SUMAS MOUNTAIN ENVIRONMENTAL MANAGEMENT STUDY

Summary Document

September 2012

Introduction

On July 31, 2012, an open house was held to provide information and receive input from residents about the environmental opportunities on Sumas Mountain. At this open house, residents provided staff with meaningful comments and questions. The purpose of this document is to provide a summary of information relating to land use planning, the environmental background work, and a brief description of the computer modelling done to date with graphical representation of that modelling.

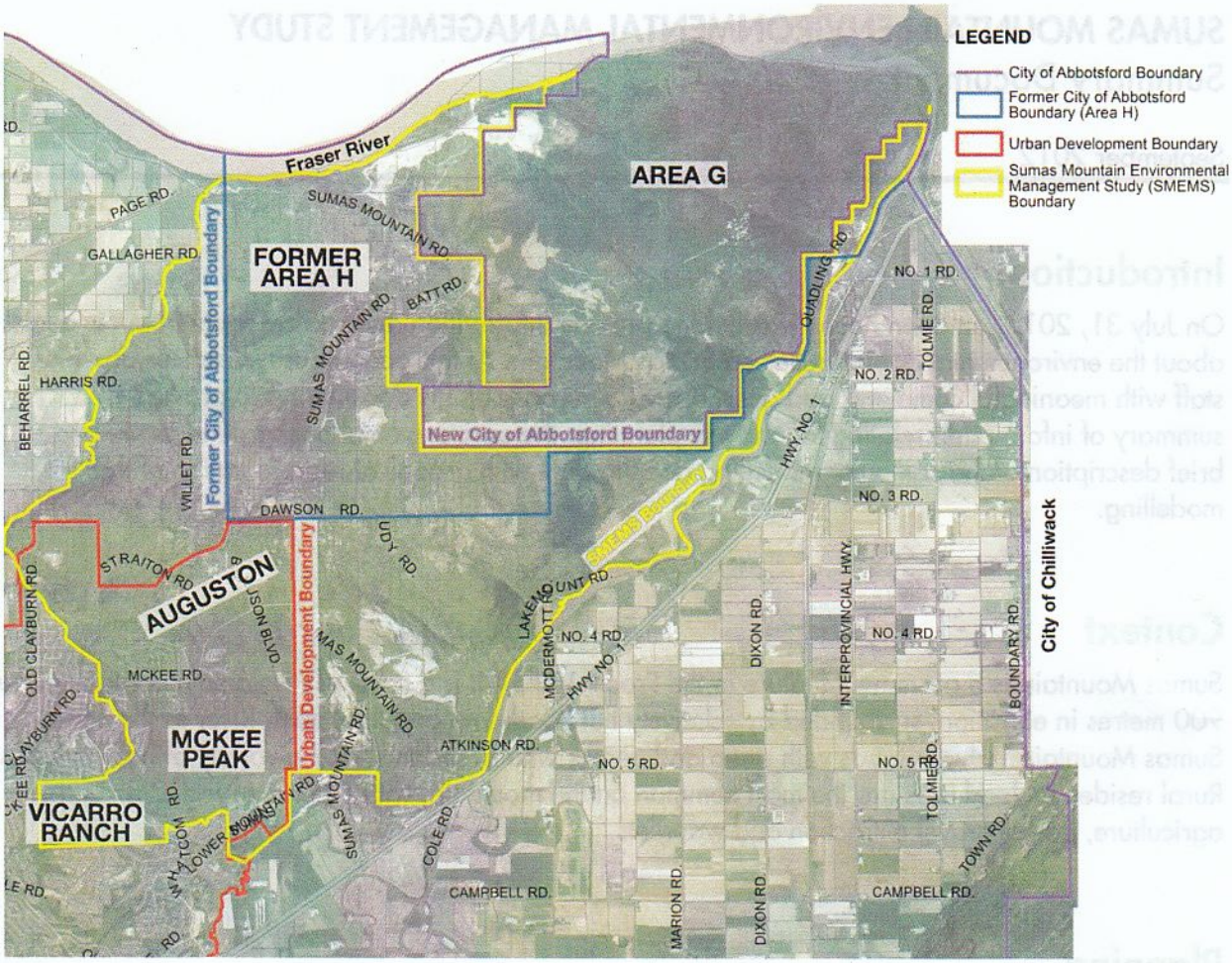
Context

Sumas Mountain is a prominent feature in the Fraser Valley. It is a relatively isolated mountain; about 900 metres in elevation, surrounded by relatively flat floodplain and the Fraser River to the north. Sumas Mountain includes lands with steep and gentle terrain, streams, and a variety of habitat types. Rural residential land uses are the most common on the mountain, with other uses including agriculture, parks, gravel extraction and woodlots.

Planning

The area generally north of Dawson Road and east of Willet Road was formerly part of the Fraser Valley Regional District Electoral Area H ('Area H'). In 2008, the Provincial Government approved the extension of the City's boundaries to include privately owned land in Area H. The remaining portions became part of the FVRD Electoral Area G (see map below).

Over the past several years there has been increasing demand for residential development. Lands in the eastern portion of Abbotsford have been sought after by the development industry to meet this demand. Underutilized lands, such as McKee Peak, are emerging as areas of interest for residential development. Local and regional population growth will likely increase pressure for residential development on the rest of Sumas Mountain as well. While development pressure is likely to continue, this growth is managed and controlled through the Official Community Plan (OCP). The City of Abbotsford's existing OCP was updated and adopted by Council in October 2005. The FVRD Area H OCP was adopted in 2004.



Official Community Plan

An Official Community Plan (OCP) is a provincially-mandated document adopted by Council that contains a vision, objectives and policies to guide future growth and change. The OCP is intended to guide development by setting out the location, type, and density of all land uses, such as residential, commercial, industrial and institutional. An OCP can also include policies relating to servicing, transportation, environment, social planning, etc.

