



Fraser Valley Conservancy
Placing lands in trust for our future

Conserving Biodiversity:

Fostering Partnerships & Preserving Life



December 2010

PREFACE

The Fraser Valley Conservancy (FVC) is a not for profit charitable organization located within the Fraser Valley of British Columbia. It is dedicated to placing lands in trust for our future. As such, the organization believes that the Fraser Valley is a collage of biologically diverse habitats which should be valued and protected. FVC has mandated goals to, i) protect and preserve the land and watercourses that have recognized local and regional ecological value; ii) to promote, facilitate and engage in land stewardship activities; iii) to protect, preserve and enhance habitat for native species including rare and endangered species, and; iv) to protect and preserve land of recognized local and regional historic value.



EXECUTIVE SUMMARY

This document presents a need for a strategy that outlines preservation, conservation and restoration measures to protect biodiversity in the Fraser Valley. This document describes opportunities for various existing conservation efforts to be synchronized and how current gaps in data can be filled.

This process was initiated in 2009 and will provide support to current and ongoing stewardship and biodiversity actions. It is a regionally based planning and conservation initiative that will increase partnerships and collaboration between Fraser Valley stewardship groups and all levels of government.

The intent is to support the work of Fraser Valley organizations in the conservation and enhancement of biodiversity and will aid in the dissemination of and access to scientific and conservation data. This information will also reveal where there are gaps in data sets that create barriers to effective biodiversity enhancement and protection (FVC 2009).

This process is managed by the FVC and has been funded by grants from the Environment Canada Habitat Stewardship Program, the Canadian Wildlife Service (Environment Canada) and the Real Estate Foundation BC. It is anticipated that the information in the following pages will:

- Support and strengthen the need for a Regional Biodiversity Strategy in the Fraser Valley;
- Coordinate activities and initiatives under one plan; and
- Provide data and planning tools to community groups, individuals, and governments undertaking biodiversity actions now and into the future.

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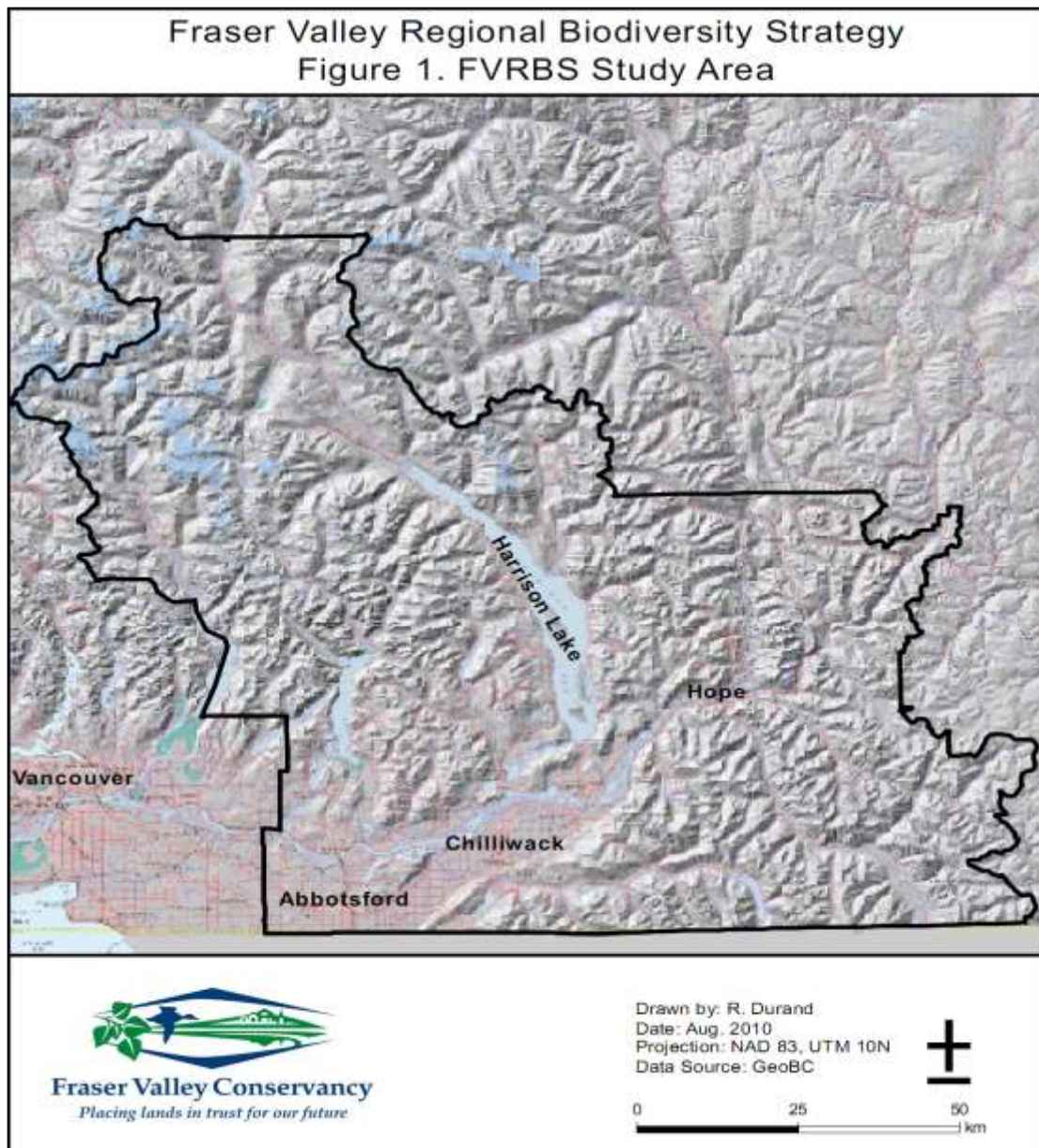
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INTRODUCTION

