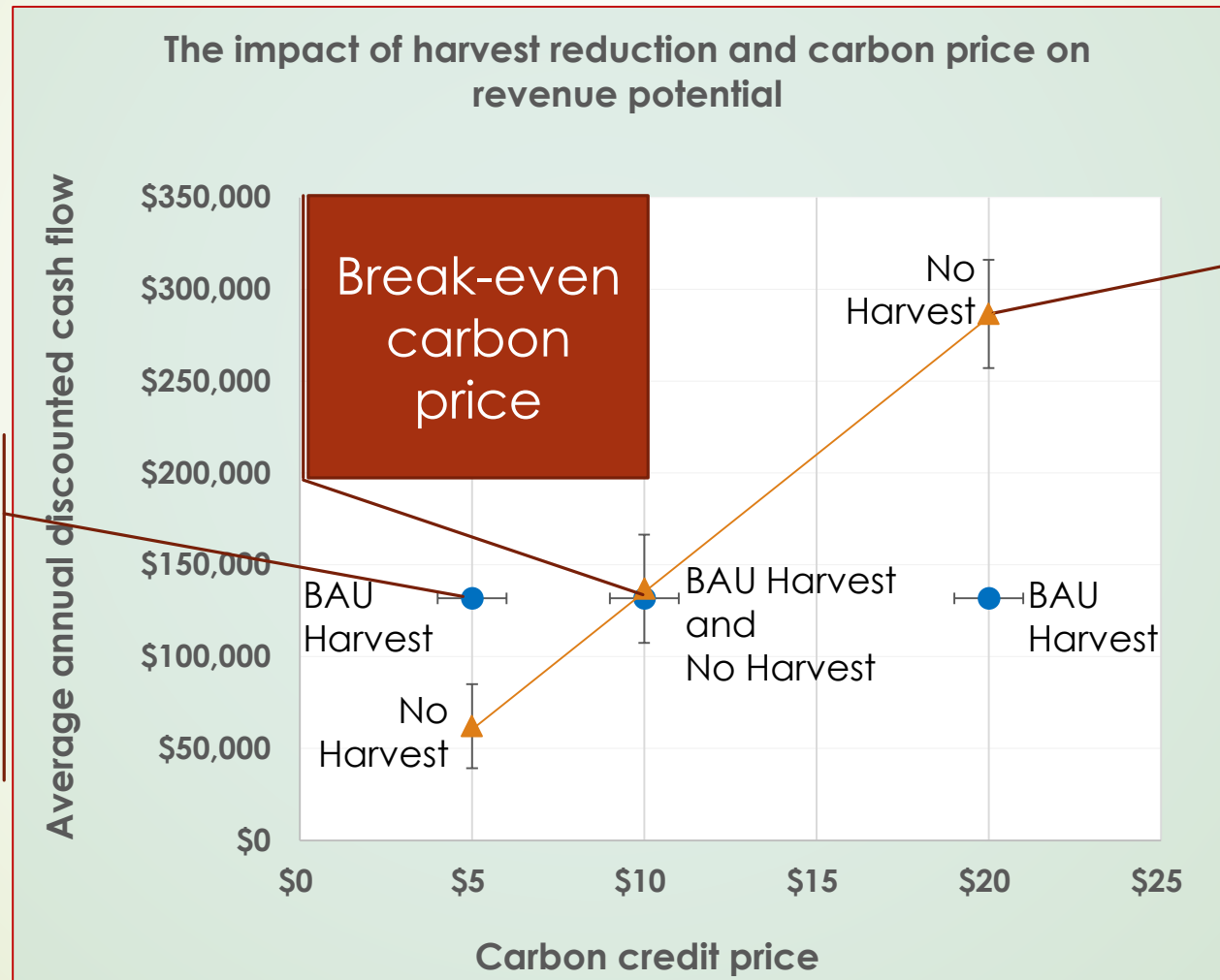
Q.2. How much revenue could a carbon project generate annually over the next 30 years ...



How much revenue could a carbon project generate annually over the next 30 years ...



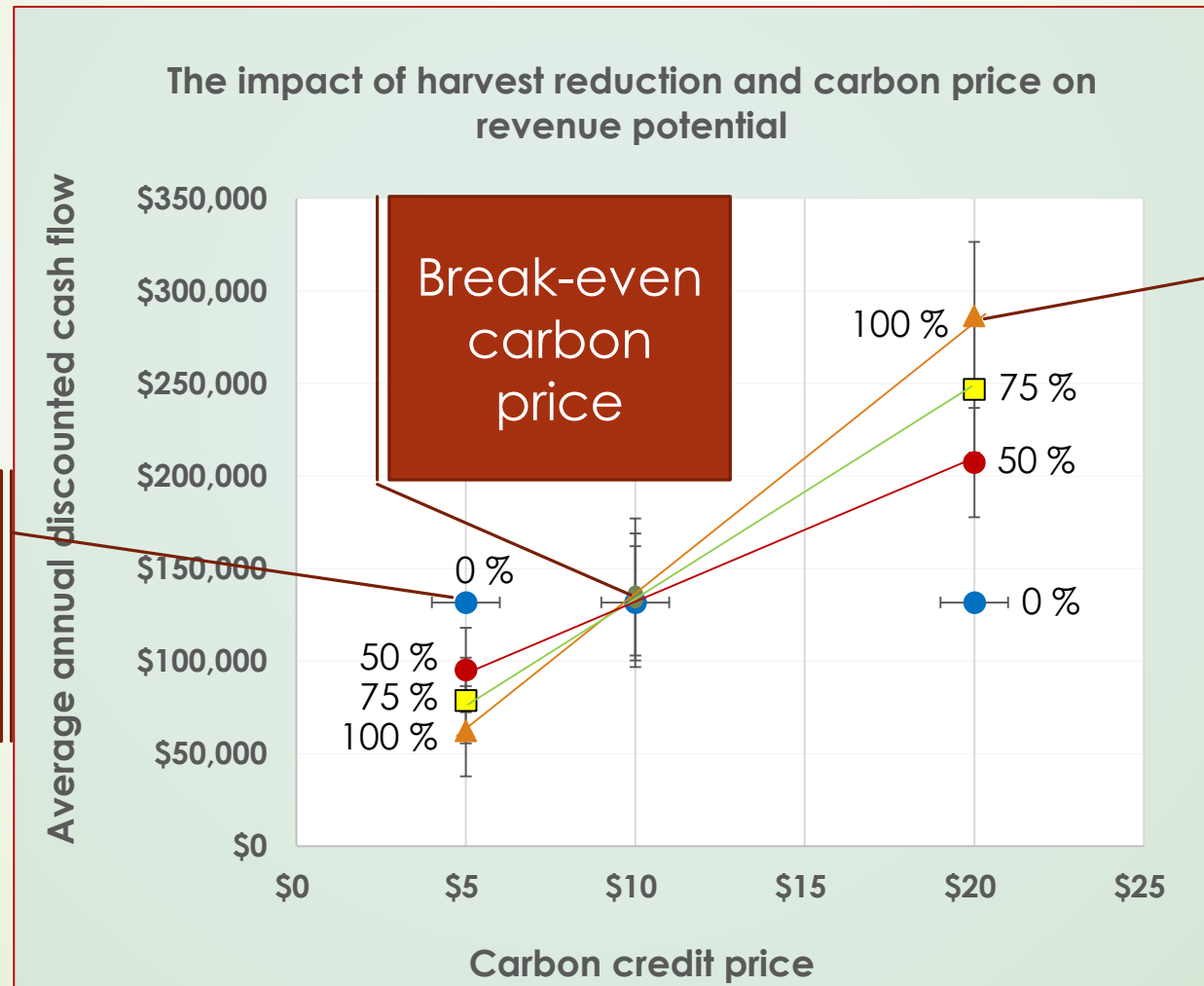
How much revenue could a carbon project generate annually over the next 30 years ...



BAU harvesting generates more revenue than carbon credits

No harvesting generates more revenue than BAU harvesting

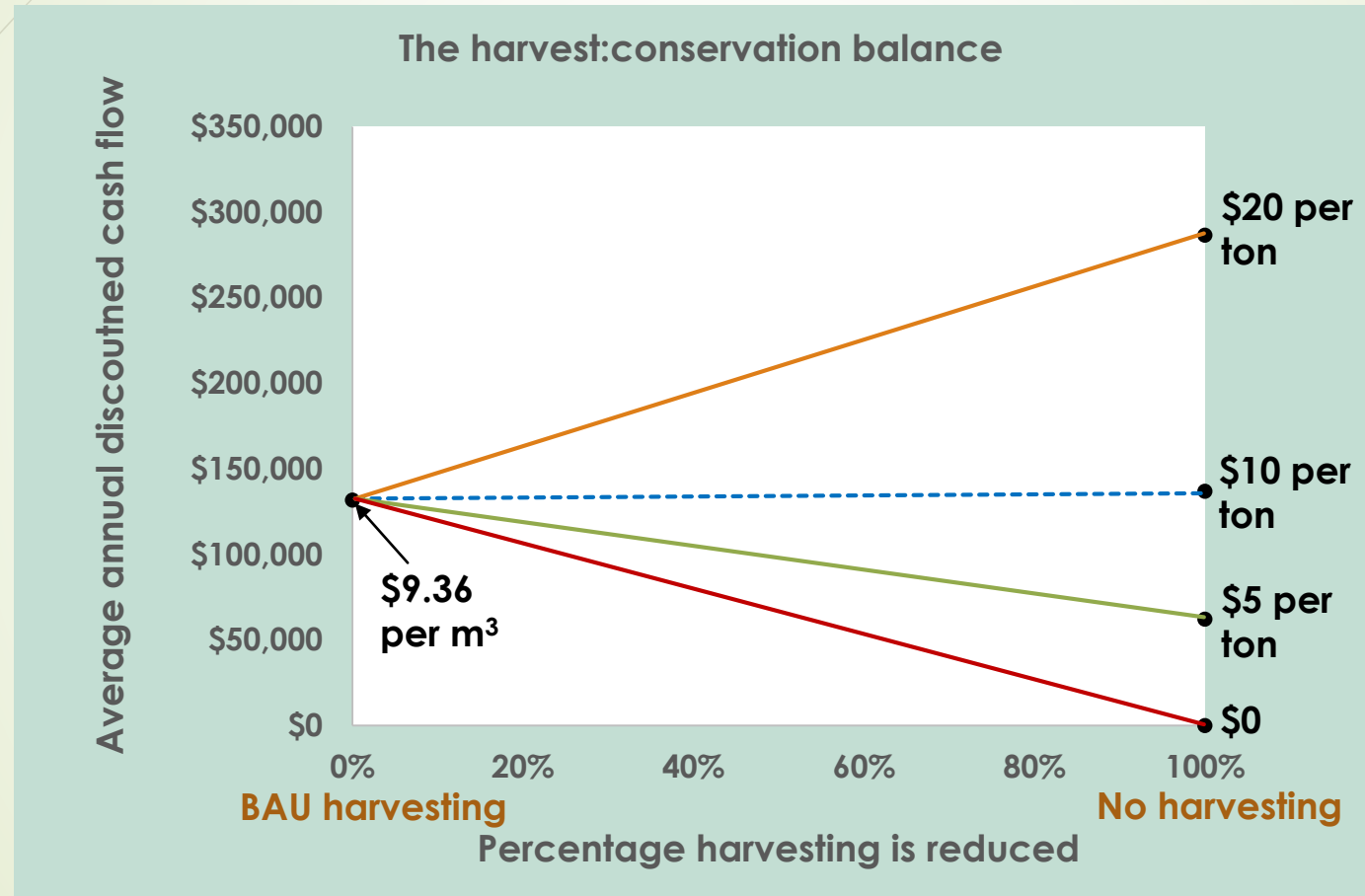
How much revenue could a carbon project generate annually over the next 30 years ...



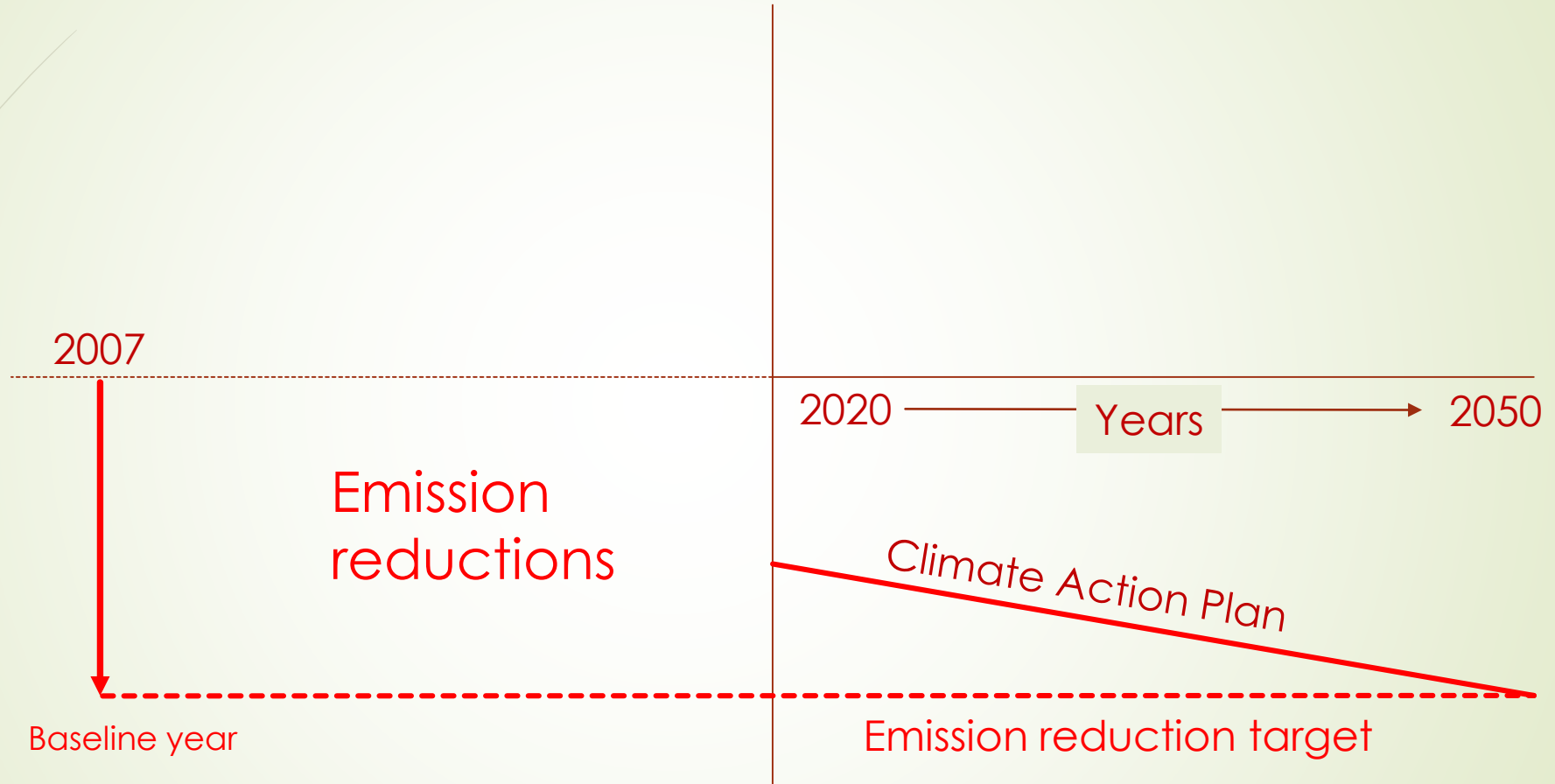
BAU
harvesting
generates the
most revenue

No harvesting
generates
the most
revenue

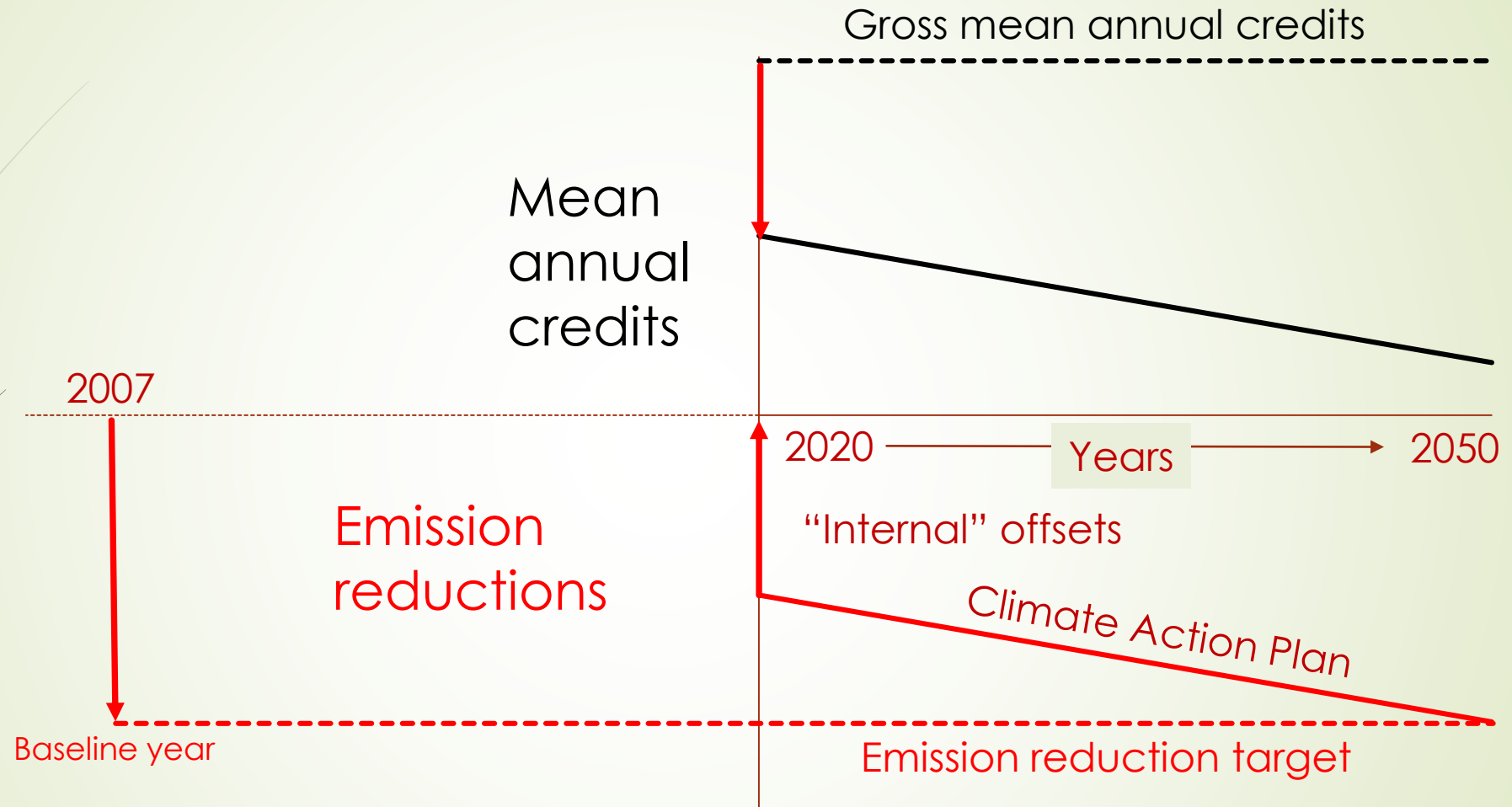
Balancing harvesting and conservation – pricing considerations