Area H incorporation into the City of Abbotsford OCP

On July 8, 2008, a portion of Area H became part of the City of Abbotsford. As a condition of becoming part of the City, the provincial government mandated, by Order-in-Council, that a committee be appointed to deal with transitional issues. At the time, the FVRD Sumas Mountain Area Plan (OCP) and Zoning Bylaws were inherited by the City for the Sumas Mountain area. The understanding is that the committee would work through a process to formally incorporate these bylaws into the City's bylaws. As we set out to fulfill this provincial requirement, there is an opportunity for us to re-evaluate the existing OCP and ensure it reflects a collective vision for Sumas Mountain. Although it will become part of the City of Abbotsford's OCP, specific measures that reflect the unique nature of the Sumas Mountain community can also be included.

Zoning

Zoning is a Bylaw that provides the standards and regulations applicable to land, buildings and structures. The City is divided into a series of zones that outline a set of specific uses permitted in each particular zone, such as residential, commercial, industrial, or institutional. Each zone also outlines other provisions, such as minimum lot size, building setbacks, lot coverage, and building height. Every property owner is obligated to follow the provisions of the zone applied to their property. This provides a property owner with the assurance that neighbouring properties are developed and used in compatible ways.

If a property owner wants to develop their property for a use or density not permitted by the existing zone, they must apply to rezone their property. A property owner has the right to apply to rezone their property at any time. Rezoning is when Council approves a request to allow a different use or density on the property. In some cases, rezoning will allow an increase in the number of lots permitted compared to what the original zoning allowed. Council reviews the rezoning proposal in the context of what the OCP allows.

OCP impact on zoning

Changing the OCP does not automatically change existing zoning. The OCP identifies land use designations that are descriptions of type, density and location of future growth and change.

A property owner is entitled to the provisions of existing zoning and is not required or obligated to rezone their property, even when the OCP envisions a different type of use.

Relationship of the Sumas Mountain Environmental Management Study (SMEMS) to the OCP

An OCP includes a number of items to support and inform the overall vision as shown in the diagram below. Each of these items may have background studies that can be referenced and used when updating/establishing an OCP.

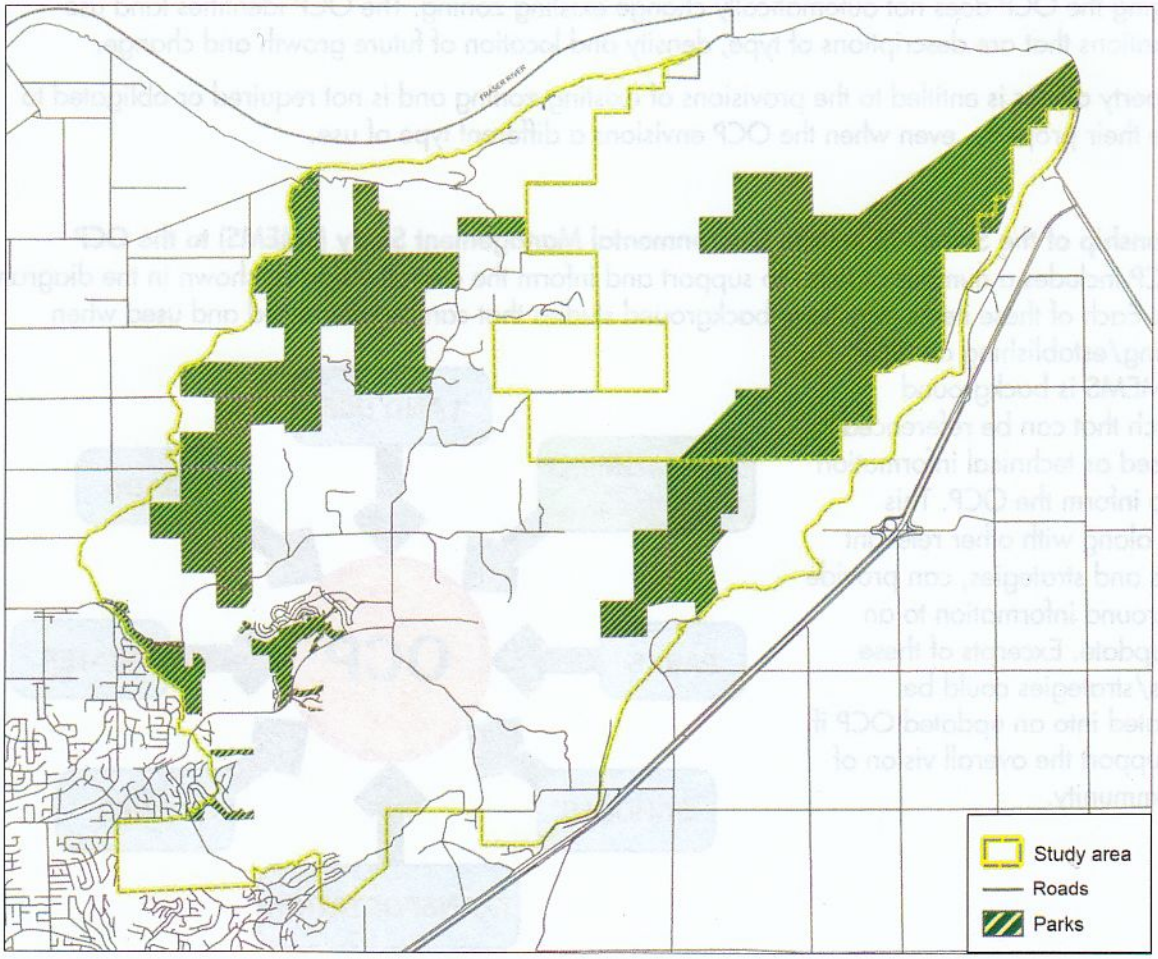
The SMEMS is background research that can be referenced and used as technical information to help inform the OCP. This study, along with other relevant studies and strategies, can provide background information to an OCP update. Excerpts of these studies/strategies could be integrated into an updated OCP if they support the overall vision of the community.