Trends indicate that declines in biodiversity within British Columbia (BC) are occurring at the genetic, species, and ecosystem levels. Due to gaps in knowledge about BC's biodiversity this issue cannot be addressed as quickly and effectively as desired. Due to the uncertainty of the stability of BC's biodiversity it is imperative that strategies are developed in order to conserve and stabilize our natural environment.¹

FIGURE 1: STUDY AREA BOUNDARY



¹ Austin, M.A., Buffet, D.J., Nicholson, G.G.E., Scudder and V. Stevens (eds.). 2008. Taking Nature's Pulse: The Status of Biodiversity in British Columbia. 2008. Biodiversity BC, Victoria, BC. 268 pp. Available at www.biodiversitybc.org.

The Fraser Valley Conservancy (FVC) identified the need for a Regional Biodiversity Strategy to support current and ongoing stewardship and biodiversity actions in the Fraser Valley. It should be a regionally based planning and conservation initiative that would increase partnerships and collaboration between Fraser Valley stewardship groups and all levels of government. This in turn would aid in the dissemination of, and access to, scientific and conservation data. Further, it should also reveal where gaps exist in datasets that create barriers to effective biodiversity enhancement and protection.

The Fraser Valley is defined as the south western basin of the Fraser River downstream of the Fraser Canyon and west to Vancouver (Figure 1). This section of the Fraser River is referred to as "Sto:lo" in the Halqemeylem language and has been adopted as the collective name of all the First Nations of the Fraser Lowland, other than the Skwxwukmesh and Musqueam. The area is characterized by large river valleys and deltas along the Fraser River; including but not limited to, the Chilliwack River (Vedder), Harrison Lake and River, Sumas River, Hatzic Lake and Stave Lake.² The area lies to the east of the Coastal ranges and includes a portion of the Cascade ranges as it stretches east through Manning Provincial Park.

The area chosen for this study incorporates the same boundaries as used to define the Fraser Valley Regional District. This area was chosen due to biophysical factors and limitations, political boundaries and ease of administration, and to complement a similar program being undertaken by Metro Vancouver.

Lands within the Fraser Valley generally lie within the jurisdiction of the Province, the Fraser Valley Regional District (FVRD), member municipalities and various First Nations. The Fraser Valley Regional District (Figure 2) is made up of six municipalities and seven electoral areas:

- the City of Abbotsford;
- City of Chilliwack;
- District of Hope;
- District of Kent;
- District of Mission;
- the Village of Harrison Hot Springs; and
- Electoral Areas A, B, C, D, E, F, and G

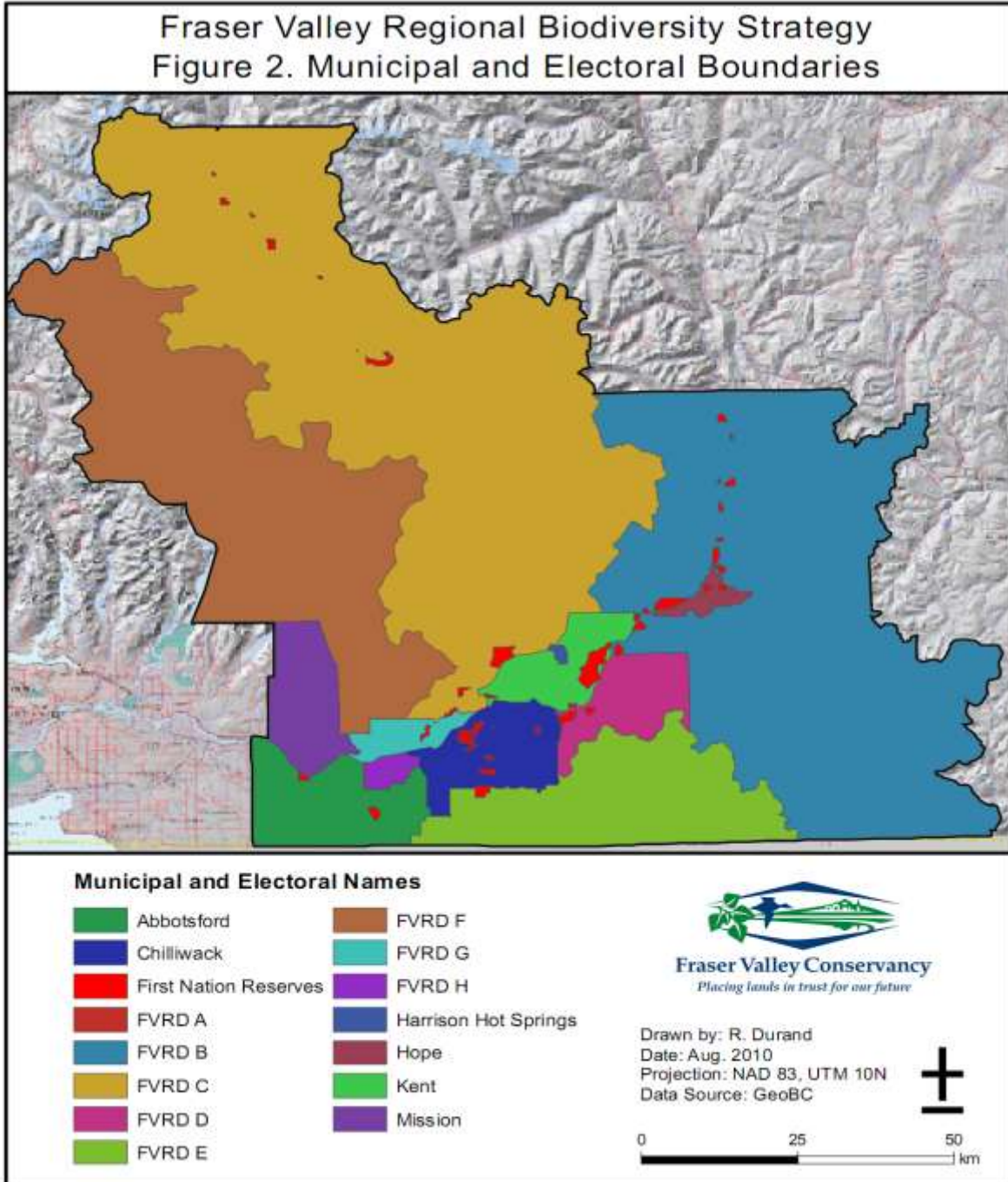
The FVRD is roughly 13, 905 km² in size and has an estimated population of 257, 301.³ Most settlement occurs within the larger municipalities along the Fraser lowlands in the southern portion of the Regional District. The FVRD is bound by Metro Vancouver in the west, Washington State in the south, the Squamish-Lillooet Regional District in the north west, the Thompson-Nicola Regional District in the north east and the Okanagan-Similkameen Regional District in the east.