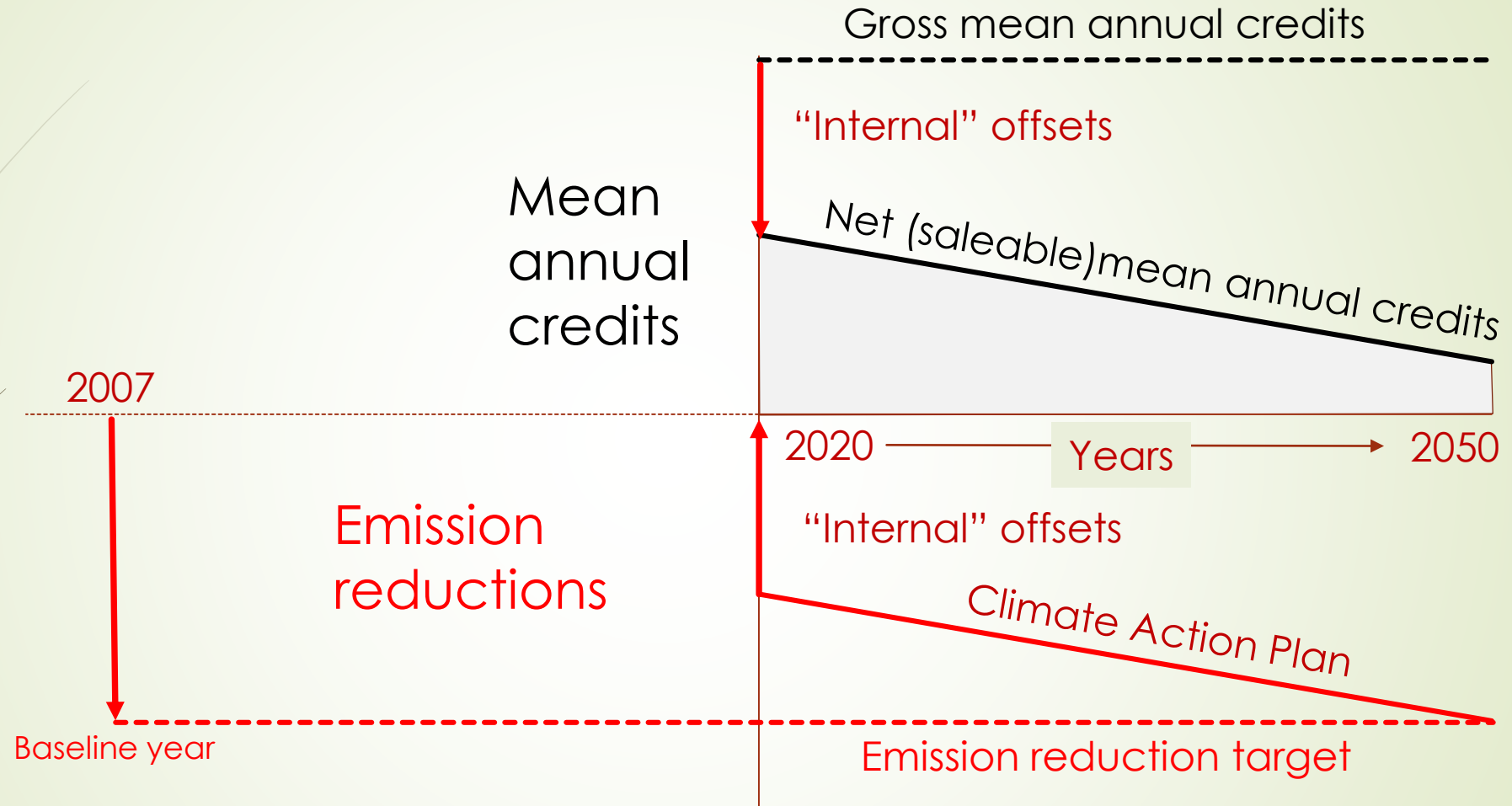
Using carbon credits to achieve carbon neutrality goals



Using carbon credits to achieve carbon neutrality goals



Using carbon credits to achieve carbon neutrality goals



When used internally, the value of offsets is equal to the cost of purchasing offsets from other sources in order to achieve carbon neutrality

In summary...

1. How many carbon credits could a project generate?
 - As many as 20,000 t CO₂e, if harvesting stops completely
2. How much revenue might be realized from carbon credits, as compared to traditional sources (i.e., harvesting)?
 - At \$10 per t CO₂e, they are equivalent
 - < \$10 per t CO₂e favors logging, > \$10 per t CO₂e favors carbon

In summary...

3. Logging and carbon are not mutually exclusive
 - A 'blended' approach is an option
4. Credits can be allocated for more than one purpose
 - As a revenue source
 - To support community carbon neutral initiatives

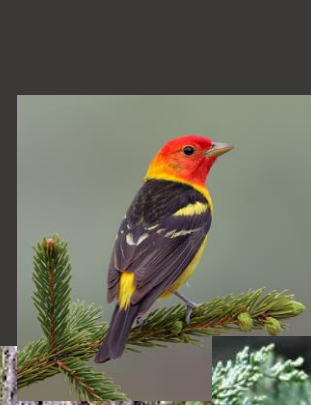
clive.welham@3greentree.com
clive.welham@ubc.ca
604.761.4007



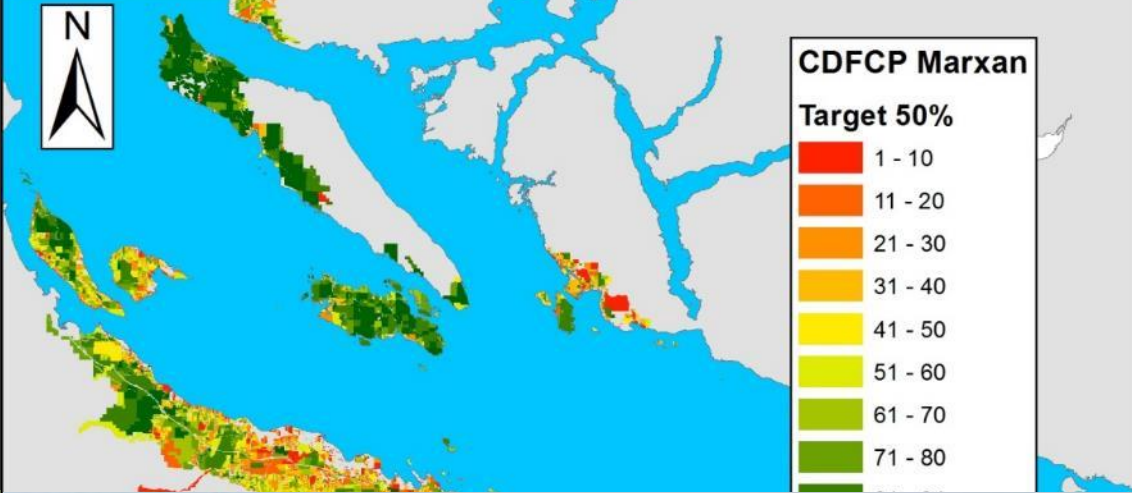
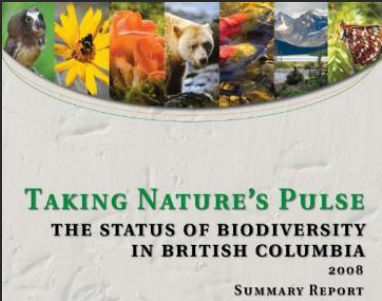
clive.welham@3greentree.com
clive.welham@ubc.ca
604.761.4007

Sustaining Economies, People and Native Species

Peter Arcese, Forest Renewal Chair
Forest & Conservation Sciences
University of British Columbia



Conservation in the Georgia Basin

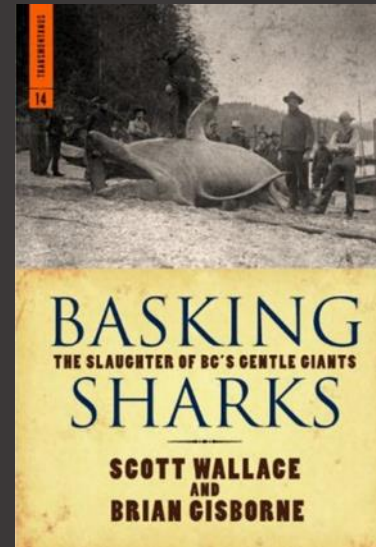


Biodiversity Declines Can Be Costly

400+ Basking Sharks
Visiting Nanaimo Annually
Declared 'Pests' in 1949

“...the smirk will be wiped off its
ugly face by the fisheries
department” *Victoria Times* 1955

Multi-million dollar
Industry Forgone

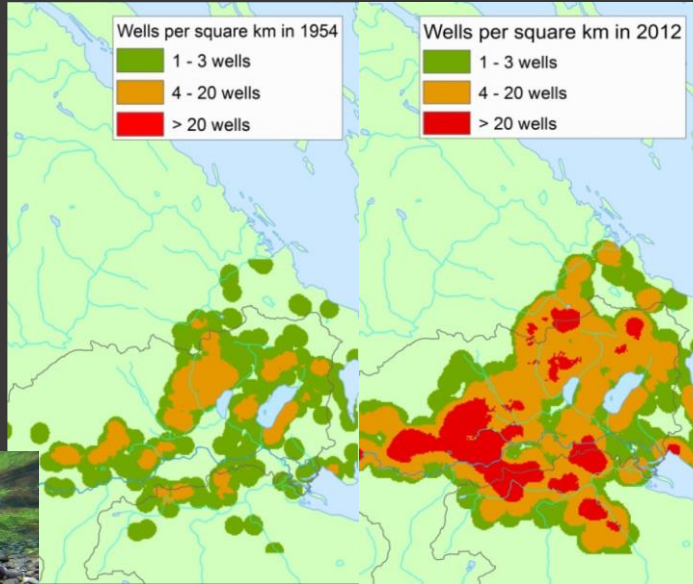
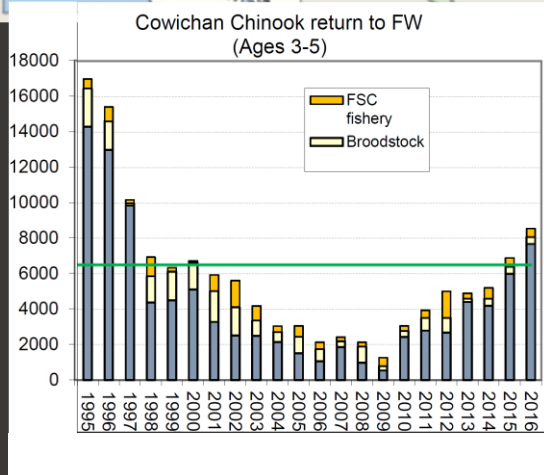


Popular Mechanics 1956
1955-69: *Comox Post*
used a 3m Blade to Slice
the Sharks in Half

Economic Trade-offs and Legacies



Water, Seasonal Flows and Salmon



Summer streamflow
50% lower in Doug-fir
forest on 40 yr vs 100+
yr rotation

Segura et al. 2020
Journal of Hydrology
DOI: [10.1016/j.jhydrol.2020.124749](https://doi.org/10.1016/j.jhydrol.2020.124749)



Bonsal Creek Produced
7000 Coho Spawners in 1975

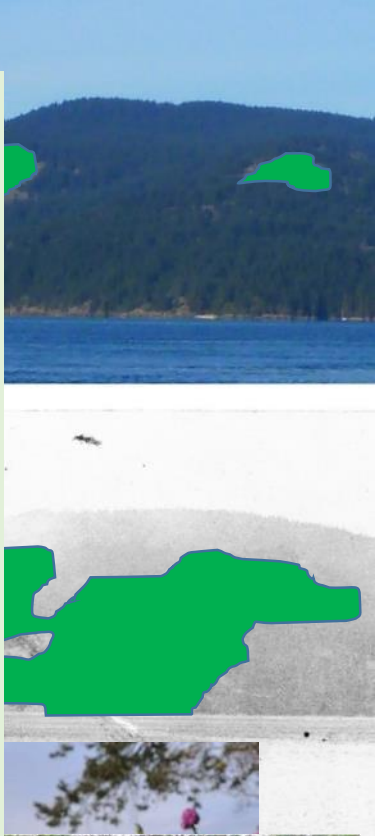
Synergies: Restoration of Culturally-Modified Habitat

- 400 bulbs/hr
- 1.0 – 2.3 million/1000 people



Harvest Can Advance Restoration of:

- Forest and Savanna
- Culturally-modified Landscapes that Support SARA-listed Species, and
- Economy Activity