Sumas Mountain Environmental Management Study

Given the prominent environmental features on Sumas Mountain, the City of Abbotsford is undertaking a comprehensive study of the existing environmental resources, how they can be connected to one another, and potential environmental management strategies. This section contains a short description of the existing environmental inventory and the methods used to collect the information. As well, the results of a computer modelling exercise are summarized, which looks at opportunities to provide a green network.

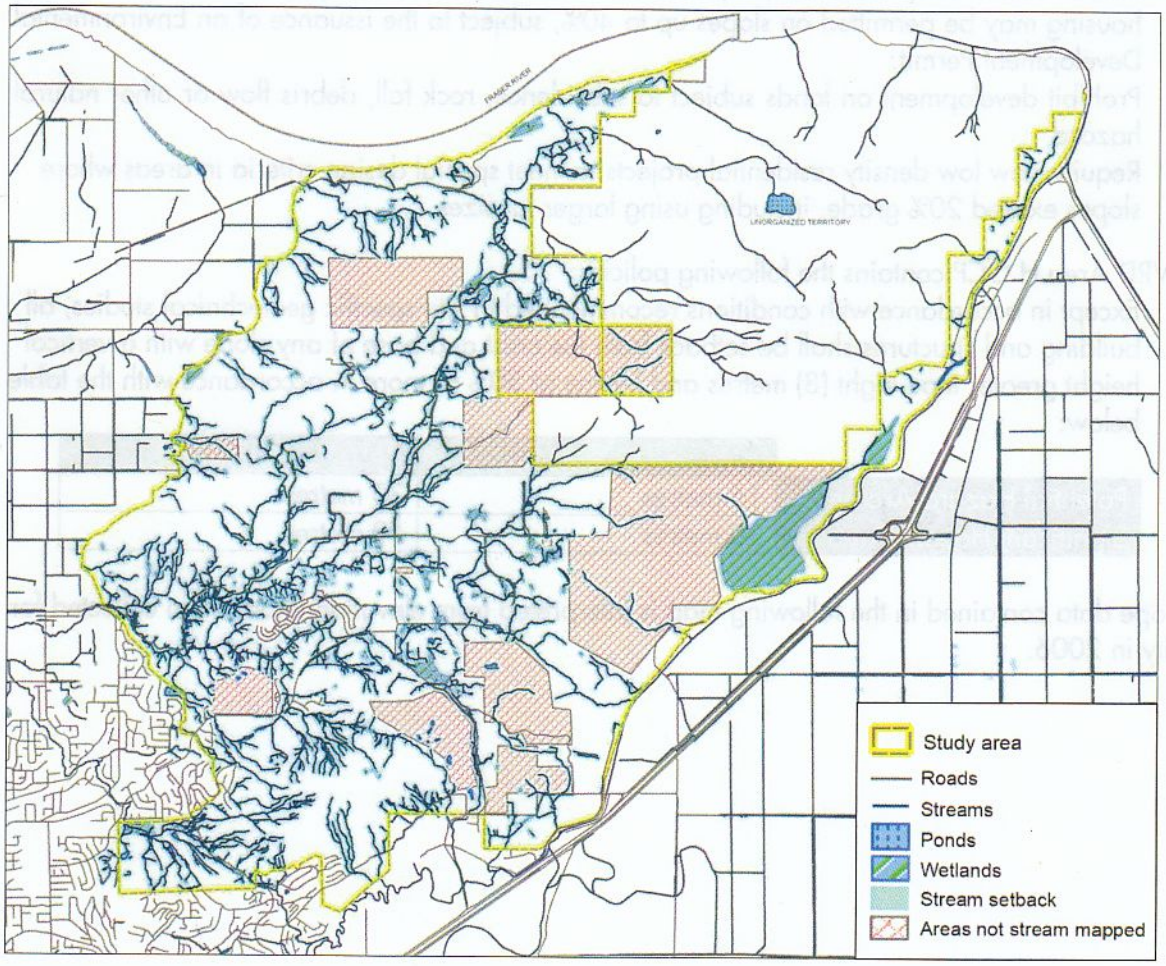
Parks

Sumas Mountain Interregional Park is located within both the City and Area G. A new multi-agency collaboration was established in May 2012 for managing the park, which is comprised of existing provincial parcels under FVRD jurisdiction on the east flank of Sumas Mountain, and provincial, regional and municipal parcels under Metro Vancouver Regional District (MVRD) jurisdiction on the mountain's west side. FVRD and MVRD are working together to create a trail network within these natural area parks.



Streams

From 2005 to 2009, the City completed a stream mapping program in order to develop an inventory of existing streams on Sumas Mountain. Letters were sent to property owners advising them of the project and requesting that any concerns be raised with staff. In the absence of any concerns the mapping crews entered the properties to map stream locations and the characteristics of the streams (i.e. vegetation, channel dimensions, gradient, etc.). The mapping crews were very conservative and mapped locations of all streams, but did not assess them for fish habitat value. As such, some streams shown in the mapping may not require protection. At the time of development, streams are examined by a qualified professional to determine the appropriate management of the stream.



Steep Slopes

Steep slope development presents a number of safety and environmental challenges. Steep slope alteration can lead to increased erosion, landslides and sedimentation. Conversely, protecting steep slopes preserves the scenic beauty of the natural landscape and provides habitat for local wildlife.

Both the City's OCP and the Area H OCP outline protection and management techniques for steep slopes.