² Carlson, K.T. (ed.) 2001. A Stó:lō-Coast Salish Historical Atlas. Vancouver: Douglas & McIntyre.

³ BC Stats. 2006. Accessed November 14, 2010 at: http://www.bcstats.gov.bc.ca/data/sep/rd/Rd_9.pdf.

The Fraser Valley possesses diverse cultural, economic and natural characteristics. The natural environment and biodiversity within the Fraser Valley region is being threatened by a multitude of factors and is in a fragile state.

FIGURE 2: MUNICIPAL AND ELECTORAL BOUNDARIES IN THE FRASER VALLEY



WHY IS BIODIVERSITY IMPORTANT?

Biodiversity is defined as the variety of species; plant, animal, fungi, and micro-organisms; within a specific habitat, ecosystem or region. Biodiversity also includes the genetic variability within a species and ecosystem variability.⁴

Biodiversity is an important component of healthy ecosystems, individual species, a successful economy and a thriving culture. A healthy ecosystem is reliant on species and genetic variance within the organisms that inhabit the system. Species variability allows an ecosystem to be more adaptable and resilient to change. Our economy is dependent on products derived from the natural environment for industries such as fishing, forestry, agriculture and tourism. We rely on ecosystem health in order to sustain our economy. A diverse and healthy natural environment also contributes to the health and well-being of the human population through climate regulation and carbon storage, water filtration and flood control, clean air, pollination, recreation and local food production. The loss of biodiversity and natural capital has major impacts to the health of communities, the local economy and the ability to adapt to and mitigate climate change.⁵

A Biodiversity Strategy is a plan for the enhancement and protection of a region's biodiversity for future generations. It provides a means to determine regional priorities for protection and enhancement of the natural environment by providing a holistic vision of a region's natural heritage areas and unique features. A Biodiversity Strategy is intended to provide the Regional District, local municipalities and land managers scientifically sound information to be used in land use planning and to allow for better decision making. It also provides a means to collaborate on achieving conservation goals within the larger community and provides a basis in which to measure and monitor successes.

⁴ Austin, M.A., Buffet, D.J., Nicholson, G.G.E., Scudder and V. Stevens (eds.). 2008. Taking Nature's Pulse: The Status of Biodiversity in British Columbia. 2008. Biodiversity BC, Victoria, BC. 268 pp. Available at www.biodiversitybc.org.

⁵ Wilson, Sara and the David Suzuki Foundation. 2010. Natural Capital in BC's Lower Mainland: Valuing the Benefits from Nature. The Pacific Parklands Foundation.

BIODIVERSITY IN THE FRASER VALLEY

There are many fragile ecosystems in the Fraser Valley and a high concentration of species at risk. Key components of natural ecosystems in the Fraser Valley include riparian areas and wetlands, alpine and sub-alpine areas, forests and agricultural lands.

Riparian areas provide corridors for fish and wildlife movement and connect fragmented landscapes. The Fraser River is one of the largest salmon producing rivers in the world and drains approximately a quarter of the Province. Tributary rivers and stream systems provide valuable spawning and rearing habitat for salmon and a variety of other aquatic and terrestrial species.