Synergies: Interface Fire and Habitat

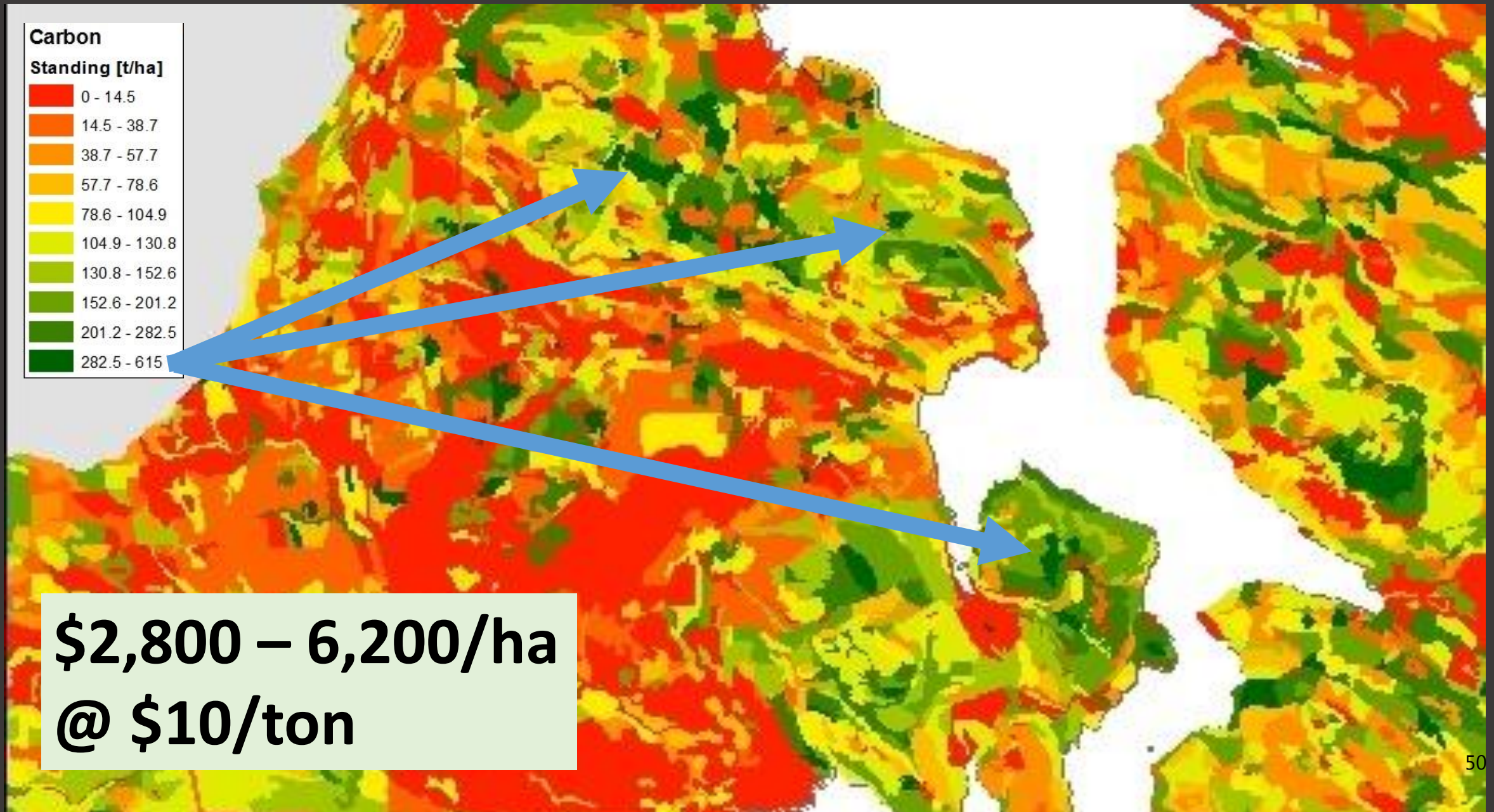


Most Fires are
Caused by Humans

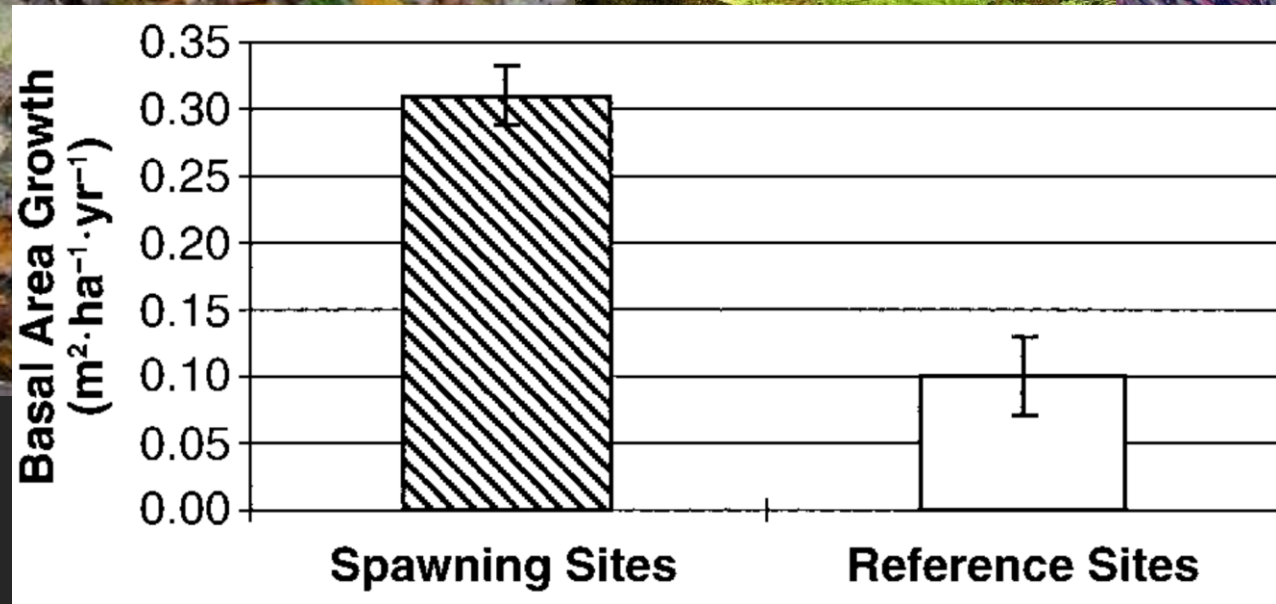


**Harvest Can Reduce Fire
Severity & Risk, Enhance
Habitat Quality, and Protect
Carbon and Infrastructure**

Synergies: Carbon Storage and Sequestration



Foliar δN_{15} Higher in Conifers Near Spawning Sites



Co-benefits of Forest Restoration

Aquatic Primary Productivity Schindler et al. 2005



Invertebrate Density Hocking et al. 2009

Fish Growth Rate Schurell et al. 2007

Songbird Density Fields & Reynolds 2011

Trophic Complexity Williams et al. 2011

Tourism / Education Dairmont et al. 2010



Commercial Harvest Harding & Reynolds 2014



Understanding Goals & Evaluating Outcomes

Draft Criteria and Indicators: Ecological

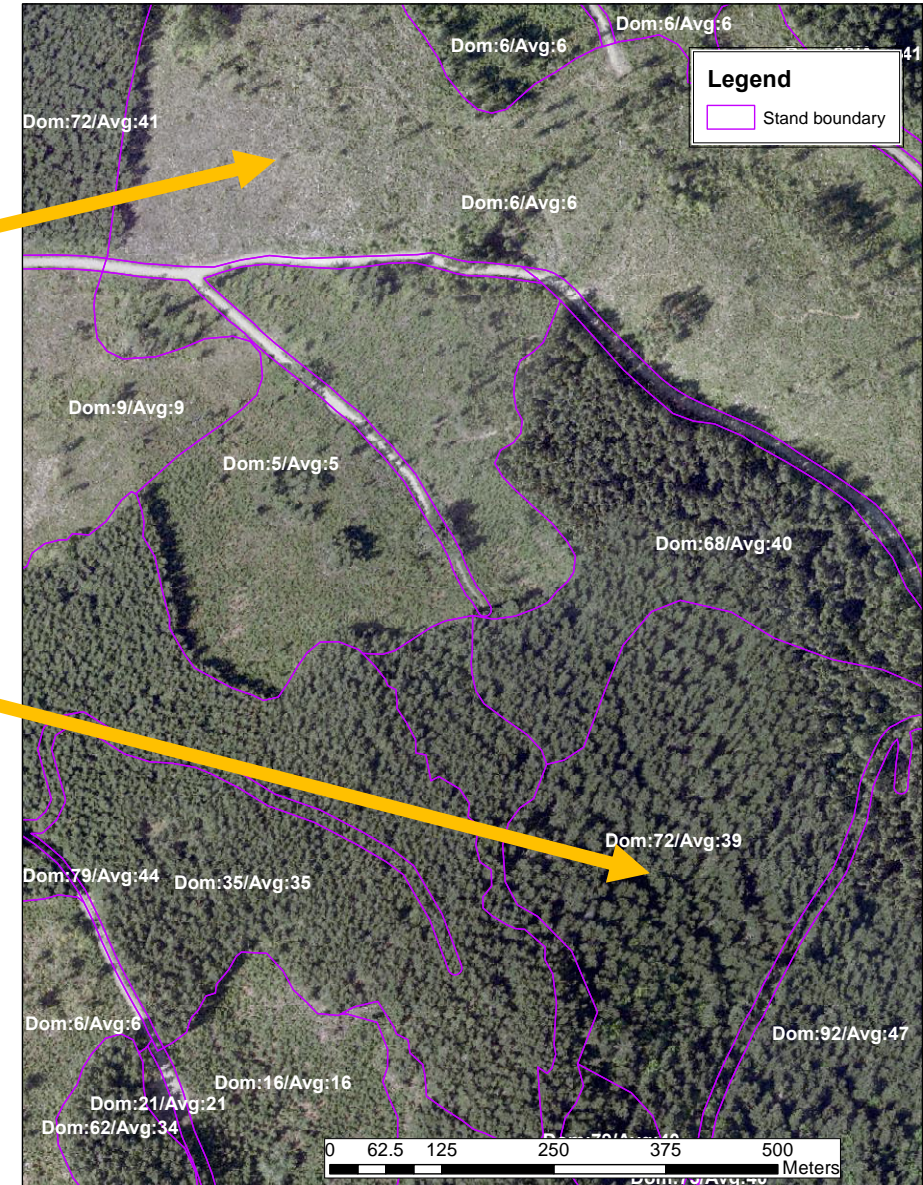
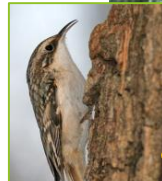
Criterion	Indicator
1.1 Sensitive Ecosystems	1.1.1 Area of sensitive ecosystems (SEI) impacted by harvest (ha or %) 1.1.2 Condition of woodland ecosystems (degree of tree encroachment) 1.1.3 Degree of disturbance in riparian areas (%)
1.2 Protection/Enhancement of Mature & Old Forest	1.2.1 Area with mature and old forest features (ha or %)
1.3 Bird habitat conservation	1.3.1 Quantification of bird habitat by species or groups (ha)
1.4 Ecosystem Carbon Storage / Emissions	1.4.1 Total ecosystem C storage within the Municipal Forest (MT C) 1.4.2 Quantification of net CO2 emissions (reductions) associated with forest management (t CO2e)
1.5 Water Quality	1.5.1 Total disturbed area in key watersheds (ha or %)
1.6 Regional Habitat Connectivity	1.6.1 Least cost pathway analysis for different habitat types incorporating adjacent conservation areas

Evaluation Spatial Data on Habitat Conditions

Forest Vegetation Mapping

- Bio-Indicators of Forest Type and Age

- Sparsely Vegetated
- Dense, Young Forest
- Old Growth/Mature Forest with Gaps
- Riparian Habitats



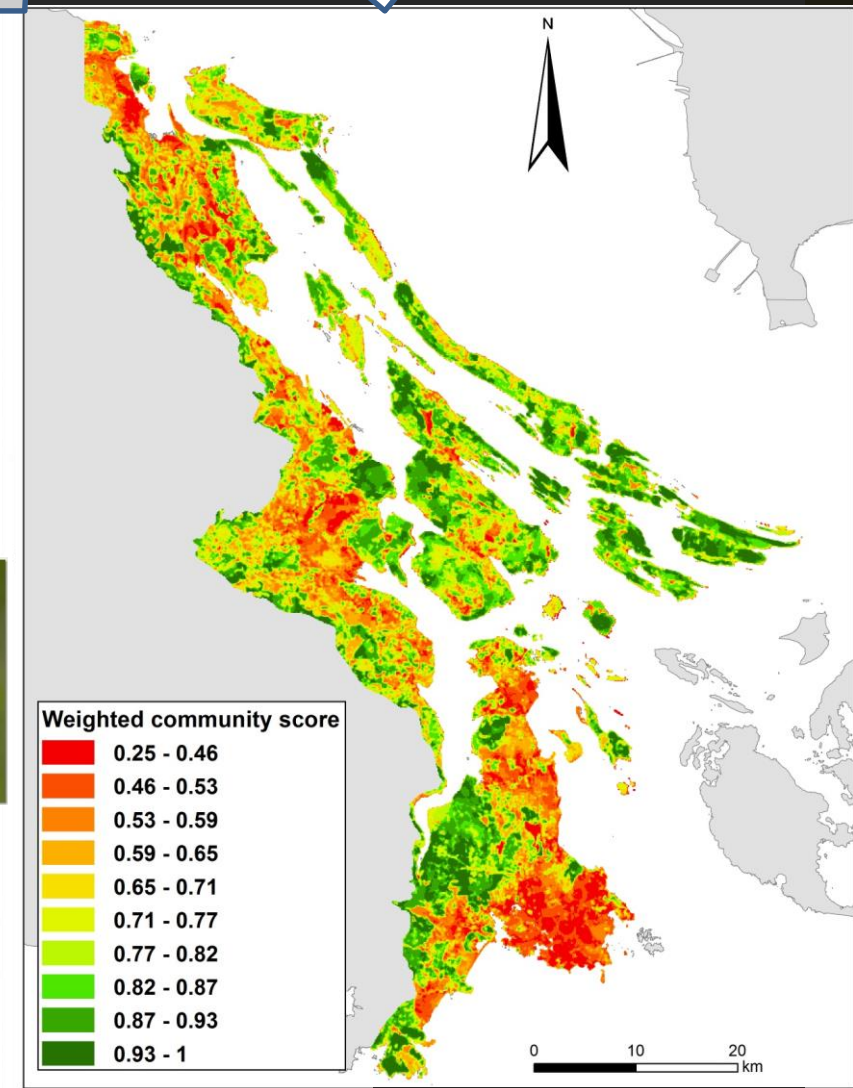
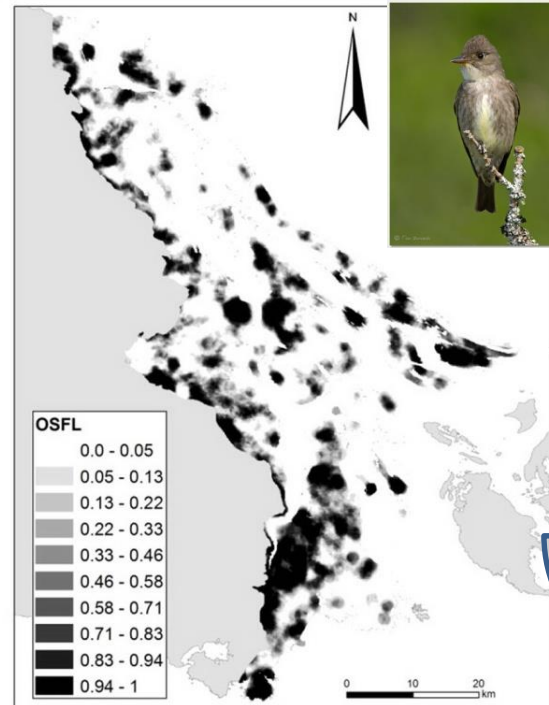
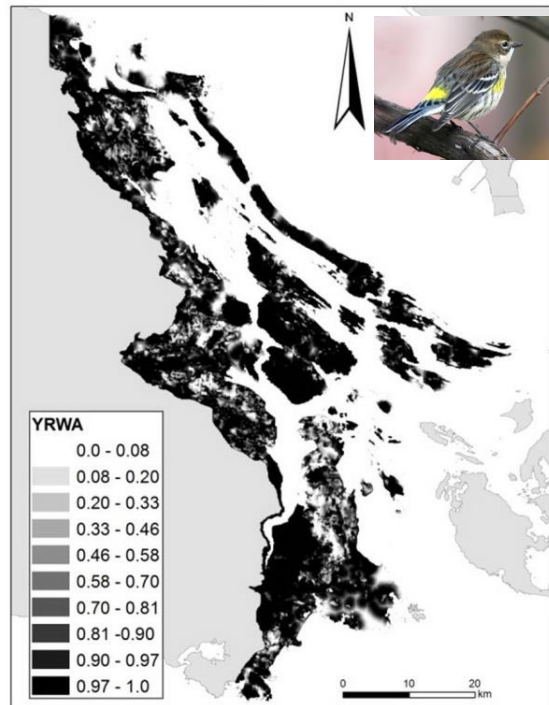
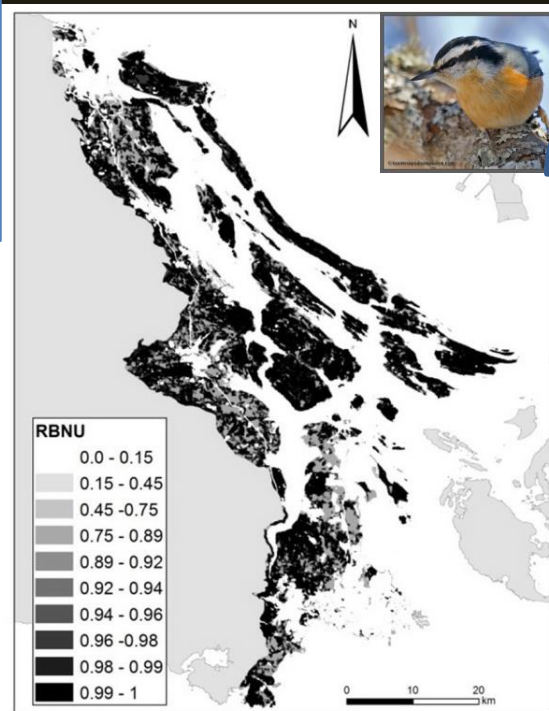
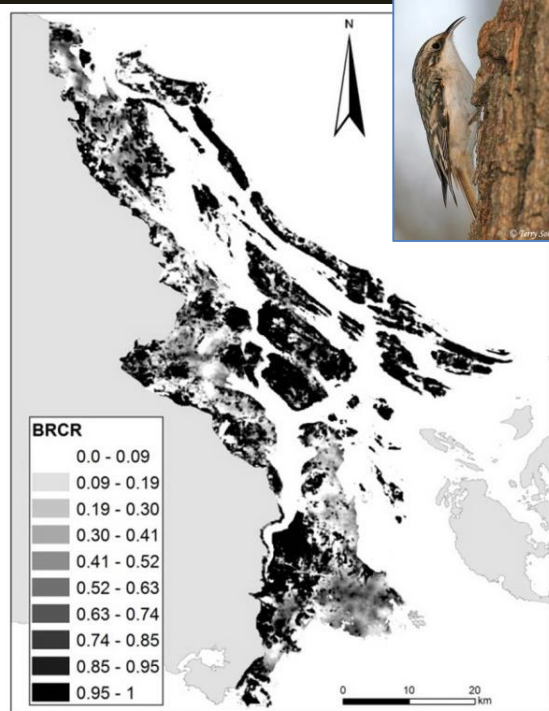
Mapping Ecosystems Using the Occurrence of Indicator Species



- 93,000 eBird Detections of Presence/Absence
- 27 Landscape Variables to Map Species Occurrence

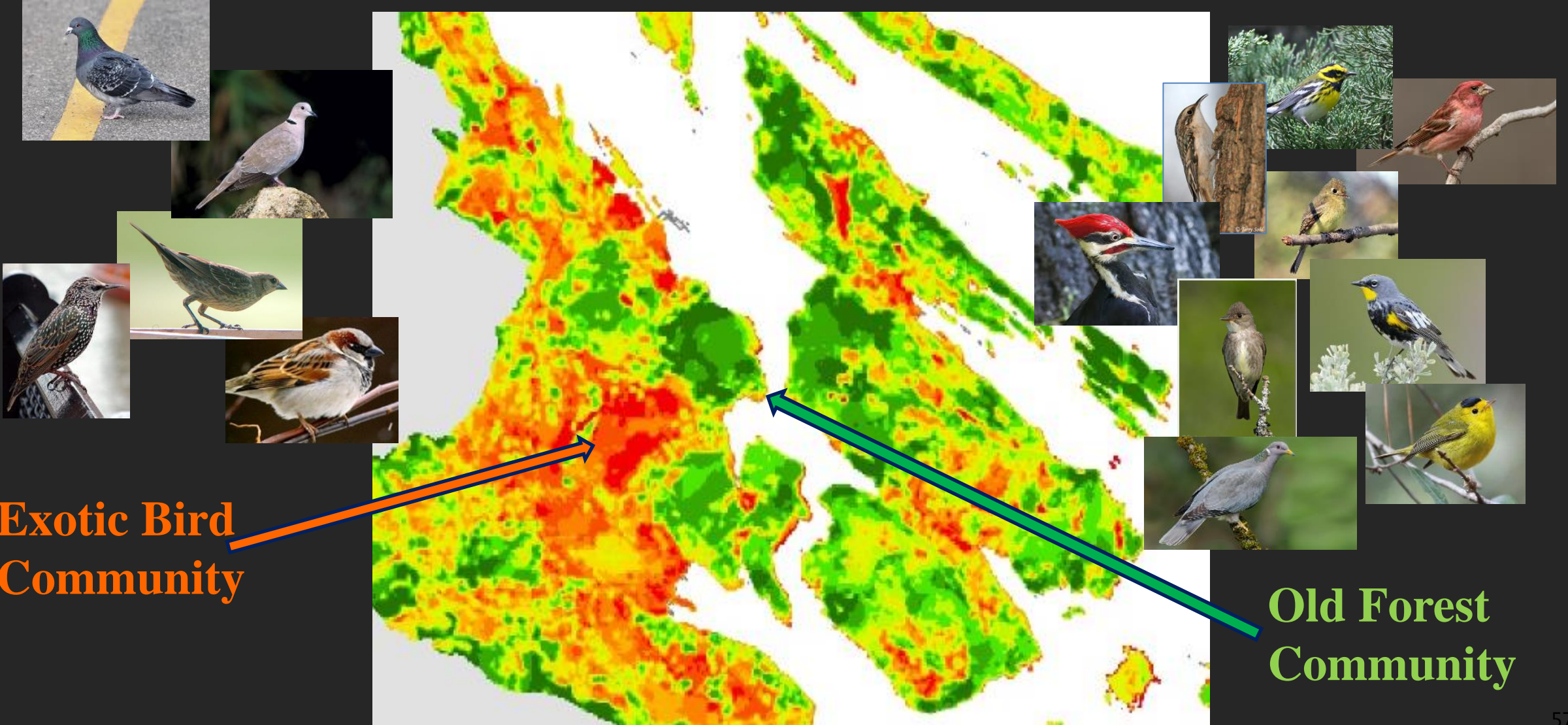
- 74 Species, 34 Families
- Assembled by Expert Elicitation on 'Habitat Reliance'





Schuster & Arcese 2013
Ecography

Indicators of Landscape Condition



Take-away Messages

Trade-offs and Synergies are Ubiquitous in the Management of Public Lands and Resources

‘Focal Species Mapping’ Informs Us About Landscape Condition and the Long-term Consequences of Management

‘Co-benefits’ of Habitat Restoration Can Enhance the Price of Carbon Off-sets, Economic Activity, and the Direct and Indirect Benefits of Recreation/Tourism

5/29/2020

Municipality of North Cowichan (MNC) Carbon Project Feasibility Assessment

3GreenTree Ecosystem Services Ltd.



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Disclaimer

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The methodology adopted and the sources of information used by 3GT in providing its services are outlined in this Report. The scope of this Report and the services are accordingly factually limited by these circumstances.

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List of Acronyms

3GT:	3GreenTree Ecosystem Services Ltd.
ASL:	Activity shifting leakage
AFOLU:	Agriculture, Forestry and Other Land Use
BAU:	Business-as-usual
BCFCOP:	British Columbia Forest Carbon Offset Protocol
CAR:	California Action Reserve
CCB:	Climate, Community and Biodiversity
CH ₄ :	Methane
CO ₂ e:	Carbon dioxide equivalent
CORSIA:	Carbon Offsetting and Reduction Scheme for International Aviation
DCF:	Discounted Cash Flow
EM:	Ecosystem Marketplace
ERA:	Extended Rotation Age / Cutting Cycle
FAC:	Forest Advisory Committee
FMP:	forest management plan
GHG:	Greenhouse Gas
ICAO:	International Civil Aviation Organization
IFM:	Improved Forest Management
LiDAR:	Light Detection and Ranging
LtHP:	Low-Productive to High-Productive Forest
LtPF:	Logged to Protected Forest
MFR:	Municipal Forest Reserve
ML:	Market leakage
MNC:	Municipality of North Cowichan
NBS:	Nature-Based Solutions
N ₂ O:	Nitrous oxide
NPV:	Net Present Value
PDD:	Project Design Document
REDD:	Reduced Emissions from Deforestation and Degradation
RIL:	Reduced Impact Logging
SSR:	Sources, sinks, and reservoirs
TV:	Terminal value
VCS:	Verified Carbon Standard
VRI:	Vegetation Resource Inventory

Section 1 - Introduction

Nature-based solutions

Nature-Based Solutions (NBS) are the ways natural systems can be managed to mitigate carbon emissions and minimize negative impacts on ecosystem services. Forest carbon projects are one example of an NBS. When structured appropriately, a forest ecosystem is management such that it generates carbon credits, which are greenhouse gas (GHG) mitigation outcomes that can be used to compensate for emissions created elsewhere¹.

Carbon credits are used by firms or individuals as a means for offsetting their activity-related emissions. One criticism is that rather than investing in decarbonizing or reducing GHG-intensive activities, instead they constitute a “license to pollute”, which results in no net-benefit for the environment. There are, however, strong arguments for their use as a tool for NBS²:

- The private sector pays for carbon offsets, which allows capital to flow directly to priority areas for NBS that have been traditionally underfunded.
- There are now robust carbon offset frameworks that provide strong measuring, reporting and verification requirements to ensure projects result in genuine benefits.
- Carbon offsets can lower compliance costs for entities that must reduce their carbon footprint.
- Cost-effective mitigation options like offsets will help lower the overall costs of transitioning to a low-carbon economy.
- Carbon offsets broaden sources of revenue to the forest sector beyond timber extraction (conservation-based management, for example).

To ensure a carbon project delivers benefits to the atmosphere, emission reductions must be:

- Real: Conservative baselines are used as the counterfactual against which emission reductions are evaluated to ensure project benefits are not exaggerated.
- Permanent: Risks of unplanned reversals of the GHG benefits are mitigated or reduced.
- Additional: The emissions reductions would not have taken place without the carbon project.
- Verifiable: The emissions reductions can be demonstrated to have occurred.
- Avoid Leakage: These are no net increases in emissions by GHG sources that occur outside the project boundary, which are attributable to the project.

¹ The terms ‘carbon credit’ and ‘carbon offset’ are often used interchangeably. In practice, a carbon project generates credits. Credits have no inherent value, however, until they are used to reduce (offset) the impact of the same amount of GHG emissions elsewhere, hence the conflation of terms.

² After Monahan et al. 2020. NATURE-BASED SOLUTIONS: POLICY OPTIONS FOR CLIMATE AND BIODIVERSITY. Smart Prosperity Institute, University of Ottawa, Ottawa, ON. (institute.smartprosperity.ca).

As part of a broader mandate³, 3GreenTree⁴ was engaged by the Municipality of North Cowichan (MNC) to undertake a feasibility analysis of its current fee-simple forest property portfolio (the Municipal Forest Reserve) as the basis for a carbon project. The general intent is to use the sale of carbon credits to finance and support alternative methods of property management and reduce overall carbon emissions, preserve or enhance additional ecological services, and support socioeconomic and conservation objectives. The analysis does not include consideration of potential future property acquisitions by MNC, or provisions for incorporating private landowners into the project, within the municipal boundary⁵.