The City of Abbotsford OCP contains the following policies:

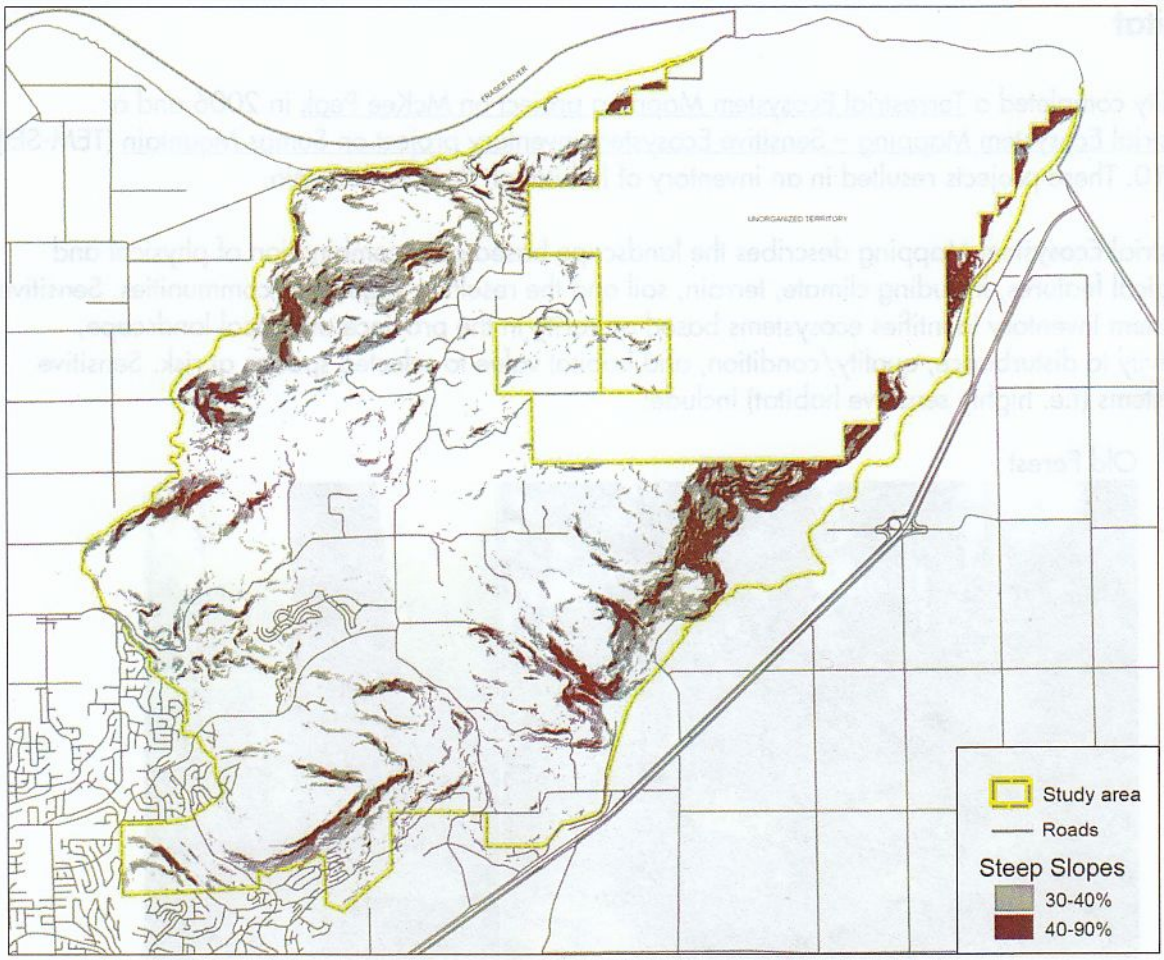
- Avoid land development on floodplains and in areas with slopes greater than 30%. Cluster housing may be permitted on slopes up to 40%, subject to the issuance of an Environmental Development Permit;
- Prohibit development on lands subject to subsidence, rock fall, debris flow or other natural hazard;
- Require new low density residential projects to meet special design criteria in areas where slopes exceed 20% grade, including using larger lot sizes.

The FVRD Area H OCP contains the following policies:

- Except in accordance with conditions recommended in site-specific geotechnical studies, all building and structures shall be setback from the crest and base of any slope with a vertical height greater than eight (8) metres and incline at 50% or more in accordance with the table below:

	Crest	Base
Potential Hazard Areas	15 metres	30 metres
Significant Hazard Areas	20 metres	50 metres

The slope data contained in the following map is interpreted from elevation information collected for the City in 2006.


FRASER RIVER
UNORGANIZED TERRITORY
Study area
Roads
Steep Slopes
30-40%
40-90%

Habitat

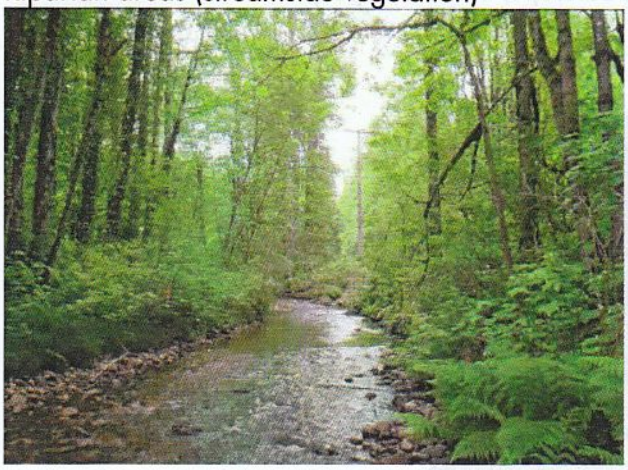
The City completed a Terrestrial Ecosystem Mapping project on McKee Peak in 2006 and a Terrestrial Ecosystem Mapping – Sensitive Ecosystem Inventory project on Sumas Mountain (TEM-SEI) in 2010. These projects resulted in an inventory of habitat on Sumas Mountain.