Wetlands within the Fraser Valley regulate water flow, provide habitat for waterfowl and other species and store carbon. Many wetland areas have been drained or modified by urban and agricultural development, including the former Sumas Lake area. Vast stretches of the Fraser River and tributaries have been diked for flood management and control.

The Fraser Valley lies in the shadow of the Coastal and Cascade mountain ranges. These alpine areas provide habitat to many species at the northern extent of their ranges and are vulnerable to even subtle climatic changes which can result in the loss of snow cover or moisture regimes and tree line modification.

Forests within the Fraser Valley include old growth components and some of the most endangered ecological communities in the Province. The majority of forests are managed by the Province under the Forest and Range Practices Act. Agricultural areas are partially protected through the Agricultural Land Reserve (ALR) and can provide over wintering areas for waterfowl and add to habitat complexity.

Climate

The Fraser Valley has both montane and maritime climatic influences. High precipitation results from the areas proximity to the Pacific coast, with most rain and snow falling between October and April. In alpine areas, precipitation may fall as snow for some or all of the year, with mid elevations being influenced heavily by rain on snow events. In those areas within the Coastal and Cascade ranges, snow fall can be significantly heavy due to vertical inclines. In some areas, glacial cover is common. Climate variability, differences in topography, soils and geology have led to large localized differences in ecological communities and species composition⁶. These differences have led toward the unique and often rare natural heritage values found here.

⁶ Iachetti, P., J. Floberg, G. Wilhere, K. Ciruna, D. Markovic, J. Lewis, M. Heiner, G. Kittel, R. Crawford, S. Farone, S. Ford, M. Goering, D. Nicolson, S. Tyler, and P. Skidmore. 2006. *North Cascades and Pacific Ranges Ecoregional*

The region can be characterized as having cool summers and mild winters with high average precipitation and in lower elevations extended frost free periods. The area is the largest agricultural producer in the Province because of the relatively mild and long growing season. The mean monthly temperature is above 10 degrees Celsius for four to six months of the year and the coldest months range from -6.6 degrees Celsius to 4.7 degrees Celsius.⁷

Watersheds

There are five major watershed systems within the Fraser Valley, the Skagit, the Fraser Canyon, Lower Fraser, Harrison River and the Chilliwack (Vedder) River.

The Skagit River rises in Allison Pass in the Cascades in the easternmost area of the Fraser Valley. Following parallel to the Crowsnest Pass Highway, the river then flows through Manning Park and south to Ross Lake in Washington State. The river drains 6, 900 square kilometers primarily within the United States, draining into the Pacific at Puget Sound. The river supports a variety of fish and wildlife and provides habitat for all five pacific salmon species, Steelhead and Cutthroat trout. Large tributaries within the Canadian portion of the Skagit River watershed include the Sumallo, Skaist and Klesilkwa rivers⁸.

The Fraser Canyon watershed includes the drainage of the Fraser River as it travels toward the Fraser Valley and onto the Pacific Ocean from Boston Bar southwest through Hell's Gate to Hope. This portion of the larger Fraser River system is characterized by rugged and dry conditions as the Fraser River is confined to a narrow canyon system culminating in Hell's Gate, a narrow gorge found approximately 40 kilometers north of Yale. Here the river enters into a series of turbulent rapids and widens and calms at Yale where navigation becomes once again possible. Major tributaries along this portion of the Fraser include the Coquihalla, Anderson and Nahatlatch rivers.

The Lower Fraser watershed extends west from the District of Hope toward the mouth of the Fraser where it meets the Pacific Ocean. As the Fraser widens and calms it travels through the Fraser Valley floodplain past Abbotsford and Mission and into Metro Vancouver. Major tributaries to this portion of the Fraser include Ruby Creek, the Harrison River, Sumas River, Norrish Creek and the D'Herbomez Creek. This portion of the Fraser River has been extensively diked along its length to provide flood management and is the most heavily developed portion

Assessment, Volume 1 - Report. Prepared by the Nature Conservancy of Canada, The Nature Conservancy of Washington, and the Washington Department of Fish and Wildlife with support from the British Columbia Conservation Data Centre, Washington Department of Natural Resources Natural Heritage Program, and NatureServe. Nature Conservancy of Canada, Victoria, BC.

⁷ Poplar, J, K. Klinka, and D.A. Demarchi. 1991. Chapter 6: Coastal Western Hemlock Zone. In *Ecosystems of British Columbia*. BC Ministry of Forests.

⁸ SDA Forest Service - Skagit Wild and Scenic River System Last Modified: Thursday, 18 January 2007 at 17:40:39 ES

of the Fraser Valley due to the extensive floodplain providing prime agricultural lands⁹. This portion of the Fraser has high fisheries values, supporting all five pacific salmon species and white sturgeon.

The Harrison River drains Harrison Lake and could be considered an extension of the Lilloett River which feeds the lake. It is a strong hold for all five pacific salmon species and is well known as an area for bird watching and bald eagles. The Fraser Valley Bald Eagle Festival is held here every year. Harrison Lake is a well known recreational area within the lower mainland. The main tributary to the Harrison River is the Chehalis River.