The overall objectives of this feasibility assessment are to determine: 1. If an MNC forest carbon project would meet the requirements of one or more, internationally recognized standards; 2. If there are any significant risks to project development or operations; and 3. Estimate the carbon credits and financial returns under different potential management scenarios.

Section 2 – Methodology requirements

Choice of Carbon Standard

Carbon standards define a set of rules which lead to a certification that carbon credits arising from offset projects comply with environmental and/or social criteria. Each standard sets its own requirements and certification criteria.

A number of carbon standards would likely be applicable to a forest carbon project in the MNC. These include the Verified Carbon Standard (VCS), California Action Reserve (CAR), California Air Resources Board, the British Columbia Forest Carbon Offset Protocol (BCFCOP), and the American Carbon Registry. Each standard has its strengths and weaknesses⁶, the details of which are beyond the scope of this document. In the opinion of 3GreenTree, however, the VCS represents the standard best aligned with the goals and objectives of the MNC (details below). It is regionally applicable, flexible in its approach and application, and includes robust procedures for risk assessment and mitigation.

³ Evaluation of multi-objective forest management strategies and options for the North Cowichan Municipal Forest towards the development of interim and long-term sustainable forest management plans.

⁴ 3GreenTree Ecosystem Services, Ltd. is a turn-key forest carbon project development company. It was the principal developer in several leading voluntary carbon projects in North America, including the 44,000 ha Darkwoods Forest Carbon Project in Nelson, British Columbia, and the 2,800 ha Afognak Forest Carbon Project near Kodiak, Alaska. The firm built one of the first forestry methodologies approved under the Verified Carbon Standard (VM0012).

⁵ Should these circumstances prevail, the project would need to be defined as a 'Grouped project'. Grouped projects provide for the inclusion of new project activity instances (e.g., private lands) subsequent to the initial validation of the project (see Section 8 - Additional considerations).

⁶ Kenneth R Richards & Grant E Huebner (2012) Evaluating protocols and standards for forest carbon-offset programs, Part A: additionality, baselines and permanence, Carbon Management, 3:4, 393-410, DOI: 10.4155/cmt.12.38; Part B: leakage assessment, wood products, validation and verification, Carbon Management, 3:4, 411-425, DOI: 10.4155/cmt.12.39

Project Eligibility

Under VCS, there are two forest carbon project categories, 'Improved Forest Management (IFM)' and 'Reduced Emissions from Deforestation and Degradation (REDD)'⁷, which fall under their Agriculture, Forestry and Other Land Use (AFOLU) subprogram. Eligible IFM activities are planned forest management practices that increase carbon sequestration and/or reduce GHG emissions on forest lands managed and maintained for wood products such as sawtimber, pulpwood and fuelwood. Eligible REDD activities are those that reduce net GHG emissions by reducing deforestation and/or degradation of forests. Deforestation is the direct, human-induced conversion of forest land to non-forest land. Degradation is the unplanned but permanent reduction of carbon stocks in a forest due to human activities such as animal grazing, fuelwood extraction, timber removal or other such activities, but which does not result in the conversion of forest to non-forest land (this would be classified as deforestation).

The key to determining which of IFM and REDD is the most applicable to the MNC is an understanding of how current and future land use activities impact carbon emissions. The basis for a carbon project is the Municipal Forest Reserve (MFR). An area of 5,344 ha, the lands were acquired from non-payment of taxes during the 1930's and 40s, and in 1946, were formally recognized by council. The MFR remained un-managed until the 1960s when a consulting forester was hired to create a Forest Management Plan. The outcome of this plan was to divide the MFR into ten woodlots that were harvested by local operators by "diameter limit cutting," which permitted the logging of trees greater than a set diameter. This practice continued until 1981 when local concerns over the future of the forests initiated the creation of a Forestry Advisory Committee (FAC). The FAC consisted of volunteers from the Municipality with experience in forest resources management. The FAC was asked by Council to recommend future management options and operational budgets for the MFR. In 1981, the FAC report entitled "Management of the Forester Reserves – An Investment in the Future" has served to guide management of the MFR to the present day.

The MFR is located to the north and east of Duncan, entirely within the District Municipal boundaries, in six major landholdings, Mt. Prevost, Mt. Sicker, Maple Mountain, Mt. Richards, Mt. Tzouhalem, and Stony Hill. Other smaller, isolated blocks are present, most notably in Copper Canyon. Most of the MFR lies within the Coastal Western Hemlock Dry Maritime biogeoclimatic sub-zone, but small eastern portions are classified as Coastal Douglas-fir Moist Maritime or are transitional (e.g. Stony Hill, Chemainus, Fuller Lake and parts of Maple Mountain). Vegetation is dominated by Douglas-fir, Garry oak, Western red cedar, Grand fir, and Red alder. There are also Bigleaf maple, Arbutus, and other minor species within the Reserve.

⁷ Some standards (for example, CAR and BCFCOP) utilize a category of Avoided Conversion (AC) which pertains to deforestation only. See https://verra.org/wp-content/uploads/2018/03/AFOLU_Requirements_v3.6.pdf.

Multiple use is the philosophy underlying MFR management activities. Harvesting has been conducted from the beginning on a long-term sustained yield basis with a view to protecting water quality and fish habitat, conserving soil productivity, and to facilitate outdoor recreational activities. Beginning in the 1950's, harvesting activities on the MFR have been in accordance with a series of 5-year forest management plans (FMPs). These plans included silvicultural prescriptions that ensure successful stand regeneration post-harvest. A Forest Advisory Committee (FAC) was established in early 1960 to oversee the management of the MFR. Since that time, it is the FAC who developed the FMPs and ensured their successful implementation.

Aside from land-use change (converting forests to another use), the key distinction between IFM and forest degradation (as per REDD) is occurrence of planned versus unplanned activities on forest land that remains as forest land. Under IFM, forest removals are a planned activity, whereas the loss of carbon under REDD occurs inadvertently (unplanned) through poor management practices or illegal logging. Given the stated intent of activities on the MFR are sustained yield harvesting, conducted in accordance with explicit forest management plans, IFM represents the most suitable project category in terms of eligibility.

Various sanctioned forest management activities may be changed to increase carbon stocks and/or reduce emissions, but only a subset of these activities makes a measurable difference to the long-term increase in net GHG emissions compared to the baseline scenario. These activities, eligible under IFM, include:

1) Reduced Impact Logging (RIL)

Practices that reduce net GHG emissions by switching from conventional logging to RIL during timber harvesting.

2) Logged to Protected Forest (LtPF)

Practices that reduce net GHG emissions primarily by converting logged forests to protected forests. By eliminating harvesting for timber, biomass carbon stocks are protected and can increase as the forest re-grows and/or continues to grow. Limited harvesting of trees is also permitted, however.

3) Extended Rotation Age / Cutting Cycle (ERA)

Practices that reduce net GHG emissions of evenly aged managed forests by extending the rotation age or cutting cycle and increasing carbon stocks. Modified harvesting is the focus of ERA, rather than, for example, conservation.

4) Low-Productive to High-Productive Forest (LtHP)

Practices that increase carbon sequestration by converting low-productivity forests to high-productivity forests. This project activity is specific in its application and does not include conservation.

Of the four eligible activities, LtPF has the greatest flexibility and can include components of the other activities. Projects may include multiple activities where the methodology applied allows it or where projects apply more than one methodology. In the latter case, projects must comply with the respective project requirements of each included AFOLU category. This approach is not

recommended for the MFR due to the increased costs incurred by applying multiple methodologies. Typically, LtPF projects are based on: (a) Reduced logging activity overall, (b) Protecting currently logged or degraded forests from further logging, and (c) Protecting unlogged forests that would otherwise be logged. Hence, LtPF is likely best suited to the goals and objectives of MNC with respect to the future management of the MFR.

Carbon credits are generated from the specific activities undertaken to achieve a net reduction in GHG emissions (expressed as CO₂e)⁸. Each carbon standard provides one or more established methodologies that define the rules and regulations which must be followed in order to derive the credits.⁹ VCS IFM LtPF activities have several methodologies that apply specifically to LtPF activities. Two methodologies, in particular, are VM0012 (Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2) and VM0034 (the British Columbia Forest Carbon Offset Methodology). Their relative merits in regard to a carbon project on the MRF will be discussed below.

Project boundary

Refers to the physical location(s) of the project boundaries that define the project area, and the GHG sources, sinks and reservoirs (or pools) relevant to the project and baseline scenarios. In the MNC, the project boundary will, as a minimum, be defined by those areas constituting the MFR. Under VCS rules, this would be considered a non-grouped project. There are several options by which the project boundary could be expanded in the future. One is that the MNC add private lands to the project portfolio through purchases or from donation. Another option is to allow private landowners to enroll in the project and thus participate directly in project activities. Either of these cases, if they occur, would require the project be defined as a grouped carbon project (which must be done prior to project validation). This option is discussed further in Section 8

For sources, sinks, and reservoirs (SSRs), all protocols require the inclusion of the most important SSRs. The BCFCOP requires the consideration of a more comprehensive set of SSR's, than VM0012, which could result in higher project costs. Associated GHGs that must be accounted for are also more comprehensive under FCOP (CO₂, CH₄, and N₂O) than VM0012 (CO₂, only).

Project Start Date

⁸ Carbon dioxide equivalent" or "CO₂e" is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO₂e signifies the amount of CO₂ which would have the equivalent global warming impact. In this analysis, CO₂ is the only GHG under consideration, and so CO₂ and CO₂e are equivalent and interchangeable.

⁹ The rigor associated with a given methodology depends on whether credits are intended to be sold or used internally; requirements in the latter case tend to be less onerous.

To encourage project participation, the VCS standard contains provisions to incorporate climate emissions reductions that may have been initiated prior to final project development and approval. Hence, under VCS rules, the project start date can be retroactive to the date on which activities that lead to the generation of GHG emission reductions or removals are implemented. In the case of the MFR, these activities began formally in year 2020. Hence, the project start date will be January 1, 2020.

Ownership

VCS rules state that the project proponent demonstrate control over the entire project area with documentary evidence establishing project ownership. In terms of their fee simple properties, the MNC has clear rights and title to any carbon credits derived from a project developed on these lands, as per VCS requirements. Should the MNC pursue a grouped project, private landowners will be subject to meeting ownership requirements vis a vis any carbon credits generated.

Permanence and Project Length

For IFM projects under VCS, the project crediting period (project length) can be a minimum of 20 years to a maximum 100 years. Though not mandatory, there are benefits within the VCS program where projects can demonstrate that activities will maintain the carbon stocks on which GHG credits have been issued, beyond the crediting period. In the case of shorter crediting periods, the project may be renewed at most four times with a total crediting period not to exceed 100 years. Shorter crediting might be appealing to owners averse to encumbering their land for protracted periods but project renewal would also entail additional financial costs. For the MNC carbon project, the recommended project length for the MFR is 100 years.

The permanence of carbon credits issued to the project is assessed in VCS through a detailed risk assessment process conducted for a mandatory 100-year period, a time frame that encompasses all project crediting periods. Assessment includes risks associated with project management, longevity, ownership, financial viability, and natural disturbance. This process generates a score that determines the proportion of offsets deposited into a Buffer Pool.¹⁰ A low risk project might be required to contribute 10-15% of emission reductions to the Buffer Pool, while a high-risk project might contribute as much as 60% of emission reductions. In the case of the BCFCOP methodology, there is an additional requirement. The BC Emission Offset Regulation requires that projects involving removals by controlled sinks and avoided emissions from reservoirs / pools prepare a risk mitigation and contingency plan for ensuring that the

¹⁰ The VCS Buffer Pool is a group program that provides all-cause insurance to cover carbon emission reversals related to any project in the VCS portfolio. The buffer pool serves to protect the integrity of the emission reductions acquired by carbon offset buyers from a VCS project.

atmospheric effect of removals and avoided emissions endures for at least 100 years after the last offset was claimed¹¹.

Based on 3GreenTree's experience with the application of the risk tool, our expectation is that the MNC project will have a low risk rating.

Additionality

Additionality refers to whether claimed emission reductions are in excess of what would have happened had the project not been undertaken, as described and quantified in the baseline (see Section 3). All carbon methodologies provide methods to assess additionality. VCS has three basic criteria. 1. Regulatory surplus: Project activities cannot be required by law, statute, or any regulatory framework. Landowners, for example, are legally required to maintain stream buffers, making these carbon stocks ineligible. 2. Implementation barriers: The project must face one or more distinct barrier(s) compared with any alternatives (i.e., the potential baselines) to the proposed activities. These barriers might be financial, technological, or institutional. Additionality requires that project activities must play a role in overcoming these barriers. 3. Common practice: Activities must go beyond what might be considered common practice to be additional.

Key elements most relevant to MNC forest carbon project would be the forest protection requirements and restrictions mandated under the Forest and Range Practices Act (FRPA), the forest management plans and activities applied to the MFR, and financial returns from forest management activities. Should MNC wish to pursue a grouped project by allowing private landowner participation, the Private Managed Forest Land Act would determine the minimum standards and practices against which these lands will be assessed for additionality within the project. Finally, in terms of any subsequent property acquisitions (purchased or deeded) by MNC, those made for conservation purposes on land that would have been utilized for other purposes, are considered additional by default because there is no compelling business case to conserve forests beyond carbon income. Acquisitions that add to the harvestable timber supply would be subject to the same criteria for additionality as current MNC timberland.

Leakage

One of the more challenging aspects of carbon projects. Leakage relates to the risk that project implementation will directly or indirectly increase carbon emissions elsewhere (but within the host country). VCS recognizes two types for forestry-based projects, activity-shifting and market leakage.

¹¹ Under the BCF COP then, if a project's last issuance is at year 75 of an 80-year crediting period, for example, the mitigation and contingency plan must be operational for another 100 years thereafter, or 175 years after the project start date.

Activity shifting leakage (ASL) occurs when there is an increase in GHG emissions by the project proponent from areas outside the project boundary in response to restrictions imposed by the carbon project itself. For instance, a project that requires a reduction in harvest level of a forested property to conserve carbon stocks and the developer simply increases the harvest level on another owned property to make up the shortfall.

Market leakage (ML) occurs when there is an increase in GHG emissions from areas outside the project boundary as a result of the project significantly reducing the production of a commodity, causing a change in the supply and market demand equilibrium, which favors a shift of production elsewhere. For example, if sufficient volume of timber is removed from the supply chain as per the requirements of a carbon project, prices may rise in response to a reduced supply which incentivizes more harvesting overall in the region.

Both the VM0012 and BCFCOP methodologies provide guidelines for calculating leakage and assessing the resulting carbon credit discount. ASL is not a concern on the MFR but may be of some concern if private landowners are included as part of a grouped project. ML should be a minor issue because the harvested annual volumes from the MFR are relatively low. Both methodologies provide an option of using default discount factors or undertaking a series of calculations. The maximum default factors are in excess of 65%, which means that most of the benefits from a harvest reduction would be lost due to the leakage penalty. This provides a strong incentive for proponents to calculate their own leakage discount, which is likely to be much lower.

Section 3 - The Baseline Scenario

The baseline is a counterfactual forecast of what would have happened on the project area and the resulting GHG emissions, in the absence of the chosen alternative (i.e., the actual project scenario). VM0012 requires a 3-step process to determine a project-specific baseline, the result of which must be consistent with the rules for additionality. BCFCOP combines the baseline and additionality analyses to also derive a project-specific scenario.

In practical terms, carbon flows among all required pools that would have occurred from activities conducted under the baseline scenario, are accounted for. This includes emissions related to harvesting and from the subsequent decay of needles, branches, stumps, and roots. As a counterbalance to emissions, the analysis includes carbon stored in wood products following harvest and sequestered through forest growth.

In the case of the MFR, a single baseline will be utilized. Termed business-as-usual (BAU), it is a continuation of the harvesting and silvicultural practices employed on the MFR over the recent past. An annual harvest target of 17,600 m³ was determined based on an evaluation of the temporal trends in historical harvesting on the MNC forest landbase (See Section 5).

Section 4 - The Project Scenario

The project scenario describes activities that represent a deviation from the baseline and whose outcome therefore results in emission reductions and/or enhanced carbon storage. The decrease in net emissions under the project scenario versus the baseline represents the gross amount of offset credits potentially available. Under VM0012, the IFM project category permits considerable flexibility in terms of management activities Under the Logged to Protected Forest (LtPF) activity. The majority of carbon benefits, however, accrue from conserving existing carbon stocks through reduced harvest levels. Note that areas retained/conserved as per legislated requirements (buffer zones, for example) are applied in both the baseline and project scenarios and therefore net each other out. As a result, there is no net emission reduction that can be claimed by the project for these activities.

The carbon assessment below (Section 5) provides a reasonable approximation of the credit potential that could be derived from a project developed within the MNC¹². The analysis uses a baseline scenario for the MFR derived from prior harvesting levels and forest management plans, termed business-as-usual (BAU). Application of the BAU generates harvest volume but does not generate any carbon credits. The alternative scenarios assume a reduction in the harvest levels, relative to the baseline, of 50% (1/2 BAU), 75% (1/4 BAU), and 100% (i.e., a complete cessation of harvesting). This results in greater carbon storage, from which carbon credits are calculated. Actual, revised harvest levels will be ascertained at a later date through a community consultation process, as well as the methods employed to achieve a reduction in harvest. This process will be informed by a scenario analysis conducted by the 3GreenTree-UBC team.

Section 5 - MNC Carbon Project Modeling and Financial Assessment

Project costs

Initial costs (see Table 1) are the conceptual project design, the feasibility assessment, and development of the formal Project Design Document (PDD)¹³. The PDD describes in detail, the GHG emission reduction or removal activities and the resulting GHG balances. After the PDD is completed, the next step is to obtain a 3rd-party Validation audit, the result of which confirms that the project activities are consistent with the requirements of a given methodology. This is followed by a 3rd-party Verification audit. The initial verification confirms the accuracy of any carbon credits claimed by the project from its beginning to the audit date¹⁴. This credit tranche

¹² This exercise is for illustrative purposes. Until the actual input values are verified, the projected carbon credit benefits should be used for general guidance only.

¹³ Sometimes referred to as the Project *Description* Document.

¹⁴ Note that for all leading carbon standards, only *ex-poste* credits are acceptable. This refers to credits that have already accrued versus credits that may accrue at some future date (termed, *ex ante*).

can now be offered for sale. Typically, validation and the first verification are conducted simultaneously, usually requiring several months to complete, but this saves both time and money. Subsequent verifications confirm the integrity of new credits generated in the period following the previous verification. Under VCS, a project must re-verify a maximum of every five years. Finally, the project is also required to implement a monitoring program that includes a series of permanent sample plots, as well as remote sensing data. Monitoring activities occur on a regular basis in order to track conditions on the project area (documenting any unplanned carbon losses from fire, illegal harvesting, leakage, for example) and estimate carbon stocks resulting from planned harvests and re-growth. Table 1 provides estimates of the initial and ongoing project costs.¹⁵

Table 1. Project cost estimates

Activity	Initial cost estimate	Ongoing cost estimate
Setup costs*	\$150,000	\$0
Project development	\$30,000	\$0
Validation/verification	\$65,000	\$25,000 (at verification)
Project management	\$0	\$5,000 per annum
Plot installation	\$7,600	\$0
Maintain, re-measure plots	\$0	\$1,600 (at verification)
Registration/issuance fees	\$1,260	~ \$1,260 per annum
Brokerage fees	\$1,578	~ \$1,578 per annum

* These costs are principally associated with developing the preliminary and long-term forest management plan in conjunction with the carbon project.