Terrestrial Ecosystem Mapping describes the landscape based on a combination of physical and biological features, including climate, terrain, soil and the resulting vegetation communities. Sensitive Ecosystem Inventory identifies ecosystems based on rarity in the province and local landscape, sensitivity to disturbance, quality/condition, and habitat value to selected species at risk. Sensitive Ecosystems (i.e. highly sensitive habitat) include:

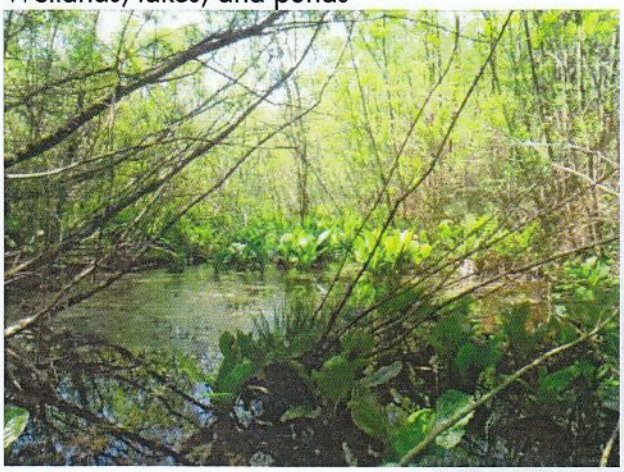
- Old Forest

- Mature coniferous or mixed forest patches that are larger than 5 hectares

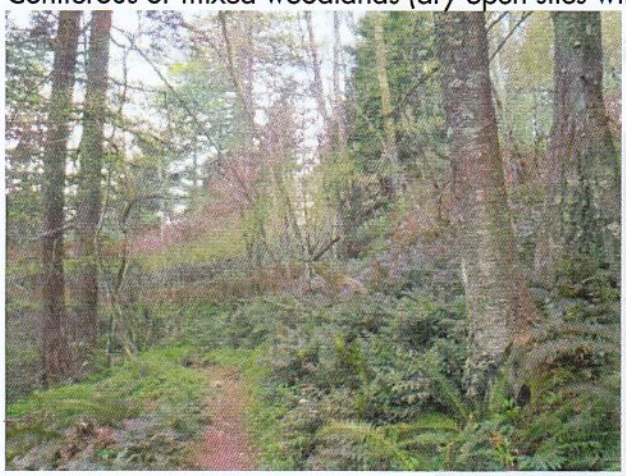
- Riparian areas (streamside vegetation)



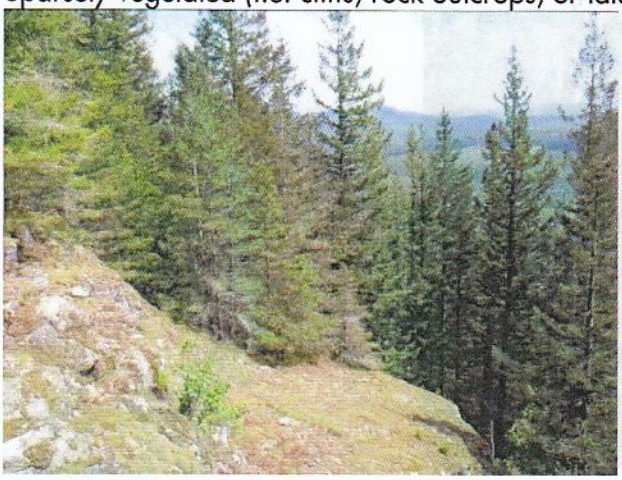
- Wetlands, lakes, and ponds



- Coniferous or mixed woodlands (dry open sites with 10-25% tree cover)



- Sparsely vegetated (i.e. cliffs, rock outcrops, or talus slopes)