The Chilliwack River originates in Washington's North Cascades and enters Canada at Chilliwack Lake. The river then runs west parallel to the Chilliwack River Valley where it emerges just south of the City of Chilliwack. Here the system joins the Swetzler River and becomes the Vedder. It travels then northwest through the Vedder Canal where in conjunction with the Sumas River it confluences with the Fraser. Major tributaries to the Chilliwack (Vedder) include the Swetzler River, Liumchen Creek, Tamihi, Slesse, Chipmunk, Foley, Nesakwatch, and Centre creeks¹⁰.

Ecological Communities

An ecological community provides for the broad spectrum of relationships between both non-living and living components of an eco-system. In British Columbia, these ecological communities are broadly defined by vegetation types and biogeoclimatic zones. In the Fraser Valley, the most widespread biogeoclimatic zones are the Coastal Western Hemlock, Mountain Hemlock and Alpine Tundra (Figure 3).

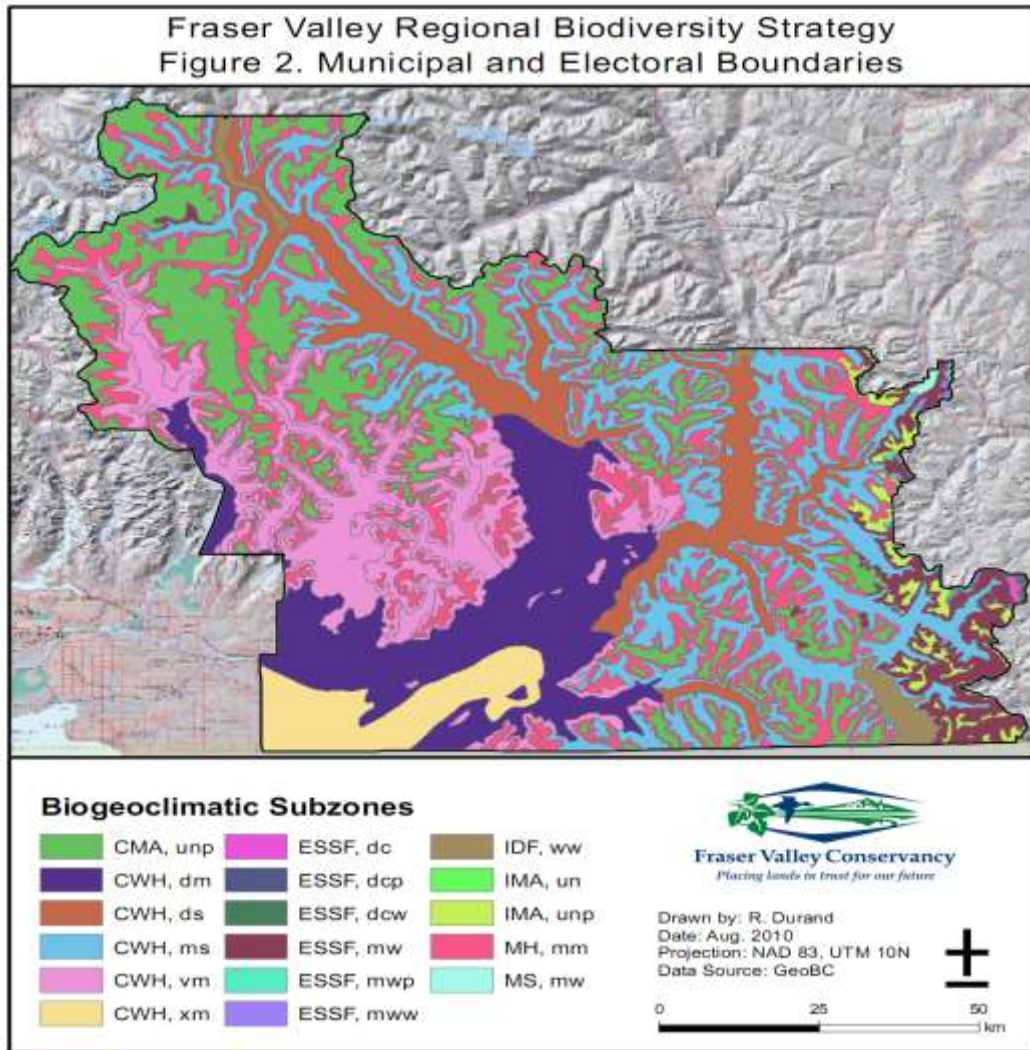
The British Columbia Conservation Data Center lists one hundred and sixty-two unique ecological communities found within the Fraser Valley. Thirty-one of these are red-listed or considered extirpated, endangered or threatened, while a further thirty-eight are blue listed or considered vulnerable¹¹. Ecological communities can be large and widespread, isolated to large patches of habitat, small patches of habitat or linear in nature and associated with both aquatic and terrestrial components. In many cases threatened or vulnerable ecological communities coincide with both plant and animal species at risk. Once identified, threatened or vulnerable ecological communities should be prioritized for conservation efforts. Specifically in those instances where the community is also considered rare due to unique micro-climatic or soil conditions not found elsewhere in the Province or nationally. A complete list of red and blue listed ecological communities can be found in the appendixes of this document.