Carbon credit prices and harvesting returns

Determining the ‘actual’ price for a carbon offset is a challenge. As with all products, annual prices can vary substantially in relation to demand, but they also depend on which standard the project conforms to (the Verified Carbon Standard, for example, tends to command higher prices), its location (local projects have greater buyer appeal), and the project type (forestry and land use credits often sell for the highest price). The volume of credits purchased is another important factor; credit prices tend to be lower for higher volumes (> 25,000 tonne CO₂e). Data show that many transactions involve relatively small volumes and these are more likely to realize prices substantially higher than the ‘average’ for a given project type. To accommodate uncertainty in credit value, a range in prices was utilized, consisting of a starting price of \$5, 10,

¹⁵ Note, there may be some fixed and capital costs from harvesting, above and beyond the ongoing estimates used in the current analysis (see Table 1), that could be included in the financial calculations. These costs require careful consideration because they would serve to increase the carbon credit price required to break-even when compared with revenues derived from the baseline harvesting scenario. Conversely, adding financial co-benefits from a carbon project (recreational revenue, for example) would reduce the break-even credit price; co-benefits were not included in the financial analysis.

and \$20 per tonne CO₂e (all prices in CAD). Prices were assumed to rise in value by 1% per annum to reflect the anticipated growth in the carbon credit market. After 30 years, the three respective credit prices had increased to \$6.67, \$13.35, and \$26.69 per tonne CO₂e.

Harvesting returns were derived from annual financial statements generated for the Forest Advisory Committee. Estimates of annual profit were utilized in the financial analysis for the years 1987 to 2019 because this metric reflected the actual benefits returned to the community from the forestry program. Profits showed considerable variation over this 30-year period, including 7 years with negative returns. As with carbon credits, profits depend on numerous factors (operating costs, lumber quality, volumes harvested, lumber prices, etc.), most of which are difficult to predict *a priori*. Variation in profit was therefore derived by plotting annual profit against volume harvested in that year and fitting the data with a simple linear regression model (forced through the zero intercept). The resulting equation was:

$$\text{Annual profit (\$ CAD)} = \$9.36 * \text{Volume harvested (m}^3\text{)}, r^2 = 0.14.$$

As with carbon credits, the \$9.36 profit per m³ was assumed to rise in value by 1% per annum. Its value after 30 years was therefore \$12.49 per m³.

Model simulations

Carbon storage and volume flow for the MNC forest landbase was modelled using a combination of stand and landscape-level models, using the following steps:

1. **Landscape stratification.** The landbase was stratified by polygon in accordance with the Vegetation Resource Inventory (VRI) provided by North Cowichan, updated to year 2019. Each forested polygon was assigned to an analysis unit using the criteria described in Table 2. A breakdown of the forest area by age class is shown in Table 3. Regional LiDAR¹⁶ data from 2017 were used to estimate forest cover within inventory polygons and to confirm forest age.

Table 2. Stand-level analysis units used to model the forested land base.

Analysis Unit	Criteria	Area (ha)
Douglas-fir Dominated	≥ 80% Douglas-fir	3,985
Douglas-fir - Mixed conifer	< 80% Douglas-fir & ≥ 75% conifer	422
Mixedwood with conifer lead	< 80% conifer lead with deciduous component	456
Mixedwood with deciduous lead	< 80% deciduous lead with conifer component	226
Deciduous dominated	≥ 80% Deciduous	263

¹⁶ Light Detection and Ranging (LiDAR). LiDAR is a remote sensing method that measures distance to a target by illuminating the target with laser light and measuring the reflected light with a sensor. It is often used in forestry applications to estimate tree height and forest cover.

Total		5,352
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Table 3. Area by age class at the start of the simulation (year 2019).

Age Class	Age Criteria	Area (ha)
1	1 to 20	345
2	21 to 40	1,416
3	41 to 60	2,201
4	61 to 80	1,194
5	81 to 100	148
6	101 to 120	33
7	121 to 140	13
	Total	5,352

2. **Harvesting Landbase.** The harvesting landbase was identified by removing areas within riparian buffer zones and areas in which harvesting has been historically restricted.¹⁷
3. **Stand-level growth projections.** Forest growth in each analysis unit was modelled using the FORECAST¹⁸ model and its output (merchantable volume and net ecosystem carbon storage) stored in a database as input to the landscape-scale model (the full output dataset is available in a separate file; see Appendix 2). Net ecosystem carbon storage includes above and below-ground tree biomass, dead and downed wood, and dead below-ground tree biomass (root litter created after harvest). Understory plant biomass, non-woody above-ground litter and soil organic matter are excluded.¹⁹
4. **Landscape-scale modelling.** The landscape-scale model uses the information in the stand-level database to assign volume and carbon storage information for each forested polygon. A spreadsheet-based model was then constructed in Excel to simulate the impact of harvesting activities on volume yield and landscape-level carbon storage within the MNC

¹⁷ The Maple mountain forest preservation zone was excluded from harvesting in the baseline scenario. Required 30-m buffers were used to exclude forest areas adjacent to riparian features from harvest.

¹⁸ FORECAST is an approved model for use under the British Columbia Forest Carbon Offset Protocol, and it was one of four models approved for government funding of model development, testing, validation and application under the BC Forest Science Program. It has been subject to a successful independent audit by three accredited firms, Rainforest Alliance, SCS and DNV. These audits sought to confirm that FORECAST is well-established in terms of its development timeline and applications, adequately described in the professional literature, appropriate for simulating the biomass dynamics of forest ecosystems (in this case, within the context of a carbon offset project), and its user-group possesses the requisite skills to apply the model correctly. In 2008, the model was one of a small number of models approved by the Canadian government for simulating carbon (i.e., biomass) dynamics.

¹⁹ These are the pools included/excluded in forest carbon projects developed under the VCS methodology.

forest landbase. The model was designed to take account of annual volume growth and net ecosystem carbon storage within each forested inventory polygon over a 30-year time period. An annual harvest schedule was generated by identifying all eligible stands, sorting those stands by age class and, starting with oldest age-class, randomly harvesting polygons within each age class until the annual volume target was achieved. Annual variation in projected harvest volumes for the BAU scenario (see Figure 1) occurred because the volume target could not always be achieved. When a stand (inventory polygon) was harvested, its age was reset to 1 to reflect the removal of volume and biomass carbon. The total volume flow, growing stock and net ecosystem carbon storage for the landbase was summarized across all polygons for each annual timestep for the harvesting scenarios (See Figure 1).

The financial viability of the carbon project compares the three alternative project scenarios against the BAU option. A financial analysis was conducted using the simulated carbon credit flow in conjunction with the establishment and operating costs of a carbon project, and the range in credit prices and harvesting returns, as described above. Calculations include Discounted Cash Flow (DCF), and Net Present Value (NPV). DCF is a valuation method used to estimate the value of an investment based on future cash flows; the value of a company today, based on projections of how much money it will generate in the future. NPV is used to analyze the profitability of a projected investment or project; an investment with a positive NPV will be profitable, while a negative NPV will result in a net loss (see Appendix 1 for further details on these metrics). NPV then accounts for what it costs to set up the carbon project in relation to anticipated returns. These metrics were applied to compare the BAU scenario (continued harvesting at historical rates) against the three alternative carbon project scenarios.

Timber harvest and carbon credits

Under BAU, harvesting was projected to remove, on average, 17,630 m³ of timber annually over the 30-year project period (Figure 1). This varied from a minimum of 15,155 to a maximum of 19,546 m³. When harvesting is reduced, the flow of carbon credits is expected to increase over the first 10 years of the project and be stable thereafter (Figure 1). 'No-harvesting' generates the most credits (average = 19,138 t CO₂e per year), followed by ¼ BAU (average = 14,353 t CO₂e), then ½ BAU (average = 9,569 t CO₂e). This is a consequence of the fact that less logging reduces harvested volume, which preserves carbon stocks thereby generating more credits.

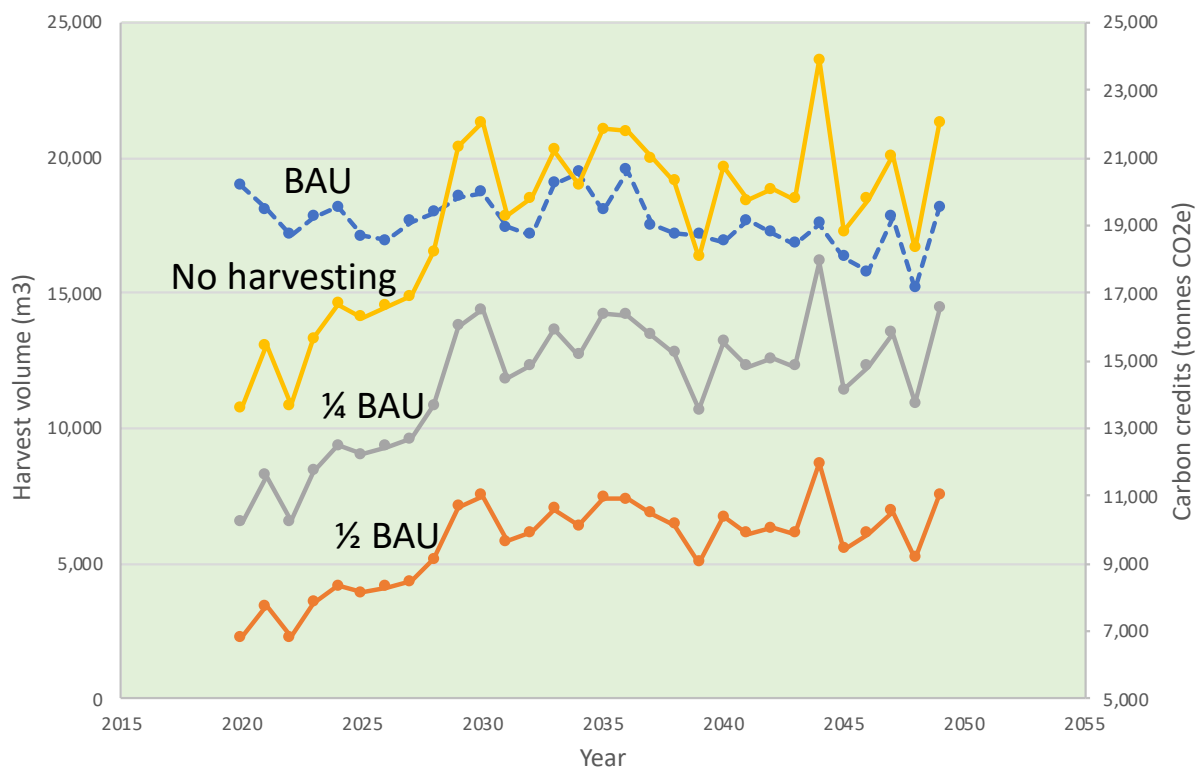


Figure 1. Annual harvest volumes (m³; blue dashed line, left axis) and carbon credits (t CO₂e; right axis) anticipated over the next 30 years. Business-as-usual (BAU) sets the baseline and reflects harvest levels based on historical rates; BAU does not generate any carbon credits. Harvesting is reduced by 50% (½ BAU; orange line), 75% (¼ BAU; grey line), and 100% (No harvesting; yellow line), which results in a corresponding production of carbon credits.

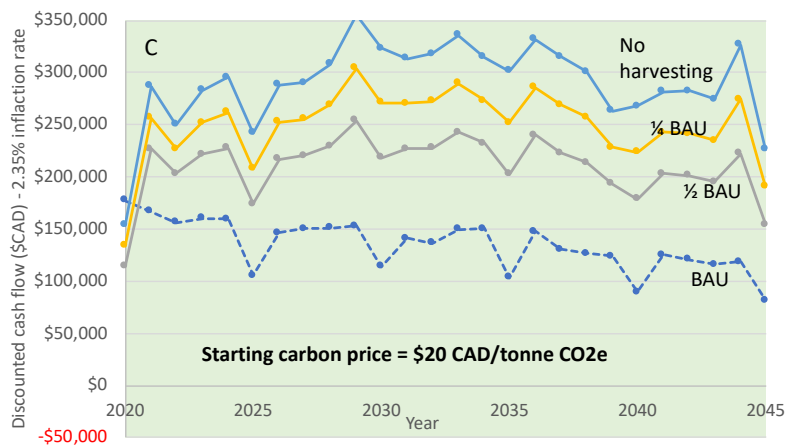
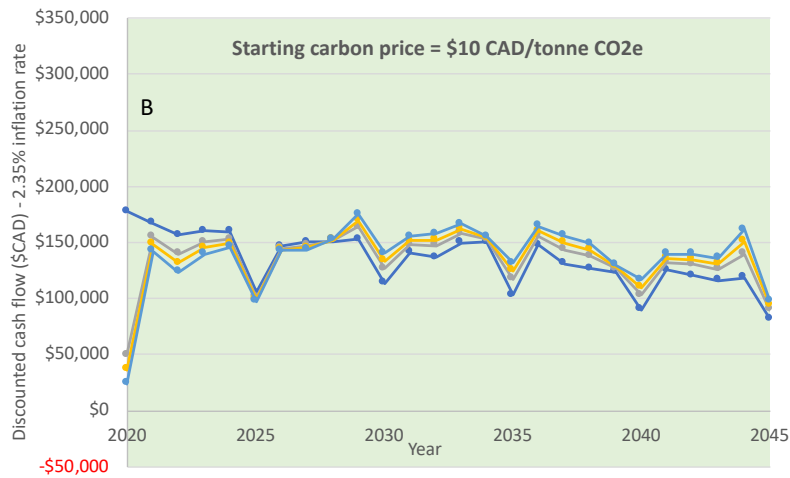
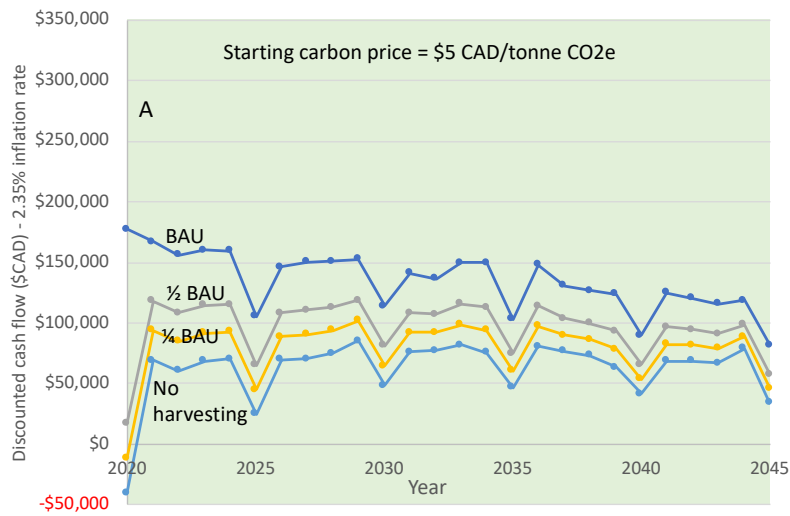


Figure 2. Discounted cash flow over the next 25 years from logging, and for carbon credit prices starting at \$5 (panel A), \$10 (panel B), and \$20 per t CO₂e (panel C). Business-as-usual (BAU) only generates logging revenue. Harvesting is reduced by 50% (½ BAU), 75% (¼ BAU), and 100% (No harvesting), which then results in a corresponding production of carbon credits.

Discounted cash flow (DCF) over the next 30 years from logging at BAU levels averaged \$131,736 per annum (this calculation does not include a terminal value; TV). DCF from a carbon project is less profitable than BAU if credit prices are below \$10 per t CO₂e (Figures 2A, B). At \$5 per t CO₂e, for example, the no-harvesting scenario is the least favorable option with an average annual DCF = \$62,138 (no TV), followed by ¼ BAU (average annual DCF = \$78,653; no TV) and then ½ BAU (average annual DCF = \$95,168; no TV). The order of the carbon scenarios relative to harvesting is a result of the fact that, at \$5 per t CO₂e, the carbon credit price does not compensate for the loss in timber revenue. This effect is amplified when the number of carbon credits increases as harvesting is reduced. At \$10 per t CO₂e, carbon credit DCFs are similar to each other and to BAU timber harvesting (Figure 2B). Hence, a carbon project can substitute for the revenue stream derived historically from logging if credit prices are around \$10 per tonne CO₂e (Figure 2B). If credits are sold at \$20 per t CO₂e, revenues always exceed those anticipated from harvesting (Figure 2C). At average annual revenues of \$211,434 (½ BAU), \$249,425 (¼ BAU), and \$287,415 (no-harvesting), these returns are not trivial (52%, 79%, and 107% higher, respectively).

Terminal value calculations from BAU indicate a long-term value of harvesting (i.e., beyond the 30-year project period) of \$2,750,625 (Table 4). This valuation exceeds that from carbon credits at \$5 per t CO₂e (by 25 to 48%). However, TV from carbon credits is greater than harvesting TV at \$10 (between 6 and 14%) and substantially more at \$20 per t CO₂e (67 to 136%).

Table 4. Terminal value calculations at year 30 of the simulations for carbon credit prices starting at \$5, \$10, and \$20 per t CO₂e. Business-as-usual (BAU) only generates logging revenue. When harvesting is reduced by 50% (½ BAU), 75% (¼ BAU), and 100% (No harvesting), this results in a corresponding production of carbon credits. Red values indicate TVs less than BAU.

Carbon price	BAU harvesting	50% less	75% less	None
\$5	\$2,750,625	\$2,230,030	\$1,969,733	\$1,709,436
\$10	\$2,750,625	\$3,112,594	\$3,293,579	\$3,474,564
\$20	\$2,750,625	\$4,877,722	\$5,941,271	\$7,004,820

Net present values (NPV) from either BAU harvesting or a carbon project are always positive (Figure 3), indicating that projected earnings exceed anticipated costs. As with the DCF analysis, NPVs from carbon credits selling at \$5 per t CO₂e are less than BAU (= \$6,270,088), ranging from 25% (½ BAU) to 48% lower (no-harvesting). NPVs from a carbon project are somewhat better than BAU at \$10 per t CO₂e, ranging from 6% to 14%, and by 63% to 125% more than BAU (½ BAU and no-harvesting, respectively) at \$20 per t CO₂e (Figure 3).

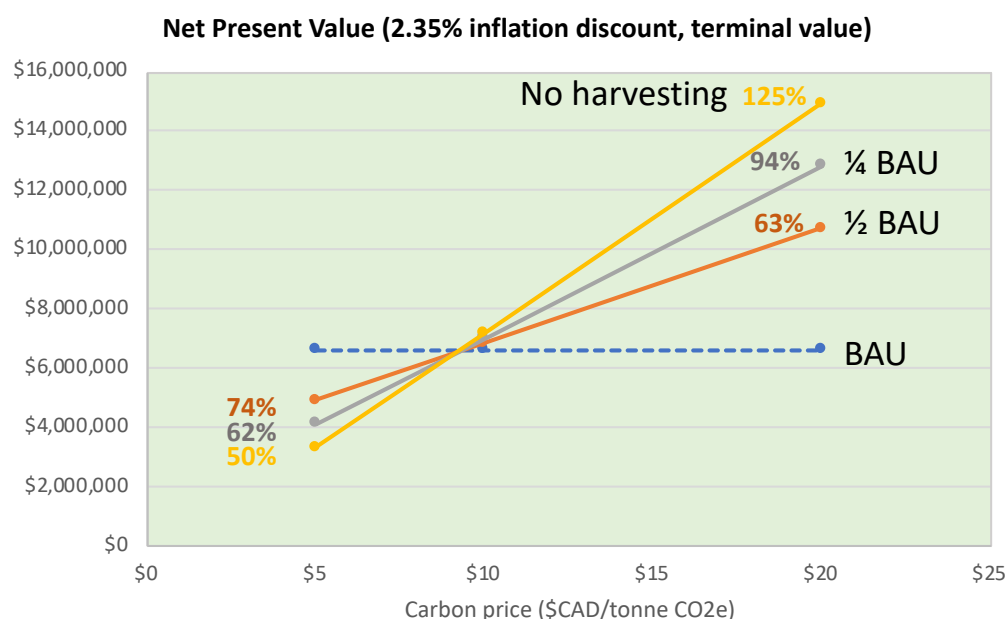


Figure 3. Net present value calculated over the next 30 years from logging, and for carbon credit prices starting at \$5, \$10, and \$20 per t CO₂e. Business-as-usual (BAU) only generates logging revenue. Harvesting is reduced by 50% (½ BAU), 75% (¼ BAU), and 100% (No harvesting), which then results in a corresponding production of carbon credits.

Section 6 - What is the market for carbon credits?

Demand versus supply trends

As the financial analysis indicates, the relative returns from a carbon project depend heavily on the anticipated price at which credits can be sold. Market prices are, in part, a function of the forces of supply and demand. The most reliable sources for information on the voluntary market are the annual reports generated by Ecosystem Marketplace (EM; www.ecosystemmarketplace.com), an initiative of the non-profit organization, Forest Trends (www.forest-trends.org). EM has provided summary information on voluntary carbon markets every year since 2006. Their latest survey (for the year, 2018)²⁰ indicates that, across seven project categories, 98.4 million t CO₂e of carbon offsets were transacted for the year, with a market value of \$295.7 million USD.