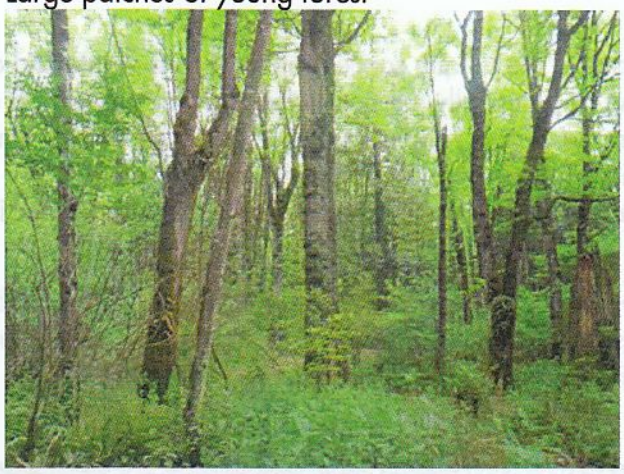


- Lakes and Ponds

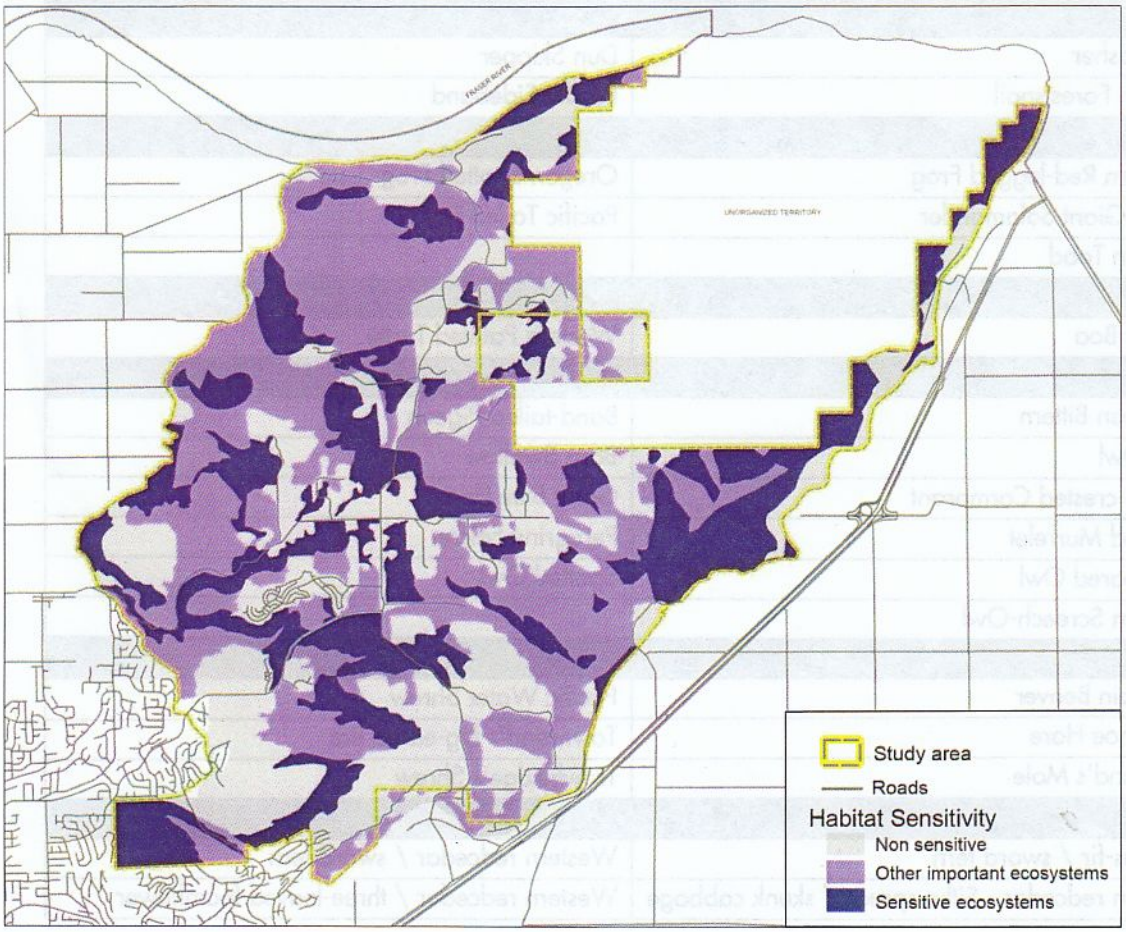
Examples of Other Important Ecosystems (i.e. moderately sensitive habitat) include:

- Mature deciduous forest

- Large patches of young forest



There is limited detail in the resulting habitat data because it is only a broad overview of the entire study area. When development is proposed, detailed site studies should be conducted by a professional biologist to further refine and verify the data.



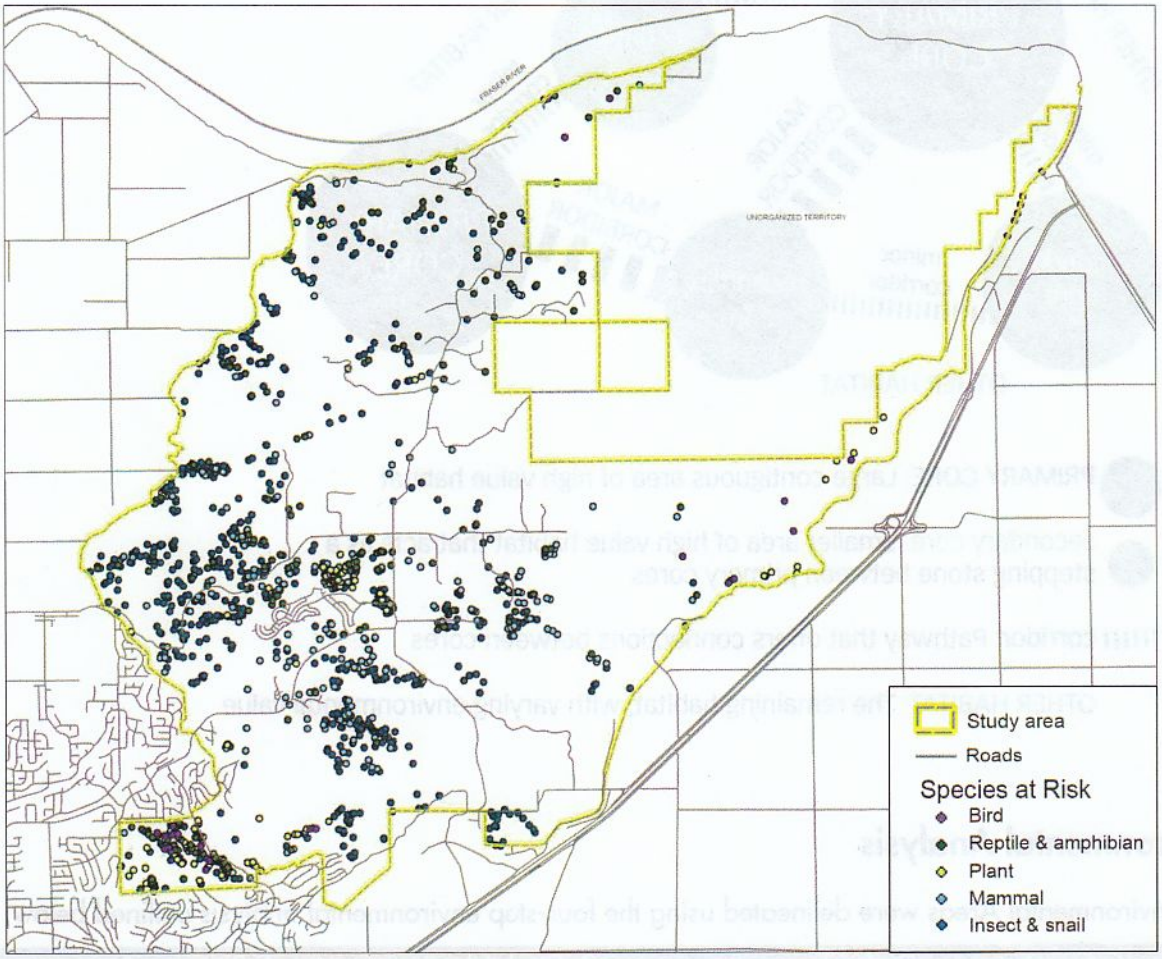
Species at Risk

Sumas Mountain is a biodiversity hotspot due to the unique concentration of rare plants and animal species that have been identified as existing or potentially existing within the Study Area. 38 at-risk species and ecosystems have been identified on Sumas Mountain, including seven small mammals, 11 birds (including four raptors), two reptiles, five amphibians, four invertebrates, five plants and four plant communities. Further surveying and assessments in the area will likely identify additional species and ecosystems at risk.