⁹ Fraser Basin Watersheds. Accessed November 24th, 2010 at: http://www.fraserbasin.bc.ca/fraser_basin/watersheds.html

¹⁰ Chilliwack River Atlas. Accessed November 24, 2010 at: <http://www.shim.bc.ca/atlas/Chilliwack/watershed.cfm>

¹¹ BC Conservation Data Center. Accessed November 24th, 2010 at: <http://www.env.gov.bc.ca/cdc/>

FIGURE 3: BIOGEOCLIMATIC ZONES



Species at Risk

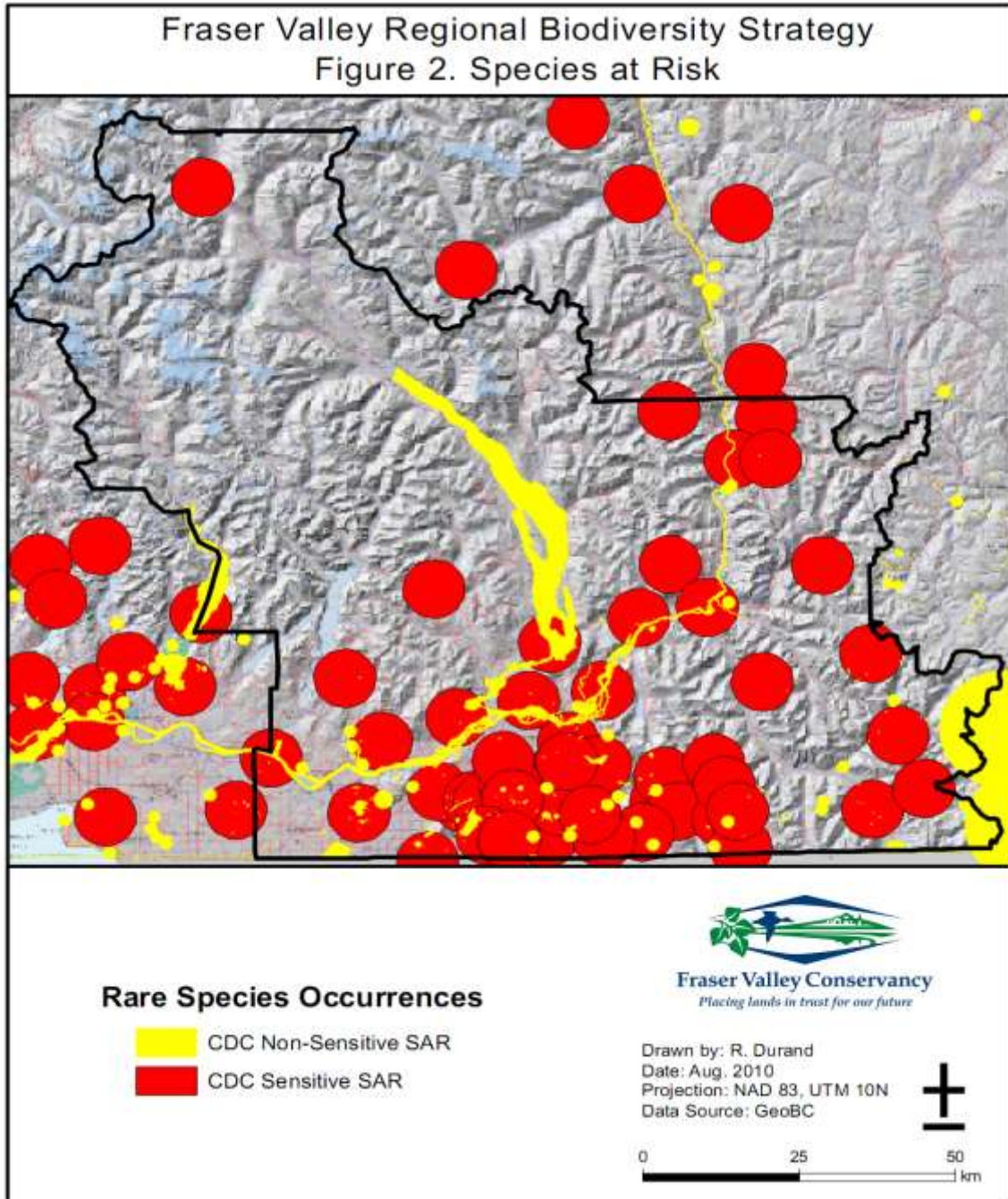
British Columbia is the last Province within Canada to not have developed endangered species legislation, although there are hundreds of both animal and plant species listed as endangered or vulnerable within the Province. Within the Fraser Valley there are twenty-nine red-listed and forty blue-listed animal species and an additional thirty-seven red-listed and eighty-five blue-listed plant species (Figure 4)¹². Many of these species rely on fragmented remnants of habitat for survival and long term resilience.

The British Columbia Wildlife Act, Forest and Range Practices Act and Riparian Areas Regulation to some extent provide for species at risk through habitat protection, although the intent of such legislation is not directed specifically toward species at risk. Loss of habitat is the single

¹² BC Conservation Data Center. Accessed November 24th, 2010 at: <http://www.env.gov.bc.ca/cdc/>

most important contributing factor to the loss of species in British Columbia. Federal legislation is in place under the Species at Risk Act, but because it is very difficult to prove individual actions as having contributed harm or loss of a species at risk, the Act itself does not deter from habitat destruction or degradation. In the Province, overlapping levels of jurisdiction also contribute to poor management and obstacles to recovery plans.