For some large credit producers (generating annual credits in excess of 50,000 t CO₂e), oversupply and low prices have been problematic, for a variety of reasons. As noted above, nature-based solutions (NBS) have been gaining popularity in recent years, a trend that is likely

²⁰ Forest Trends' Ecosystem Marketplace. Financing Emission Reductions for the Future: State of Voluntary Carbon Markets 2019. Washington DC: Forest Trends, 2019.

to continue. The Paris Climate Accord (signed in 2016) should have a positive impact on credit demand. There is a gap between the level of emissions that countries have committed to under the Accord and the emissions trajectory that climate scientists predict is necessary to keep global warming within 2°C. Closing this gap will likely require significant action by non-state actors thus providing opportunities for the voluntary market. The Government of Canada pledged to achieve 30 million tonnes of annual net GHG sequestration in the year 2030 as part of Canada's efforts towards achieving its 2030 Paris climate commitments. The federal government's Output Based Pricing System (OBPS) outlines how carbon offsets can be used for regulatory compliance with Canada's GHG emissions limits. Large industrial emitters that emit over their sector benchmark have three options: (1) purchase offset credits, (2) buy surplus credits from other regulated firms²¹, or (3) pay a direct charge to government. If priced competitively, offsets could make a significant contribution to satisfying these obligations.

Another major developing initiative is the International Civil Aviation Organization's (ICAO) CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) program, part of an international agreement to cap emissions from international passenger flights. Beginning in 2021, CORSIA will allow airlines to meet their emissions obligations by purchasing ICAO-recognized offsets. Projected demand from airlines for carbon offsets is substantial: 142–174 Mt by 2025, increasing to 443–596 Mt by 2035. Which offset types will be recognized under the program has yet to be defined.

Prices

Despite large transactional volumes and growing demand for voluntary carbon credits, the price per offset in 2019 across 7 project categories, averaged only \$3.01 USD per tonne CO₂e¹⁷. This value can be misleading, however, because the vast bulk of transactions are at the lowest prices. A 2017 EM review²², for example, showed that there were just as many credit sales in the highest carbon price category (\$12+ USD) as the lowest category (< \$1 USD), but that buyers in the former purchased offsets in much smaller quantities. It is worth noting that the highest prices were more than \$50 USD per t CO₂e. The Forest and Land Use project category tends to command the highest average prices, particularly the Improved Forest Management (IFM) project type (i.e., the same type as the MFR project). In 2016, for example, IFM credits sold for an average of \$9.50 USD per t CO₂e, when the overall average was just \$3.00 USD per t CO₂e.

Internationally, the volume of carbon credits is oversupplied on the voluntary market but demand is strong for the highest quality units, particularly those with certified co-benefits (see Section 8). Other important considerations in marketing the MNC carbon project is that buyers

²¹ Post 2020, facilities will only be able to cover 75% of their compliance obligation through offsets and surplus credits.

²² Forest Trends' Ecosystem Marketplace, Unlocking Potential State of the Voluntary Carbon Markets 2017. Washington DC: Forest Trends, 2017.

tend to pay more for offsets that originate close to their own business operations; if a project provides benefits to nearby communities, such as training, job, tourism, and recreational opportunities; if there are ancillary benefits (biodiversity, habitat, etc.); and which particular standard the project is verified under (VCS credits, for example, are considered of high quality with better prices).

Section 7 – Conclusions

1. Ownership and management activities on MNC MFR satisfy the requirements for a carbon offset project.
2. The Verified Carbon Standard represents the standard best aligned with the goals and objectives of the MNC.
3. Of the four eligible activities under VCS, Logged to Protected Forest (LtPF) has the greatest flexibility and is likely best suited to the future management of the MFR.
4. The VM0012 methodology (Improved Forest Management in Temperate and Boreal Forests (LtPF). v1.2) is highly applicable to the MFR lands. It is well established and has formed the basis for three carbon credit projects in western North America.
5. The VM0012 methodology uses the VCS risk analysis only and which, at a minimum, is applied to the project crediting period. Other methodologies are more onerous, requiring a risk mitigation and contingency plan that extends 100 years past the last offset issuance date.
6. Initial estimates indicate that a carbon offset project on the MFR could provide an ongoing, stable revenue source to the MNC competitive with the current logging model, while ensuring that the additional ecosystem services of importance to the local community, are maintained or enhanced.
7. The future for nature-based climate solutions in terms of both voluntary and compliance carbon credits appears strong. This has led to optimism regarding the credit market with the expectation of rising prices in the near and far-term.
8. Sales conducted through established carbon credit exchanges (e.g., Markit) are likely not the best venue for MNC. These markets are highly competitive and credit prices tend to be lower than desired.
9. MNC should develop relationships among local entities (businesses, NGOs, government) interested in offsetting their carbon emissions, as purchasers of the MFR carbon credits. These over-the-counter transactions have better prospects for prices that reflect the high value of the credits generated from the project.

Section 8 - Additional considerations

Development of a grouped project.

The analysis did not include consideration of potential future property acquisitions by MNC, or provisions for allowing private landowners to participate in the project. Should this option be

exercised, the project would be defined under VCS as a ‘grouped’ project. Grouped projects allow for the expansion of activities beyond the ‘initial project activity instance’²³.

Grouped projects provide a means by which the community-at-large can participate directly in the local government’s climate change initiatives and for government to expand its forest holdings within the context of the carbon project. This project type, however, has a more complex structure than the ‘standard’ project described above and it must be defined before the validation stage. For example, the project area would need to be expanded to encompass potential future forested parcels that are additional to the existing MFR. Each project stratum would also need a corresponding baseline. A new property is then assigned to a given stratum based on the most plausible development scenario. Because the project area includes multiple strata, it thus contains multiple baselines, and project carbon calculations must be tracked for each baseline stratum.

For new properties to be added to the project, each must be validated as meeting the project requirements. Though the initial setup procedure is complex, it is a relatively simple process to add properties in conjunction with subsequent verification audits. There are some additional project management costs to prepare these new properties for monitoring and inclusion in the project - these costs should be minimal.

Credit stacking

One of the benefits of the forest carbon project are the multiple benefits it can provide in terms of ecosystem services. These can be broad ranging, including habitat improvements, water quality and quantity, recreation, etc. In the US, some of these co-benefits have been formally recognized as a type of environmental ‘credit’ and are monetized as such. Payments for ecosystem services are becoming an increasingly important part of the U.S. business and regulatory landscape. If a project receives payments for more than one of the ecosystem services that it generates, these credits are considered as “stacked”²⁴. Credit stacking can, in principle, then expand the revenue potential of a project. Unfortunately, in Canada, formal markets for credits other than carbon are not as well-developed as in the US²⁵. One option for MNC is to market the co-benefits of the project to interested parties (NGOs, conservation groups, etc.) informally and seek compensation for supporting project activities specific to their local interests.²⁶ It is worth noting that no co-benefits from the carbon project were included in the financial analysis.

²³ The initial activity instance is defined at the first project validation, and would be restricted to the MFR lands only. Adding more activity instances (private land, for example) would occur at a later date. With a grouped project, the project description must set out the geographic areas within which new project activity instances may be developed and the eligibility criteria for their inclusion. New instances meeting these pre-established criteria may then be added at a later date.

²⁴ Credit stacking is in contrast to “bundling” whereby environmental benefits are grouped within a unified credit rather than as separate, marketable credits.

²⁵ See: Poulton, David, Stacking of Multiple Environmental Credits: An Alberta Discussion Paper (August 28, 2014). Available at SSRN: <https://ssrn.com/abstract=2560656> or <http://dx.doi.org/10.2139/ssrn.2560656>

²⁶ For example, groups who benefit from water quality improvements, enhanced recreational opportunities, etc.

Stacking does come with caveats. As with carbon credits, payments for ecosystem services must be for an environmental benefit that would not have otherwise occurred, or to prevent an environmental harm that would have occurred in the absence of the project.

Co-benefit certification

Despite the benefits of credit stacking, none of the leading voluntary standards incorporate co-benefits directly. Instead, they encourage project proponents to acquire co-benefit certification as an add-on to the project. These certification schemes provide formal mechanisms for describing and measuring any of the project co-benefits. This can lend additional (indirect) value to the carbon credits; buyers motivated by ideological, social license, or public relations concerns are often willing to pay a premium for these credit bundles to support a more robust narrative of their environmental initiatives. For the project proponent, creating a 'multi-benefit' credit incurs costs additional to generating credits purely for GHG mitigation outcomes. Typically, these costs are not prohibitive, however.

The largest of the certification schemes is the Climate, Community and Biodiversity (CCB) Standard (www.climate-standards.org). The CCB Standard provides comprehensive and objective criteria to assess and identify social and environmental risks, and to deliver significant benefits to local communities, biodiversity and the climate. The criteria ensure that projects:

- Identify all stakeholders and ensure their full and effective participation
- Recognize and respect customary and statutory rights
- Obtain free, prior and informed consent
- Assess and monitor direct and indirect costs, benefits and risks
- Identify and maintain high conservation values
- Demonstrate net positive climate, community and biodiversity benefits

Many VCS projects have obtained CCB certification.

A second potential certification scheme is Social Carbon (SC; www.socialcarbon.org). The Standard guarantees a transparent and participatory method of monitoring a project's co-benefits through a tool box of indicators that point to degrees of sustainability correlated to six resources:

- Social
- Human
- Financial
- Natural
- Biodiversity or technology
- Carbon

With a focus on local participation and engagement, as well as sustainable livelihood initiatives, this standard appears to be most applicable to developing countries.

Appendix 1. Financial metrics

Discounted cash flow (DCF) is a valuation method used to estimate the value of an investment based on future cash flows; the value of a company today, based on projections of how much money it will generate in the future. The present value of expected future cash flows is determined using a discount rate (the discount rate expresses the time value of money).

DCF is calculated as follows:

- CF = Cash Flow
- r = discount rate
- DCF is also known as the Discounted Cash Flows Model

$$DCF = \sum_{t=1}^n \frac{CF}{(1+r)^t}, \quad (1)$$

calculated annually for year t to n (the project forecast period). In the case of the carbon project, the forecast period is 30 years. CF refers to the net amount of cash and cash-equivalents being transferred into and out of a business. In this analysis, CF refers to earnings from timber sales (net profit) and the sale of carbon credits (net of operating expenses) but does not include any interest, taxes, depreciation, or amortization costs. DCF includes a discount factor to account for the time value of money. The average annual rate of inflation for Canada (2.35%), as derived from the Consumer Price Index calculated on a yearly basis over the previous 35 years, was used as the discount factor ($r = 2.35\%$).

Application of the DCF has two components—the forecast period (as per equation 1) and a Terminal Value (TV). TV determines a company's value into perpetuity beyond the forecast period, and often comprises a large percentage of the total assessed value. There are two commonly used methods to calculate terminal value—perpetual growth and exit multiple. The perpetual growth method assumes that a business will continue to generate cash flows at a constant rate forever, while the exit multiple method assumes that a business will be sold for a multiple of some market metric. Since the MFR is government-owned, the perpetual growth method was used.

The formula to calculate terminal value (TV) is:

$$TV = \frac{FCF \cdot (1+g)}{r-g}$$

Where:

FCF = Free (discounted) cash flow for the last forecast period

g = Terminal growth rate

r = discount rate (2.35%)

Terminal growth rate is usually in line with the long-term rate of inflation (2.35%). In this analysis, however, g is set conservatively at 1% per annum.

Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time.

$$NPV = TVECF - TVIC,$$

Where TVECF = Today's (discounted) value of the expected cash flows, and TVIC = Today's value of invested cash. TVECF is calculated as per equation 1.

A positive net present value indicates that the projected earnings generated by a project or investment - in present dollars - exceeds the anticipated costs, also in present dollars. One of its uses is to analyze the profitability of a projected investment or project. It is assumed that an investment with a positive NPV will be profitable, and an investment with a negative NPV will result in a net loss.

In this analysis, NPV was calculated with and without a TV. The latter would be applicable if, for example, the carbon project was terminated after the 30-year period.

Appendix 2

The full output dataset is contained in an accompanying file: MNC carbon dataset output.

Municipality of North Cowichan

Forestry Advisory Committee

MINUTES

June 30, 2020, 9:00 a.m.
Electronically

Members Present	Mayor Al Siebring, Acting Chair Cameron Campbell Alan Chatterton Cedar Elliott Vicki Holman Eric Jeklin Dave Lindsay Dave Polster (arrived at 10:00 a.m.)
Members Absent	Councillor Rob Douglas, Chair Mark Carter Chief James Thomas
Staff Present	Ted Swabey, Chief Administrative Officer Sarah Nixon, Deputy Chief Administrative Officer Don Stewart, Director, Parks and Recreation Shaun Mason, Municipal Forester Tricia Mayea, Deputy Corporate Officer

1. CALL TO ORDER

There being a quorum present, the Chair called the meeting to order at 9:00 a.m.

1.1 Open Meeting Transparency Resolution

IT WAS MOVED AND SECONDED:

That pursuant to Ministerial Order No. M192 and the procedures established by the Municipality of North Cowichan to protect the health and safety of the public and municipal staff while they perform work within the Municipal Hall, the attendance of the public at today's Forestry Advisory Committee meeting cannot be accommodated because of the limitations placed on mass gatherings by the Provincial Health Officer; our inability to provide for adequate physical distancing between members of Council, staff, and the public or to create separate entrance and exits with one-way walkways for the public in Council Chambers; and further that to ensure openness, transparency, accessibility and accountability for this meeting, the Municipality of North Cowichan:

- is livestreaming the meeting to enable the public to hear and see the proceedings;
- has provided notice of today's meeting; and
- has made the meeting agenda, as well as all other relevant documents, available on the municipal website prior to the meeting.

CARRIED

1.2 Appointment of Chair

IT WAS MOVED AND SECONDED:

That Mayor Siebring, being an ex-officio member of the Forest Advisory Committee, be selected to chair today's meeting in Councillor Douglas' absence. **CARRIED**

2. APPROVAL OF AGENDA

IT WAS MOVED AND SECONDED:

That the Committee approve the agenda as circulated. **CARRIED**

3. ADOPTION OF MINUTES

IT WAS MOVED AND SECONDED:

That the Committee adopt the minutes of the meeting held June 17, 2019, as circulated. **CARRIED**

4. BUSINESS

4.1 UBC Partnership Group Presentation

Dr. Brad Seely, 3GreenTree Ecosystem Services Ltd. & Faculty of Forestry, UBC, Dr. Peter Arcese, Prof./FRBC Chair Forest & Conservation Sciences, UBC, Dr. Clive Welham, 3GreenTree Ecosystem Services Ltd. & Faculty of Forestry, UBC, Dr. Stephen Sheppard, Prof. Forest Resources Management, UBC, provided a three-part overview and update on the Strategic Forest Planning Review and Technical Analysis of the North Cowichan Municipal Forest Reserve to the Committee. A copy of the presentations and supplemental documents were included in the agenda.

The review of the goals and objectives included past management activities and regional context, the development of spatial data resources, understanding management goals and evaluating outcomes, a multi-objective scenario analysis, an assessment of the feasibility of developing a carbon project, and support for development of forest management plans.

The review of the feasibility analysis, which forms the basis for the carbon project, highlighted how many carbon credits a carbon project could generate, how much revenue might be realized from carbon credits as compared to traditional sources like harvesting, how logging and carbon are not mutually exclusive, and how credits can be allocated for more than one purpose.

Dave Polster joined the meeting at 10:00 a.m.

The review of the possible outcomes to the economy, people, and native species highlighted the associated trade-offs and synergies found in the management of public lands and resources, how focal species mapping informs us about landscape conditions and long-term consequences of management, and how the co-benefits of habitat restoration can enhance the price of carbon off-sets, economic activity, and the direct and indirect benefits of recreation/tourism.

IT WAS MOVED AND SECONDED:

That the Forestry Advisory Committee receive the UBC Partnerships overview and presentation for information.

CARRIED

4.2 2019 Annual Forestry Report

IT WAS MOVED AND SECONDED:

That the Forestry Advisory Committee accepts the 2019 Annual Forestry Report as prepared by the Municipal Forester.

CARRIED

4.3 Forester's Regular Report

IT WAS MOVED AND SECONDED:

That the Forestry Advisory Committee receive the Municipal Forester's report for information.

CARRIED

4.4 Setting Regular Bi-Monthly Meetings

IT WAS MOVED AND SECONDED:

That the Committee recommends to Council that the Forestry Advisory Committee Terms of Reference be amended to remove the requirement to meet bi-monthly.

CARRIED

5. NEW BUSINESS

No items.

6. ADJOURNMENT

The meeting ended at 11:13 a.m.

Signed by Chair

Certified by Recording Secretary

Safer Community Plan Update

Committee of the Whole
July 15, 2020

Safer Community Plan (SCP)

Adopted by Council July 17, 2019

Key Recommended Actions:

1. Joint Local Government (LG) Safer Working Group
2. Corridor Safety Office
3. Impact on Business and the Highway Corridor
4. Health and Social Services Roles
5. RCMP Crime Reduction – Crime Analyst
6. Crime Prevention Through Environmental Design
7. Dealing with Problem Properties

Joint LG Safer Working Group

- Working Group meets on a monthly basis
 - *Subject matter experts (e.g. mental health, addiction services, BC Housing, etc.) are invited to provide advice at meetings*
- Actions prior to COVID-19 included:
 - *Erected panhandling signage*
 - *Adjusted operation patrols to include nightshifts*

Corridor Safety Office (CSO) – Facility

- Rented the old Duncan music store at 490 Trans-Canada Hwy for September 1, 2019
 - *Lease 2 year shared lease, \$2,125 monthly*
 - *Facility opened in December 2019*
- Renovations completed in December 2019
 - *Drywall, painting, new flooring*
 - *Furnishings and equipment*



CSO - Operations

- Initial intent was for facility to operate similar to the one in Campbell River
- Currently only North Cowichan Bylaw Compliance Officers and Security Ambassadors are operating from this location
- Joint North Cowichan/Duncan daily bicycle patrols

Impact on Businesses and Highway Corridor

- Businesses provided with “Who to Call” pamphlet
- Businesses contact Security Ambassadors to inform on public safety and disorder issues
- Daily patrols initially provided businesses with a (visual) sense of security
 - *Security Ambassadors corridor patrol between 5:00 p.m. and 3 p.m.*
 - *Extra bylaw compliance officer patrols of municipal facilities at the onset of COVID-19*

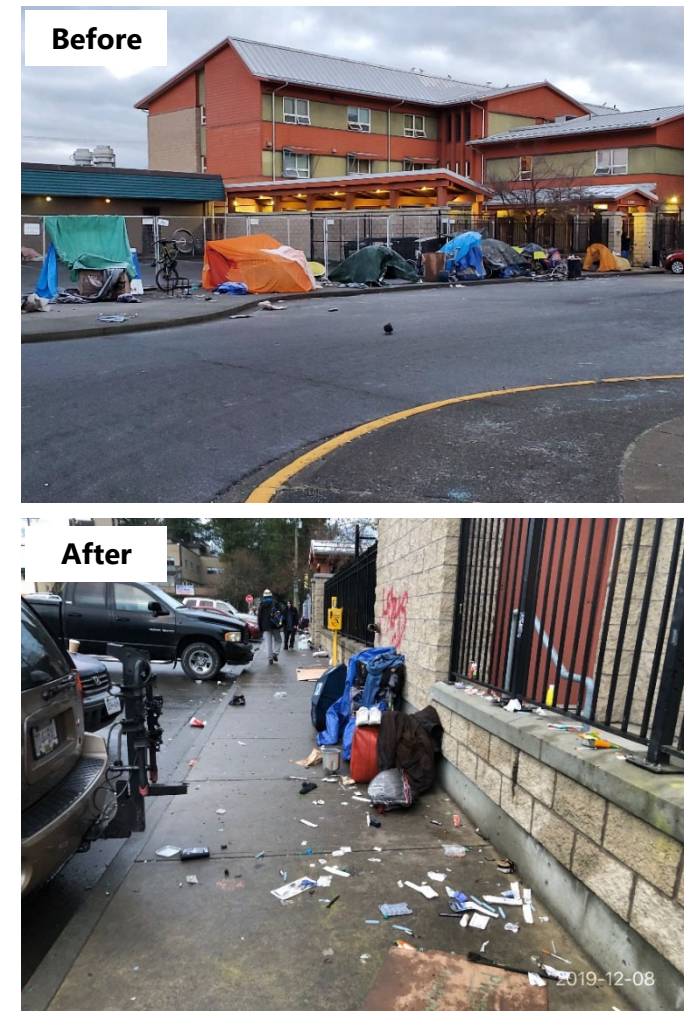
Impact on Businesses and Highway Corridor