Species and ecosystems are designated at-risk by the provincial and/or federal government based on a variety of factors. Senior governments also provide protection and management for these species and ecosystems at risk through legislation and guidelines.

SPECIES NAME	
PLANTS	
False-pimpernel	Pacific Waterleaf
Phantom Orchid	Silver Hair Moss
Vancouver Island Beggarticks	
INVERTEBRATES	
Blue Dasher	Dun Skipper
Oregon Forestsnail	Pacific Sideband
AMPHIBIANS	
Northern Red-legged Frog	Oregon Spotted Frog
Pacific Giant Salamander	Pacific Tailed Frog
Western Toad	
REPTILES	
Rubber Boa	Western Painted Turtle
BIRDS	
American Bittern	Band-tailed Pigeon
Barn Owl	Barn Swallow
Double-crested Cormorant	Great Blue Heron
Marbled Murrelet	Peregrine Falcon
Short-eared Owl	Spotted Owl
Western Screech-Owl	
MAMMALS	
Mountain Beaver	Pacific Water Shrew
Snowshoe Hare	Townsend's Big-eared Bat
Townsend's Mole	Trowbridge's Shrew
PLANT COMMUNITIES	
Douglas-fir / sword fern	Western redcedar / sword fern
Western redcedar - Sitka spruce / skunk cabbage	Western redcedar / three-leaved foamflower

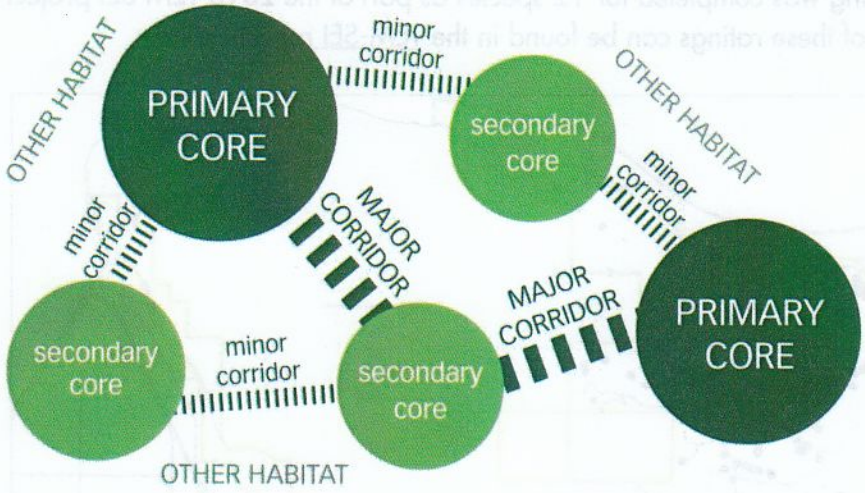
Habitat Suitability mapping was completed for 12 species as part of the 2010 TEM-SEI project for Sumas Mountain. Maps of these ratings can be found in the TEM-SEI report online.



Conceptual Green Network Map

In an effort to look at opportunities to provide a network of environmental connectivity, a computer modelling exercise was undertaken, utilizing the data collected to date (i.e. streams, steep slopes and habitat). This modelling looked specifically at existing environmental data and established interconnecting Environmental Areas. It is important to note that this computer modelling looked solely at the environmental resources and did not consider other elements, such as land use, property boundaries, roads, infrastructure, etc.

The Environmental Areas include Cores, Corridors and Other Habitat. The Cores and Corridors together form the Green Network.



PRIMARY CORE: Large contiguous area of high value habitat

secondary core: Smaller area of high value habitat that acts as a stepping stone between primary cores

corridor: Pathway that offers connections between cores

OTHER HABITAT: The remaining habitat, with varying environmental value

Environmental Analysis

The Environmental Areas were delineated using the four-step environmental analysis outlined below.

1. Collect Environmental Data	2. Analyze with Ranking Criteria	3. Establish Environmental Areas	4. Refine with Additional Information
• Streams • Slopes • Species at Risk • Habitat	• Patch Size • Vegetation • Habitat • Streams • Species • Elevation • Edge Effect	• Cores • Corridors • Other Habitat	• Protected Areas • Site Assessments • Aggregate and woodlots

These steps are explained in more detail on the following page.

1. Collect environmental data

Environmental data was collected by the City from 2005 to 2010 on Sumas Mountain. This data included the following:

- Streams: all streams, including fish habitat and ditches
- Slopes: elevation mapping identifying degree of slope
- Species at risk: professional observations of designated species at risk
- Habitat: mapping identifying low, moderate, and high sensitivity habitat

2. Analyze with ranking criteria

Several criteria were used to layer over the environmental data and rank them according to the following attributes:

- Forest patch size (Range from very large contiguous patch to very small patch)
- Vegetation type, age, and height (in decreasing order of sensitivity: old forest, wetlands, mature forest, mixed forest, shrubland, grassland, sparsely vegetated, impervious surfaces)
- Habitat (consideration for habitat type, size, age, context in surrounding land cover types, and presence of species at risk)
- Stream characteristics (consideration of fish presence and permanence)
- Species at risk abundance and diversity
- Overall species abundance and diversity (known and potentially present)
- Elevation and steepness (preference for higher elevations with gentle slopes)
- Presence of edge effects (consideration of patch size, shape, surrounding habitat type)

3. Establish Environmental Areas

After applying the ranking criteria to the environmental data, the following Environmental Areas were established: Cores, Corridors, and Other Habitat. Each of these contains varying degrees of habitat quality, described below:

- Cores: key areas that provide large areas of high quality habitat, including primary (intact, mature forest that can support large and/or interior forest species) and secondary (smaller areas of mature forest)
- Corridors: connections between core areas, including major wildlife (supports large mammal movement through the study area), local wildlife, and streams
- Other habitat: remaining natural habitat that ranges in sensitivity, including high (i.e. small areas of mature forest, wetlands, etc.), medium (i.e. younger forest, shrub areas, etc.), and low (i.e. grassland, pasture, etc.)