FIGURE 4: RARE SPECIES OCCURRENCES



In the Fraser Valley there are several species at risk that have been subject to Provincial Recovery Planning; these include the Oregon Forestsnail, Coastal Giant Salamander, Mountain Beaver, Oregon Spotted Frog, Pacific Watershrew, Phantom Orchid, Tall Bugbane, Townsend's Mole, and several freshwater species of fish such as Nooksack Dace, Salish Sucker, Umatilla Dace, Speckled Dace, Cultus Pygmy Sculpin and additional species found within the Fraser Valley¹³. Recovery Plans are not statutory in nature and do not commit the Province to any actions contained within the documents, nor is there an obligation toward implementation.

A complete list of species at risk within the Fraser Valley can be found in the appendixes of this document.

Natural Areas

Lands within the Fraser Valley are primarily managed as Crown lands or resource lands. Lands within Provincial jurisdiction may be used for forestry, mining, hydro production, recreation and a multitude of other resource based activities. Activities on Crown land are generally managed under various Provincial regulations intended to safeguard natural heritage values while providing an economic benefit to the Province. Within Crown lands are vast areas of green space which contribute significantly to the biodiversity of the region. In addition to resource based activity on Crown lands, some lands have been set aside for their conservation and recreational values, such as those lands held within Provincial Parks, Ecological Reserves and Forest Recreation Sites.

Provincial parks within the Fraser Valley include the Coquihalla Summit, EC Manning, Cascade, Chilliwack Lake, Skagit, Bridal Veil Falls, Nicolum River, Coquihalla Canyon, Silver Lake, Cultus Lake, Kilby, Sasquash, Emory Creek, Alexandra Bridge, Nahatlatch, and Rolley Lake. Many of these parks have vast areas intended for conservation purposes, while others are primarily focused on the provision of outdoor recreation opportunities. Provincial parks are managed areas where visitor impacts are directed to areas of less sensitivity. Ecological Reserves found within the Fraser Valley, such as the Skagit River Rhododendrons, Chilliwack River, Vedder Crossing (Katherine Tye), Fraser River, Yale Garry Oaks, and Stoyoma Creek are areas set aside specifically for the protection of unique natural heritage values¹⁴.

Forest Recreation Sites within the region include Allison Pool, Apocynum, Bear Creek, Camp Foley, Cascade Peninsula, Chehalis River, Chipmunk Peninsula, Cogburn Beach, Elk-Thurston Trail, Fir Flat, Francis Lake, Grace Lake, Hale Creek, Kenyon Lake, Log Creek, Long Island Bay, Lookout Lake, Nahatlatch River, Rainbow falls, Rapids, Riverside, Scuzzy Creek, Sunrise Lake, Tamihi Creek, Thurston Meadows, Twenty Mile Bay, Weaver Lake, Wells Peak, Wolf Lake, and

¹³ Ministry of Environment. 2008. Recovery Teams and Implementation Groups. Accessed November 30, 2010 at: http://www.env.gov.bc.ca/wld/documents/recovery/RcvryTeams_RIGs_BC.pdf

¹⁴ BC Parks. 2010. Accessed on December 2nd, 2010 at: <http://www.env.gov.bc.ca/bcparks/>

Wood Lake. Forest Recreation Sites tend to be smaller in nature and extensively used for outdoor recreational activities¹⁵.

Federal lands, such as those under the jurisdiction of the Department of National Defense and various reserve lands under the jurisdiction of local First Nations can also contribute significantly to the region's inventory of green space and biodiversity values. Such lands may be vacant or set aside specifically for the conservation of natural heritage features.

Regional Parks within the Fraser Valley include the Cheam Lake Wetlands, Cascade Falls, Neilson, Dewdney, Island 22, Sumas Mountain, Thacker, Thompson, and Cheam Ridge¹⁶. Smaller municipally based park systems also exist within member municipalities and contribute significant urban green space or provide habitat refuge for select species in areas where fragmentation is expected to be greatest.

¹⁵ BC Recreation Sites and Trails. Accessed December 2, 2010 at: <http://www.sitesandtrailsbc.ca/>.

¹⁶ Fraser Valley Regional District. 2010. Accessed December 2, 2010 at: <http://www.fvrd.bc.ca/Services/ParksandTrails/ExploreourParks/Pages/default.aspx>.

THREATS TO BIODIVERSITY IN THE FRASER VALLEY

Biodiversity within the Fraser Valley is impacted by human activity at a local scale as well as anthropological and natural trends at a scale in which there is very little local control over, such as climate change. Impacts to local natural capital may also originate in areas beyond the boundaries of this strategy, such as those that occur upstream of the Fraser River or areas south of the border. The strategy focuses on those identified threats to biodiversity that are most evident in the region and those in which changes in behavior at a regional scale can be of most impact.

Urban and Rural Land Development

The Fraser Valley Regional District has seen its population double every 20 years since the 1960's and this growth trend is expected to continue. Although the region is nearly 14,000 square kilometers, most settlement is contained within one percent of the total land base, concentrated along the lower Fraser Valley. Large municipalities include the cities of Chilliwack and Abbotsford and the District of Mission. Smaller municipalities found north of the lower Fraser and along the Fraser Canyon include Hope, Harrison Hot Springs and Agassiz/Kent¹⁷. The region is experiencing intense urban and rural development pressure in these areas, in addition to agricultural development and activity. The Fraser Valley is the most productive agricultural area in the Province and urban and rural development lands are partially constrained by the Provincial Agricultural Land Reserve (ALR).