- Increased needle pick up as a result of the quantities provided by Overdose Prevention Site (OPS)
- Garbage/camp clean up is a challenge
- Land Trust using contractors for cleaning up marshlands



Impact on Businesses and Highway Corridor

- Initial effectiveness of disbursing individuals and preventing them from negatively impacting businesses and the community worked well
 - *10 months in the effectiveness has decreased*
 - *Highway Use Bylaw authorizes compliance officers to move tents/structures that are in front of businesses when they are blocking the sidewalk*
 - *Harm reduction material still very prevalent on the streets lobbying needs to be continued at provincial level*



COVID Provincial Enforcement

- Bylaw Compliance Officers responded to:
 - *3 calls for service for non-compliance for not self quarantining (14 days)*
 - *12 compliance checks for businesses, ordered by the Province, to shut down or have safety plans in place for distancing and occupant loads*
- Provide guidance to business owners in relation to BC's Restart Plan

RCMP Crime Reduction

Crime Analyst

- Crime Analyst hired May 2020
- Crime analyst will support crime reduction for the whole municipality, as well as Highway Corridor
 - *Researches, collates, evaluates and analyzes information to develop intelligence and assist*
 - *Very effective tool in crime reduction*

Crime Reduction

Compliance Officers / Working Group

- Existing bylaws only enable Compliance Officers to ticket the property or business owner for failure to clear debris on adjacent sidewalks
- Proposed “Public Nuisance Bylaw” to address the individual as well as the property owner (as under existing bylaws) for non-compliance to be brought forward in Q3 or Q4 of 2020

Crime Prevention Through Environmental Design

- Use of fencing to discourage criminal activities
 - *Fencing was placed on Lewis Street to prevent tents from blocking the sidewalk and roadway*
 - *Permanent fencing is proposed for Whistler Street to help to reduce criminal activity*
- Establish a "Graffiti Removal" program to eliminate "street ownership" and visible signs of crime



Dealing With Problem Properties

- Continue to work with Warmlands
 - *Many of the regular/local displaced residents have moved to the tent sites provided by Island Health*
 - *Those that remain, are either new arrivals or cannot be assisted due violent behaviour or mental health and addiction issues, continue to camp on sidewalk*
 - *New management of facility*
- Proposed “Nuisance Abatement and Cost Recovery Bylaw” to be brought forward in Q4 of 2020

Dealing With Problem Properties

- Assisted RCMP with marsh evictions
- Daily sidewalk evictions from Lewis and York
- Assisted with sidewalk evictions from library property





Any questions?

June 13th., 2019

Ted Swabey
Chief Administrative Officer
Municipality of North Cowichan

Peter De Verteuil
Chief Administrative Officer
City of Duncan

Re: Municipality of North Cowichan and City of Duncan – Safer Community Plan – Recommended Actions

Introduction

Thank you for this opportunity to submit the Recommended Actions in this Safer Community Plan (SCP). We have now as of June 6th. completed the Stakeholder Review part of the process. This review was by way of a group meeting with 24 of the original 30 interviewees able to attend and each give their overview comments to the larger group. I thank these Stakeholder attendees for their commitment to this process of moving forward to address the importance of a Safer Community and working together towards that goal.

I'd like to introduce additional comments in the SCP as a result of this Stakeholder input – both are found under Recommended Action #1 Safer Working Group – External Partnerships: 1) Future discussion with Cowichan Tribes as to their sitting on SWG and participating in the work of the Corridor Safety Office (CSO) and 2) Establishing linkage between the SWG and the Cowichan Community Action Team (CAT) which works with matters of substance use, the opioid crisis and issues related to mental health and homelessness. Both of these comments are described under Recommended Action #1 Safer Working Group – External Partners.

The neighbouring municipalities of the Municipality of North Cowichan and the City of Duncan (“the Communities” or the “Local Governments” [LG]), like many other municipalities, are faced with challenges as they deal with crime and public-disorder matters occurring in their respective communities.

To be successful, this SCP needs to include many stakeholders, including mayors and city councils, First Nations, the RCMP, LG departments, provincial ministries, area

businesses, health and social services and local neighbourhoods—all are vital to achieving the common goal of having a safer community.

Your collaborative and respectful relationships with the Cowichan Tribes brings with it a shared concern for the effects crime and public disorder are having on all people—and helps provide a way to move forward together in dealing with the emerging challenges arising from homelessness, poverty, mental health and substance use, crime and public disorder.

While listening to your community speak, I was reminded of the fact that homelessness is not just the result of mental illness and substance use. It is increasing as a result of poverty. This fact is evident in the diversity of the people who are on the street.

Similar to what is occurring in North Cowichan and Duncan, many communities across the province are now sharing their concerns regarding the rising levels of homelessness and public disorder. Many communities report that a rise in homelessness and public disorder began approximately two years ago—a rise that coincides with the opioid crisis and increasing signs of poverty.

Communities will need to face these emerging challenges together given their shared boundaries. Crime and public disorder do not take any notice of which side of the highway they are on or what community they are in.

Although I focus to a large extent on the crime and public-disorder aspects of addressing rising community concern, I want to say clearly that long-term actions to address these concerns will be best achieved through community support for the work being done by the health and social service agencies, and that the future availability of housing is integral to reducing crime and public disorder in all its forms.

Although this report deals specifically with an area known as the Highway Corridor, the specifics of the report and the recommended actions are meant to give the Communities tools they can adapt to address public disorder occurring elsewhere.

The key is to create a new organizational capacity and framework to address community public safety concerns in a variety of circumstances. In the case of the Communities, it starts with the Highway Corridor, but its impact will have further value through building partnerships among local governments, the police, social and health agencies and the business community.

Our ability to respectfully partner with those having differing security and social perspectives is key to successfully developing and implementing an effective SCP. Not only are the police important to lessening crime and disorder, but increased municipal efforts are also required as is the successful delivery of health and social services.

We are in this together for the betterment of all community members. We want to improve the situation for neighbourhoods, social services and businesses as well as for people who are street entrenched, dealing with poverty and dealing with mental illness and substance use.

Reducing crime and public disorder is a community problem and requires a community solution.

The writer interviewed thirty (30+) people in this process, including elected officials, First Nations staff, LG staff, RCMP, fire department staff, business owners, citizens, school officials, service providers, social services providers and healthcare professionals.

I wish to submit recommendations regarding actions that can be taken to lessen the impact of crime and disorder occurring in the Highway Corridor specifically and in the community generally.

Foreword

It is difficult to make recommendations for all the factors that can influence a rise or fall in crime or public disorder. Therefore, this report should be viewed as a submission that offers recommendations based on experience addressing similar factors that are occurring in the Communities, but not giving a guarantee of outcomes.

The SCP is intended to be action-oriented and to provide specific actions to respond to identified issues. This will be evident in the recommendations.

The Communities will need to weigh the benefits of the proposed SCP options as they consider costs, budgets, goals and future developments.

This report is not intended as any form of legal advice.

Recommended Actions

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Recommended Action #1: Joint LG – Safer Working Group

That the Communities jointly align LG staff and RCMP resources to create a Safer Working Group in order to coordinate actions to address crime and disorder occurring in the community.

That the Safer Working Group guides the operations of the Corridor Safety Office highlighted in Recommendation #4.

That the Communities consider harmonizing municipal bylaws that can lessen the impact from crime and public disorder, including those dealing with nuisance properties, overnight camping, drinking in public, littering and nuisance activities.

The SWG will serve as a permanent working and advisory body. It will be responsible for providing advice and/or making recommendations to councils and LG staff on matters related to crime, public disorder and safety within the Communities.

Crime and public disorder are of rising community concern, and the Communities will need to collaborate closely to address these issues. Closer coordination and communication can be achieved through the creation of a single SWG. This group will coordinate actions between internal LG departments and the RCMP, which will allow for their more effective joint engagement on matters regarding crime and disorder.

The SWG will also provide joint mayors and councils, senior LG staff and the RCMP detachment commander with an operational arm they can utilize when crime and disorder matters arise that are a concern within the community.

This includes, but is not limited to, developing operational responses to the following:

- Addressing community-wide and corridor-security issues
- Improving the protection of parks and facilities

- Developing the coordination and community between LG/RCMP enforcement personnel
- Integrating enforcement and health/social service responses on issues of community safety
- Giving operational focus to the goal of reducing crime and public-disorder activities as well as finding effective community-level responses
- Supporting the rollout of Crime Prevention Through Environmental Design (CPTED) actions and dealing with problem properties

This recommendation potentially has significant short-, mid- and long-term impacts on the ability of the Communities to address crime and public disorder. This joint LG-led working group aligns LG and RCMP resources to address crime reduction by implementing strategies that are based on problem-solving and by launching a partnership that can focus available resources more effectively.

Safer Working Group (SWG)



The SWG can function in the following ways:

- Reduce conflict, crime and public disorder in our community by developing a collaborative LG-staffed working group

- Take actions that recognize the fact that integrated health, social and enforcement responses succeed if they are collaborative and coordinated
- Oversee the operation of the CSO if approved
- Realize the ability of LG departments and the RCMP to collaboratively impact crime and public disorder occurring in the community,
- Provide a collective LG-led response to matters of security in the community
- Respond operationally to public-safety problems and develop Action Plans aimed at achieving an effective LG/police response to manage public disorder in both an ethical and practical framework
- Reduce criminal and disorderly behaviour on our streets while protecting the interests of the most vulnerable citizens in the Communities

Key Internal LG departments and police involved: RCMP, Fire, Bylaws, Parks, Public Works, Business Licensing and Planning

Key External partners: Cowichan Tribes, Provincial Health Services, Provincial Social Services, Business Community, Health & Social Service Providers

The SWG serves as a joint LG-led working group. The SWG is responsible for maintaining and enhancing a safe and healthy community that promotes and supports quality of life while encouraging resident involvement and input.

The SWG will invite other groups to attend meetings and engage with them as issues arise that would benefit from collaborations with those agencies or organizations to facilitate joint problem-solving. These groups could also help by providing advice with regard to crime and public disorder issues.

Under the category Key External Partners, I'd make two further comments based on Stakeholder input during the review stage.

- 1) That during the Implementation discussions occur with Cowichan Tribes to ascertain their interest to partner in both the SWG and the CSO. CT are integral partners to the LGs and would be a natural fit for both the SWG and CSO as their community deals with similar issues. As this report was proposed to address matters focussed on crime and public disorder occurring in the LGs, it started only considering the 2 LGS current involved in the SCP. Now having met with many stakeholders in the community, I believe inclusion of the CT in this process should be considered. It would definitely increase the effectiveness, collaboration and communication required for a successful outcome of the SCP.

- 2) It is important to recognize the importance of linkage between the SWG and the Cowichan Communities Action Team (CAT). This has been evident through input during the Stakeholder interview process. CAT deals with collaborative efforts in dealing with substance use, the opioid crisis and issues related to mental health and homelessness. CAT will be one of the key External Partnerships that be will promote effective operational actions by SWG. SWG is an operational group comprised of joint LG staff. I suggest during Implementation phase of SCP we have communication to promote collaborative and effective communication.

The purpose of the SWG is to provide mayors and councils with an ability to do the following:

- Align LG and policing resources to more effectively address crime and public-disorder matters
- Develop a proactive and integrated approach to issues of crime prevention, public disorder and safety
- Partner with First Nations, social, health, neighbourhood and business groups to address issues arising from crime or public-disorder matters that require LG involvement
- Provide co-ordinated services to support public safety throughout the Communities
- Reduce the adverse effects arising from public disorder or criminal activities
- Integrate enforcement and LG departmental responses to issues regarding community safety
- Respond to emerging issues related to public safety,
- Access services and joint strategies that lead to the protection of vulnerable persons
- Bring together those LG resources capable of lessening the crime, security and public-disorder impacts in the community

The SWG is a valuable tool that can help address issues concerning crime and disorder occurring in the whole community. In conjunction with LG bylaw enforcement officers, RCMP officers and private security ambassadors, the SWG can bring a joint focus to lessening crime and public disorder in the Highway Corridor.

Another area that requires consideration by the joint Communities is the fact that municipal enforcement bylaws and policies can differ along the Highway Corridor. This can lead to confusion within the public, business and street population. These bylaws and policies need to be harmonized where possible. The Communities could consider harmonizing municipal bylaws that lessen the impacts from crime and public disorder,

including those dealing with nuisance properties, overnight camping, drinking in public, littering, dealing with chattels and nuisance activities.

Recommended Action #2: Corridor Safety Office

That the Communities create a Corridor Safety Office “storefront” to coordinate and address crime and disorder occurring in the Highway Corridor.

That the Communities commit bylaw enforcement officers to being part of a coordinated presence in the Highway Corridor and as part of the increased enforcement presence addressing public disorder and supporting health and social responses.

That the Communities contract a daytime security ambassador to provide “eyes” on the street and a presence in the Highway Corridor to discourage crime and public-disorder activities.

That the RCMP addresses crime reduction in the Highway Corridor area and assigns supportive, investigative and analytical resources, as able, to reduce crime and public-disorder activities occurring in this area.

That the Communities create a separate “Who Do You Call?” information brochure that lets business owners and the general public know how to report suspicious occurrences, illegal activities and LG-maintenance issues to the right service provider.

This recommendation identifies actions that can be taken to assist in reclaiming, maintaining and protecting the future of the Highway Corridor and the general community as a safe place to visit, shop, work and live.

The Highway Corridor area is the first “Welcome” sign for visitors and travellers alike to the Communities. It is the doorway into downtown Duncan. It needs to be supported and public disorder needs to be addressed. The CSO will be a base for LG bylaw enforcement officers, contracted security ambassadors and RCMP investigative officers.

The Communities are changing rapidly, and public expectations for a safe community continue to increase and will continue to do so as the population grows. Provision of a secure Highway Corridor environment where the RCMP, bylaw officers and private security ambassadors have a visible presence will support that goal.

Public disorder will continue to increase if enforcement and security responders are not a more visible presence in the daily life of the Highway Corridor.

Coordination and communication are the key tools to regaining a sense of order in dealing with the stresses that can occur. To achieve that goal necessitates the daily presence of security resources centred in the core area that is under duress.

This will be actioned through the creation of a CSO. The CSO can help deliver daily street-level enforcement of bylaws as well as a police and security response that can help meet the needs of residents, business owners, property owners, social and health service providers and visitors to the community.

Function of Corridor Safety Office

The CSO will be able to provide the following functions:

- Be a central office in the Highway Corridor for communication and coordination of all enforcement and security matters
- Provide a “uniformed” presence in the Highway Corridor by all three enforcement tiers – bylaws enforcement officers, RCMP officers and contracted security ambassadors
- Function as an office for bylaw enforcement officers, RCMP officers and security ambassadors
- Help coordinate and manage the daily activities of contracted security ambassadors
- Allow the RCMP to have a supportive “come and go” presence focussed on crime reduction
- Work closely with Cowichan Tribes enforcement staff
- Allow enforcement personnel to work closely with health and social service providers by referring those in need to these services
- Assist with street-outreach programs that are being run by health and social service providers
- Assist with RMCP crime-reduction efforts
- Allow LG bylaw enforcement officers, RCMP officers and contracted security ambassadors to have a daily presence in the Highway Corridor depending on the most efficient scheduling of those resources,
- Be a point of contact for security problem-solving in the Highway Corridor
- Help promote effective communication within the Highway Corridor area
- Promote research on best practices in public safety and security for the area and for the community

- Help distribute written public safety as well as fire and emergency planning information
- Be a point of contact for merchants, residents and property owners on bylaw enforcement and security-patrol matters,
- Work with the business community and encourage the distribution of security-advisory notifications
- Explore the use of volunteers for communication and on-going educational aspects of service delivery on public-security matters

The CSO office will not be a full-service office. Staff will come and go as required and there will be no clerical support. When no staff are present in the office, the door will be locked.

Any complaints made to the CSO will occur as laid out in the recommended “Who Do You Call?” pamphlet.

Contracting of a Daytime “Security Ambassador” for the Highway Corridor

Business owners and citizens alike can experience crime and public-disorder matters in the Highway Corridor. This has been an on-going concern and a source of frustration in the community. One of the most effective tools to address and counter these concerns is to hire a contracted private security firm to provide “security ambassadors” (SA) to work in the Highway Corridor during key hours. The actual hours can be assigned based on input from the business community and on input from the RCMP regarding reported crime. One of the key times to have a street security presence is in the hour before businesses open so that potential disorder can be addressed in a timely manner.

This security ambassadors will become the constant “eyes” on the street that will enable RCMP and bylaw staff to respond to concerns based on immediate information when incidents are occurring. They can also provide focussed patrols in problematic areas.

The private security contractor who provides these security ambassadors will be required to provide staff who can communicate and engage the street population, work with enforcement personnel, have an understanding of the health and social services resources available, be able to support the work of street-outreach workers, be able to represent the community in an ambassadorial way and, most importantly, be able to work in a respectful way with the street population.

It is important that the same one or two security ambassadors be utilized in order to develop good relationships with all stakeholders—street people, business owners, enforcement personnel, the public, neighbours and visitors alike.

The following is the rationale for hiring a contracted security patroller service:

- Security ambassadors provide enforcement services with “eyes” on the Highway Corridor during key business hours
- Security ambassadors will be part of a coordinated effort by all enforcement services, including bylaw enforcement officers and RCMP officers, to increase their “visible” presence in the Highway Corridor
- Security ambassadors provide a connection to the public in the Highway Corridor
- Security ambassadors are a cost-effective way to address or prevent public-disorder activities—the people in this role will receive a higher wage based on their skill in building effective relationships with the varied clientele they encounter in their duties
- Security ambassadors can commence an early morning patrol before the start of each business day and help resolve any unwanted activity
- Security ambassadors provide the community with a contact person who can assess minor matters before they escalate to a criminal or public-disorder level
- Security ambassadors allow bylaw enforcement officers and RCMP officers to respond effectively to crime as well as bylaw and disorder matters when they are occurring
- Security ambassadors provide appropriate recording and reporting of incidents

Who Do You Call?

This simple recommendation will have a positive impact to help the public and merchants know who to call to report specific situations. The brochure/card will lay out what services are available and how to contact those services. It will be a handy guide to keep available for merchants and citizens alike who are often confused regarding who to call for a variety of public-disorder, security or bylaw matters.

Without this information being readily available, citizens and businesses often call the RCMP for matters that could be handled more efficiently by the LG department responsible for that area of LG operations.

The brochure will need to differentiate between the services being delivered in the two separate cities: the Municipality of North Cowichan and the City of Duncan.

The creation of this simple brochure will be an effective tool to lessen crime and public disorder by giving the public access to information that will allow them to receive a timely and appropriate response to their concerns.

Recommended Action #3: Impact on Business and the Highway Corridor

That the Communities look for ways to address the stress being experienced by the business community and citizens in the Highway Corridor.

That the Communities take joint actions to collaborate and coordinate their efforts to lessen the impact of crime and public disorder occurring in their respective communities.

That the broader business community consider ways to partner on actions that could support the collective lessening of crime and public disorder.

The Highway Corridor business community has been significantly affected by crime and public disorder during the last two years. They are a small group of businesses that are highly committed to the community and support it in many ways. They are concerned and are looking for input regarding strategies to deal with the on-going public disorder and crime they are experiencing in their daily work.

The last two years have seen a deterioration in the quality of experience for their clientele as the stress being experienced across the province increases through the effects of homelessness, fentanyl, poverty, lack of housing, mental health issues and substance use issues. Many of the businesses have taken on substantial costs to remedy the public-disorder issues associated with needles, garbage, loitering, disturbances, theft and break-ins. Also, the costs of installing CCTV and hiring private security in response to crime and public disorder are high. These businesses range in size but are predominantly smaller in size and do not have the ability to withstand the continued drain of their energies and finances without broader community involvement towards finding resolutions to the on-going pressures of crime and public disorder.