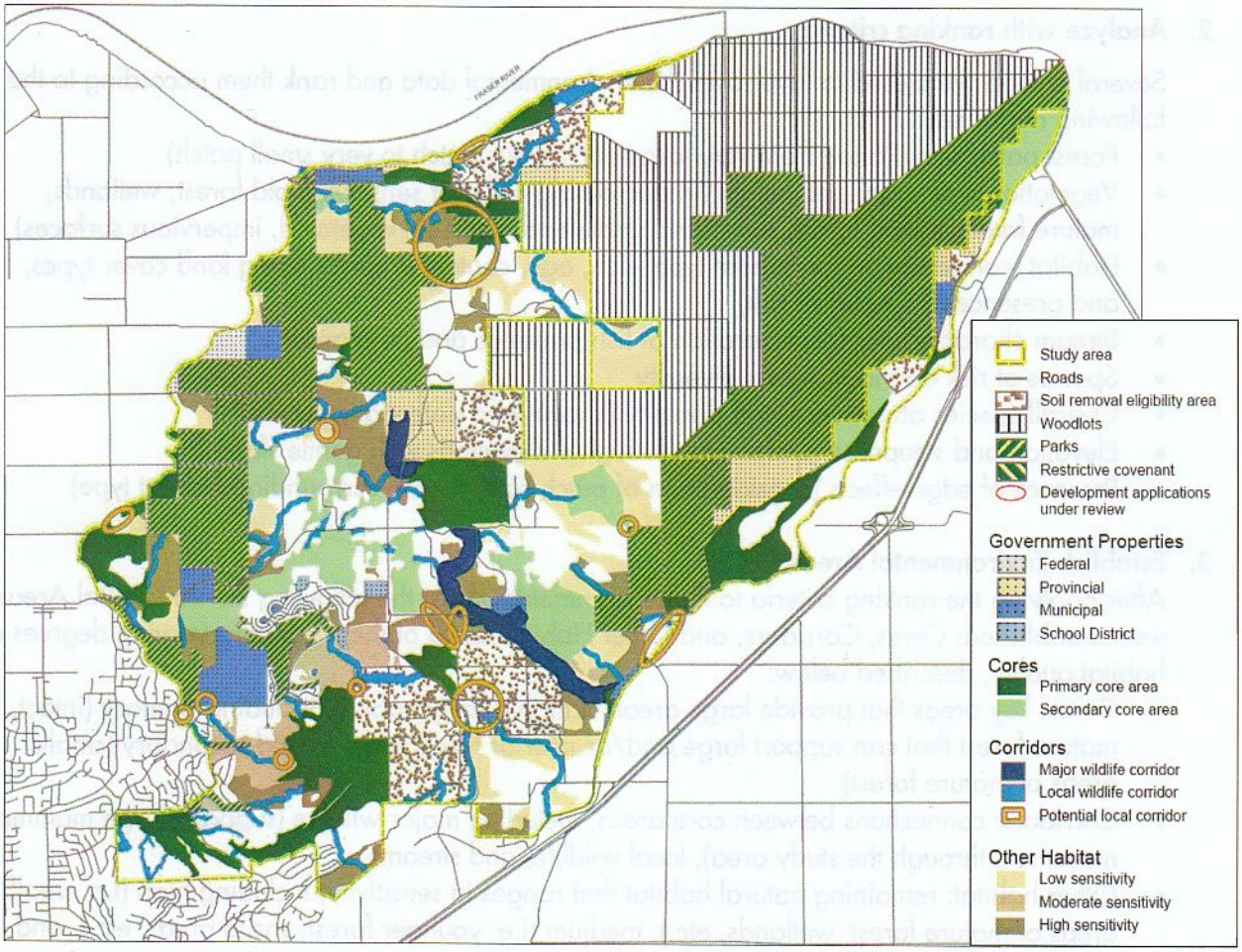
4. Refine with additional information

Finally, the environmental areas were refined with contextual information:

- Protected areas: existing natural area parks (such as Sumas Mountain Interregional Park) and restrictive covenants
- Results of site assessments: information from site-specific assessments conducted for development applications (such as Vicarro Ranch)
- Aggregate and woodlots: properties included in the Soil Removal Eligibility Area and/or are part of a provincial woodlot

Green Network Map

Based on the above information, the following Green Network Map was produced through computer modelling. This modelling solely looks at the environmental components of Sumas Mountain with the addition of some contextual information such as parks, site assessments and soil removal. It does not take into consideration the wide variety of existing and permitted land uses, property boundaries, roads, and other infrastructure. The information shown on the map should be viewed as an environmental study and should not be used as a detailed land use plan.



Summary

The City of Abbotsford has initiated a Sumas Mountain Environmental Management Study to provide a comprehensive approach to environmental management for Sumas Mountain. This document is intended to provide residents with some of the background material, such as the Official Community Plan and Zoning, existing environmental conditions/inventory and description of the computer modelling exercise accompanied with graphical representations.

With the input received, staff will continue to prepare the study with ongoing opportunities for public input.