From meeting and talking to these owners, I can say without hesitation that each one I have spoken with understands the health and social needs of the street population, but that does not solve their need to have their business thrive in the face of issues not of their making. Hence, they are looking to local government to consider what would help lessen the effects of crime and public disorder they are facing daily in the Highway Corridor.

The Highway Corridor itself is the Welcome/Entranceway to both communities and perceptions related to public disorder can change how visitors and the travelling public see the whole community. This is an important factor for consideration, and it is important that the business and tourism community work together on possible solutions. Levies could be considered as a way to bring forth other solutions that could be cost-shared by the business community.

I have worked with organized business groups that bring new ideas and positive change to public-disorder matters. It typically starts by focussing collaborative efforts on a single aspect of the problem that could be jointly addressed in order to bring about a positive result for all businesses. Once this problem has been addressed, the group could build off their success by looking at other initiatives to implement.

Recommended Action #4: Health and Social Service Roles

That the Communities recognize the important role of health and social service providers in the Communities and see them as key partners towards reducing crime and public disorder.

That Communities recognize the important work already being done by health and social service providers, such as the Cowichan Valley Basket Society (Food Bank), the Canadian Mental Health Association Sobering Centre, the Canadian Mental Health Association Peers (Clean Team/Sharps Team, Island Health Mental Health and Substance Use/Royal Canadian Mounted Police Car 60 & Integrated Response and the Island Health Overdose Prevention Site, towards reducing crime and public disorder.

That the Communities consider ways to collaboratively address the problem of garbage, waste and needles left in the community and in the Cowichan River and also consider how the existing CMHA Peer Group could be engaged to assist business owners and property owners in dealing with this problem.

That Communities consider taking on a staff facilitation and communication response role, through a Good Neighbour Agreement process, when issues arise between service providers and neighbourhoods.

That the Communities recognize the importance of the Cowichan River to Cowichan Tribes, and all our communities, and work to address the effect of needles being thrown in the river and people not feeling safe while walking on the dikes.

During my time spent in the communities of North Cowichan and Duncan interviewing stakeholders, I had the opportunity to speak with stakeholders with many perspectives on the issues, their causes and the ways to address them.

Goals aimed at lessening crime and public disorder are not in conflict with health or social goals. They are compatible and mutually supportive processes. I can say clearly that the most significant long-term action to lessen crime and disorder is found in the support of health and social service providers dealing with mental health, substance use and poverty reduction as well as building a range of housing for those in need.

Since my focus is specifically on reducing crime and public disorder, I'd like to recognize particular programs that fit those topics closely, while also filling other important roles for their clients. In particular, I'd like to mention the following (not in any prioritized order) programs:

- 1) Cowichan Valley Basket Society (Food Bank)
- 2) Canadian Mental Health Association (CMHA) Sobering & Assessment Centre
- 3) CMHA Peer Group (Clean Team/Sharps Pick-up Team)
- 4) Island Health MHSU/RCMP Car 60 & Integrated Response
- 5) Island Health Overdose Prevention Site (OPS)

These services, in addition to all the valuable work they do for their clients, have a significant effect on the reduction of crime and public disorder in the community and should be recognized for the value they bring to lessening the impact of these issues.

The following are challenges I've learned about in your community that need community-wide assistance to lessen the impacts of crime and public disorder:

Needles

Needles are a magnet for community anger, angst, frustration and fear as well as a feeling of being victimized by those who discard of them improperly. It is particularly evident in talking to business and property owners that face the often daily need to move people along from their properties—and then dispose of the numerous needles as well as the garbage and waste left on their property.

Needles are a source of a high percentage of the frustrations I hear from the general community in almost every interview. Solutions are not there yet. I understand that addicts seek the instantaneous feeling they get from injecting. It is one of the preferred methods of drug use. I see great efforts to educate the public on how to dispose of

needles, but public concern for improperly discarded needles on private and public properties remains. In fact, the complaints appear to be increasing in the community.

Health and social service providers together with the community can help to resolve this disorder. Their existing programs, such as the Sobering & Assessment Centre, and CMHA Peer Group (Clean Team/Sharps Team) adds value to the community's effort to reduce crime and disorder while supporting people who are using substances.

Discarded needles and garbage left by the street population is one of the biggest "frustration factors" in the community, and we need to support efforts by health and social service programs to recognize the importance of these needle pick-up services to the community,

Without doubt, needles left on the street, which require the community to clean them up on its own, is a very concerning community issue. Health and social service programs that can help abate the problem and help with clean-ups need to be strongly supported by the entire community.

Efforts by the CMHA Peer Group need to be supported and appreciated. When the community sees the street population involved in solutions, it gives the community a sense of cohesion.

Needles in Cowichan River

The Cowichan River receives its name from the Cowichan Tribes "People of the Warm Land." The river is culturally and historically important in the lives of the people and to the salmon that are in it during the various stages of their lifecycle. This ancient heritage and culturally important river on the edge of the Highway Corridor and is under stress from literally 100s of needles being dropped into its waters. This is an example of public disorder that can be worked on by the whole community.

There needs to be a community-wide recognition of the harm being done to this river and the need to address needles in the river. There needs to be a willingness in the community to be part of the solution by recognizing, addressing, remediating and preventing this from happening in the future.

This could be part of the Safer Highway Corridor project or handled as a separate Communities-supported initiative. It is also a good project for the SWG in partnership with Cowichan Tribes and community services.

Island Health - Overdose Prevention Site

When I first started working on the SCP, I read newspaper articles about the opening of the OPS on Trunk Road and the concerns of the neighbourhood. I understand the community frustration, but I've also seen how these sites can fit in well with neighbours and significantly help influence safe needle disposal.

I encourage neighbours to engage and participate with any Good Neighbour Agreement (GNA) process that occurs. Discuss how community engagement in the beginning went, but then focus on opening up good lines of communication through the GNA process. The process works and I have been part of that experience on many other projects. The LGs have a role to play in helping facilitate collaboration within the community and resolution of community concerns.

From a crime and public-disorder perspective, the work of the OPS is exactly where the community needs to be in regard to full support. The OPS makes a significant difference to the levels of public disorder experienced on the street. Many in the community want needles off the street but they also want people to have a safe place use their drug of choice. The OPS provides this valuable role in the community.

The OPS is part of the solution, not part of the problem. It is an important way to reduce crime and public disorder in the community. A respectful GNA process involving the neighbourhood, local governments, the RCMP and Island Health will help everyone get through these often challenging start-up phases. The OPS can also encourage and communicate safe disposal practices with its client base as part of the solution.

Public Disorder Increases When There's Nowhere To Go

CMHA Warmland House offers services that are successful and vitally important to the community. However, it does not allow the use of drugs on its premises. This is not a criticism, simply a comment on the model. When a person takes opioids over a period of time, their body becomes dependant on it which leads to withdrawal symptoms within hours after the last use. The OPS is open from 1:00 p.m. to 7:00 p.m. and they have funding for six hours per day. Many people who use opioids need to use first thing in the morning or they start to feel the symptoms of withdrawal, which can be unbearable. People who use substances who cannot or do not want to stay at CMHA Warmland House or the Cowichan Women Against Violence (CWAV) Women's Shelter because of their need to use a substance to stay well, stay on the street. They have nowhere to go, so they sometimes stay on private property during the night and leave behind waste and needles for the property owner to address.

Cowichan Valley Basket Society (Food Bank) is one of the few places during the day that feeds and allows people to stay, play cards and talk during opening hours. Otherwise, the street entrenched spend a lot of hours each day with no place to be personally safe, or use substances safely (except during opening hours) and no place to sleep each night if they are unable to stay at a shelter. This is one factor as to why so many people living on the streets are leaving needles and garbage on the ground and camping rough.

The Communities, businesses, residents, police services, First Nations, visitors and neighbourhoods see the resulting crime and public disorder that occurs daily as the homeless population lives on the street in the Highway Corridor area. Are there other community solutions?

Recommended Action #5: RCMP Crime Reduction – Crime Analyst

That the Communities support crime reduction to address crime occurring in the whole community as well as in the Highway Corridor that is affecting the personal safety of the homeless population on the streets.

That the Communities consider supporting a full-time RCMP criminal intelligence analyst position at the North Cowichan/Duncan RCMP Detachment.

That the RCMP criminal intelligence analyst be part of the Safer Working Group (see Recommended Action #1).

Criminal Intelligence Analyst

The criminal intelligence analyst researches, collates, evaluates and analyzes information to develop intelligence products that assist management in decision-making and provides recommendations to further intelligence and investigations. The analyst develops and applies specialized knowledge in specific fields and in law enforcement specialties and makes ongoing decisions regarding products, identification of crime trends and insights into the criminal environment. Analysts are considered an expert resource for detachments.

A RCMP crime intelligence analyst employed at the North Cowichan/Duncan RCMP Detachment will, in addition to having a full-time role dealing with community-wide crime analysis, be able to assist in identifying key predatory offenders in the community who cause violent crimes within the homeless population and who use fear, drugs and intimidation to organize thefts in the business and general community.

One of the most effective tools to reduce crime and public disorder that I have seen deployed through crime reduction is having a crime analyst working full time. There are many examples on Vancouver Island of a crime analyst working with police investigators to deal with chronic/prolific offenders. North Cowichan/Duncan RCMP Detachment currently has the use of crime analyst services one day of the week.

The Communities would be well served by having a full-time person in this role. This greatly multiplies the ability of police investigators to achieve crime reduction in the whole community. It will also be a valuable tool to lessen resulting public disorder in the Highway Corridor.

It is also important as a tool to reduce violence towards the homeless. The street population is victimized by predatory individuals who use fear and violence to intimidate them into acts that can involve organized shoplifting, break-ins, other crimes or forced prostitution.

In most cases, predation occurs when the victim is a vulnerable person entrenched on the street and has their own mental health and/or substance use issues. These predators are a very small percentage of the street population but cause significant violence and harm if not identified and dealt with by the police and courts.

Recommended Action #6: Crime Prevention Through Environmental Design

That the Communities and the RCMP Detachment jointly learn, practice and apply Crime Prevention Through Environmental Design principles as another crime and public disorder reduction tool.

That the Communities use the upcoming Crime Prevention Through Environmental Design training hosted in the City of Duncan by Cowichan Community Policing as an opportunity to increase their knowledge regarding this valuable crime reduction tool in the community.

That the Communities consider hosting a presentation for community businesses, so they can learn about Crime Prevention Through Environmental Design practices and how to lessen crime and public disorder on their properties.

A successful action that a local government can take to assist a downtown, neighbourhood or business area, such as the Highway Corridor, under stress from crime and disorder is to train LG staff, enforcement officers and police to be able to provide a

CPTED assessment of specific areas under the most stress and to provide advice on the actions property owners can take to reduce those criminal activities.

During my time spent interviewing many persons in the Highway Corridor and surrounding area, I could see areas where previous CPTED actions have been taken. These actions have made a difference towards lessening crime and public disorder in those areas.

I've been involved in using CPTED as we tackled areas that experienced similar problems to those in the Communities. CPTED was used extensively and all staff dealing with public-disorder issues were CPTED trained. We also used the services of a CPTED professional for many LG-owned larger projects both in the planning stage and sometimes to address remedial security solutions where a CPTED assessment was not part of the initial building process.

Crime Prevention Through Environmental Design



CPTED training should also be considered as a necessary and valuable skill for bylaw enforcement officers, police officers, planners and park planning personnel. I recommend this training to communities as a valuable tool for addressing crime and public disorder. It is an integral part of developing safe public spaces in the community

and in areas under stress from crime or public disorder. This training can often be cost-shared with other communities.

I also recommend sponsoring a CPTED information session for businesses on how to take actions regarding their properties that lessen crime and discourage unwanted behaviour. It may also be possible to consider using real Highway Corridor areas as work examples for the training sessions. LGs may want to check with Cowichan Community Policing about this possibility.

Recommended Action #7: Dealing with Problem Properties

That the Communities and RCMP intervene early on nuisance properties occurring in neighbourhoods and consider implementing a nuisance property bylaw as an effective tool to deal with such properties.

Nuisance properties in community neighbourhoods can be identified as contributors to the distress being experienced. They are identified by the multiple visits from the police they receive because of noise and disturbance complaints from the neighbourhood. Nuisance properties are often associated with fights, yelling, shouting and disturbing the surrounding neighbourhood.

These properties can be drug houses or chronic “noisy party” houses operating in the neighbourhood. They can also be businesses that are not properly managing issues that arise as a result of their operations. Noise and neighbourhood disturbances are usually the common features regarding why complaints come into the police and often result in frustrated neighbours bringing their concerns to the attention of the mayor and council.

The goal of this recommendation is to provide the police with an LG-led response to a problem that causes frustration in a neighbourhood but cannot be remedied by laying criminal charges or by waiting through lengthy delays for court action.

The most successful resolution occurs when action is taken once the number of police visits shows a pattern of nuisance activity occurring or a significant neighbourhood concern has been reported and police visits have not been able to resolve the situation. When police cannot end the nuisance, the LG becomes involved by taking bylaw enforcement action under a nuisance-property bylaw.

The Communities need to have the ability to claim the costs for the visits by the police, the fire department and bylaw officers that are required to address nuisance activity at these properties. These properties, when acting as nuisances, can waste a large amount

of resources. By having to respond to a nuisance-property complaint, the police may be unable to respond to a more pressing issue in the community. Owners need to be held accountable for this misuse of police resources and for the unnecessary costs to the public.

The process of dealing with nuisance properties can require coordination and planning with health and social services if a displacement of persons is expected to occur. If needed, these services can work with youth and adult outreach services and help people find appropriate shelter, such as CMHA Warmland House and the CWAV Women's Shelter. These services are valued partners when dealing with people who need a place to go when a nuisance-property issue is being resolved. The process involves outreach to these services and they become part of the process when handling a nuisance property. The goal is to deal with neighbourhood concerns and fears created by nuisance activities that are on-going as a result of the resulting nuisance activity associated with the property. Another goal is to find assistance for those being displaced in the process.

Engagement of these properties should be coordinated and resolution should be sought through an LG-hosted person-to-person meeting involving the owner, the police and bylaw enforcement staff in order to gain early resolution.

In most cases, early intervention of this type brings positive action from the owner and the concern is usually addressed without a need for continual attendance. LG staff and RCMP officers would explain the nuisance-property process to the owner and provide information on the issues the owner needs to address in order to meet the requirements of the bylaw.

If the intervention meeting does not result in a resolution, the LG needs to be able to address such properties by way of fining or charging for costs. Each LG should look into the creation of a nuisance-property bylaw focussed on addressing problematic properties causing excessive calls for police, fire and bylaw services as a result of disturbances and nuisance behaviour caused by lack of action by the property owners.

As stated, this process starts with the goal of having the owner address the issues arising from their property. It is a positive interaction as long as the problem is addressed in a reasonable manner and timeframe and does not require the issue to be brought before council. If the issue is not addressed, council hears the matter and can elect to deem the property a nuisance.

Once deemed to be in contravention of the nuisance-property bylaw, cost recovery for services rendered attending nuisance properties can be sought through either fines or through taxes.

Note: LG will need to obtain an updated legal opinion when writing the bylaw.

Resourcing Considerations: Staffing Impact – Corridor Safety Office

That additional bylaw enforcement staffing and the contracting of a private security ambassador be considered as necessary to the resourcing of recommended actions in this SCP report.

That bylaw enforcement officers be in uniform due to the nature of enforcement duties.

That Occupational Health & Safety perform a workplace risk assessment to determine the need for bylaw enforcement officers to have personal protective equipment to perform their duties.

Municipality of North Cowichan – Staffing/Uniforms

The following recommendations are for the Municipality of North Cowichan.

The municipality should hire one (1) additional bylaw enforcement officer (BEO) to add to the two (2) current positions already in place and equally divide additional CSO duties between them. The current workload of your BEOs is approximately 330 files per year for each BEO. This is already higher than expected compared to other municipalities and I would consider your staffing level to be short by .75 of a position even without taking on the new CSO role. The municipality need to add an additional BEO and monitor the new CSO workload.

There will also be an increase in responsibility for the position of the senior bylaw compliance officer. This is a result of the increase in work out of the CSO and because bylaw enforcement officers will be responsible for a higher proportion of the action out of the SWG.

This new CSO duties for bylaw enforcement officers can only be performed by uniformed LG personnel due to the nature of enforcement duties in a challenging street

environment. I recommend that all three (2 existing and 1 additional BEOs) wear uniforms during the delivery of all bylaw services.

If not already completed, I recommend that an Occupational Health and Safety OHS Risk Assessment be done on the use of personal protective equipment (PPE) for officers performing a bylaw enforcement role.

City of Duncan – Staffing/Uniforms

The following recommendations are for the City of Duncan.

The city should consider reconfiguring its current staffing levels by adding hours to existing personnel in order to meet a .5 of a position, which will focus on the Highway Corridor area. Alternatively, reduced parking enforcement could lead to an increased ability to focus resources in Highway Corridor duties.

This new CSO role for bylaw enforcement officers can only be performed by uniformed LG personnel due to the nature of enforcement duties in a challenging street environment.

If not already completed, I recommend that an OHS Risk Assessment be done on the use of PPE for officers performing a bylaw enforcement role.

Shared Cost of Renting Office Space

I do not see the increase in crime and public disorder as being seasonal in nature. It appears to have been a rising concern through the winter and issues were actively rising months ahead of any expected springtime increase with the warmer weather.

To be successful in addressing crime and public disorder, strategies will need to be operational in the areas under stress. The opening of a CSO in the stressed Highway Corridor area will be an important step.

I recommend that the LGs rent suitable storefront space to house a CSO in the Highway Corridor. This office will be the central work office for bylaw officers, security ambassadors and RCMP crime reduction members. It could be considered for a one-year initial rental contract and assessed yearly thereafter.

Cost of Private Security Ambassador Staff

This private security role is important to the success of a safer Highway Corridor project as discussed. It requires the contracting of dedicated private security staff who are trained and comfortable in dealing with a challenging street environment. The role is outlined in Recommended Action #2.

Concluding Comments

A supported SCP process will focus on reducing crime and disorder occurring in the Communities and specifically in the Highway Corridor. The development of an SCP works to address community concerns by coordinating enforcement, improving community communication and collaboration, supporting the health and social service community, supporting the business community and supporting neighbourhoods so all citizens achieve the goals of having a safe and healthy community.

Recommended Roll-Out

The following process is recommended for the rollout of the report's recommendations:

- The report goes to joint councils as a draft
- If the joint councils approve the report in principle, the report goes forward as a draft for input by stakeholder groups
- The report will consider all input prior to being finalized
- The report goes back to the joint councils for final approval
- If approved, implementation of phase two of the Safer Community Plan commences

The recommendation for an SCP that is initially focussed on the Highway Corridor is not a process to start and stop. This will only make future efforts more difficult to launch. This is especially true in the Highway Corridor where shop owners have a high level of frustration with the lack of resolution regarding current crime and public disorder. They have a sense of being isolated and rely on themselves for solutions without broader local government involvement. They have stopped reporting crime through frustration over a perceived lack of disinterest by the court system regarding their victimization.

It requires a commitment by all stakeholders to understand and to be willing to look for ways to lessen public-disorder impacts while carrying on their many important roles in the community.

If the recommendations in this report are supported, reported crime and public disorder may actually increase in the early stages of the SCP Implementation Phase as more

citizens and businesses learn of the role of the CSO and decide that they now have somewhere to call and receive assistance based on the “Who Do You Call?” pamphlet.

Your community cares about the availability of health and social services to those in need. It also cares about the quality of life for neighbourhoods, businesses and all its citizens. The Communities have demonstrated the ability to achieve their goals through a history of working together, and I’m sure it will also achieve the goal of lessening the impact of crime and public disorder occurring in the community.

It is a pleasure to meet with individuals in the community while working on this SCP. I thank everyone that I have interviewed for sharing their words, wisdom and knowledge.

Thank you for inviting me to your community and receiving this report.

Randy Churchill
Consulting For Municipalities