Urban and rural land development has led to increased fragmentation of natural habitat, and although concentrated in only a limited area of the region as a whole, those areas experiencing development pressure tend to also be areas with high biodiversity values, such as valley bottoms and riparian areas. The Fraser Valley Regional District through its Regional Growth Strategy has identified urban growth boundaries for several growth nodes in an attempt to avoid sprawl and reduce the impacts of urban development.

Habitat Fragmentation

Habitat fragmentation within the Fraser Valley can be contributed to both urban and rural land development and natural resource activities; such as recreation, forestry, mining and power production. Crown land encompasses over ninety percent of the land base within the Fraser Valley and is under the jurisdiction of the Province. Forestry and power production is a significant economic driver in the Fraser Valley and most of the Crown land base has been

¹⁷ Fraser Valley Regional District. 2003. Fraser Valley Regional District Regional Growth Strategy Bylaw No. 1569, 2003.

allocated for timber harvesting. Current forestry practices fall under the mandate of the Forest and Range Practices Act and is governed both in part by industry and the Ministry of Forests, Lands and Mines. Within the Forest and Range Practices Act are parameters in which forestry companies must operate to ensure that sensitive natural areas and species under the Wildlife Act and Species at Risk Act are protected¹⁸. However, in many cases the information available to forestry companies and the Province is at a scale which makes site specific management plans for such values difficult to implement or act upon on the ground.

Crown lands are also subject to other land based activities that can impact on biodiversity values, such as the obstruction of streams and rivers for hydro electric power generation which can negatively impact on fisheries values, amphibians, and other wildlife dependent on both aquatic and riparian habitat. Outdoor recreational activity can also cause fragmentation through trail development and compaction, disturbance of vegetation and wildlife and the removal of materials.

Invasive Species

An invasive plant or animal species is defined as any non-native species which has the potential to pose undesirable or detrimental impacts to humans, animals or eco-systems. These species may compete aggressively with native plants and animals eventually displacing them from various areas and reducing biodiversity. Invasive plant species of concern in the Fraser Valley include the following:

- Tansy ragwort (*Senecio jacobaeae*);
- Wild chervil (*Anthriscus sylvestris*);
- Purple loosestrife (*Lythrum salicaria*);
- Himalayan balsam (*Impatiens glandulifera*);
- Giant hogweed (*Heracleum mantegazzianum*);
- Spotted knapweed (*Centaurea stoebe*);
- Japanese knotweed (*Polygonum cuspidatum*);
- Himalayan knotweed (*Polygonum polystachyum*);
- Scotch broom (*Cytisus scoparius*);
- Gorse (*Ulex europaeus*);
- Canada thistle (*Cirsium arvense*);
- utterfly bush (*Buddleja davidii*); and
- Yellow flag iris (*Iris pseudacorus*¹⁹).

¹⁸ Ministry of Forest, Lands and Mines. 2010. <http://www.gov.bc.ca/for/>

¹⁹ Fraser Valley Invasive Plant Partnership. Accessed December 8, 2010 at: http://www.fraservalleyweeds.com/invasive_plants.htm

In addition to the above mentioned plant species, there are several introduced freshwater fish species, mollusks, and avian species known to compete with native species for habitat and food sources.

Due to a lack of natural predation and competitive species, invasive plant and animal species are difficult to control. In the case of plant species, removal over time can be successful, if seed pods and roots are also removed. Freshwater fish stocking has resulted in the introduction of non-native fish species in Fraser Valley lakes and streams. The careful consideration of these practices in areas of vulnerability may lead to the recovery of native fish stocks. Other animal species known to compete directly with native species are more difficult to manage once introduced, due to the nature of these species thriving on the same habitat conditions of native species and management actions potentially having negative influence on both desired and undesired species.

Climate Change

Climate change within the Fraser Valley will result in significant challenges for local communities and conservation organizations. An expected rise in sea level along the Pacific coast and increased precipitation in the winter and early spring may lead to increased frequency and severity of flood and debris torrent events in the Fraser Valley. This may have detrimental impacts to fisheries and riparian values in the region. Summer droughts caused by an increase in air temperature will also put stress on domestic and agricultural water supplies, lowering stream flows in the late summer months and putting fish and amphibian species at risk. Drier summer conditions can also lead to an increase in frequency and severity of wild fire in the region and the potential for insect or other pathogens to become widespread in forest eco-systems²⁰.

Contiguous corridors of habitat will be of high importance to allow for both plant and animal species to travel or shift as a result of increases in temperature. In addition, riparian vegetation and cover will become increasingly important to assist in temperature regulation in streams. Climate modeling and scenario development can allow for the development of adaptation and mitigation strategies at a local level.

Water and Air Pollution

The most significant contribution to non point source water pollution within the Fraser Valley is the agricultural industry. Nitrate has been identified in several aquifers and fresh water streams within the Fraser Valley as a result of leaching from manure and fertilizer. Increased organic leaching in streams can lead to increased levels of nitrate and phosphorous resulting in algae

²⁰ Climate Change Impact Scenarios for Metro Vancouver. Accessed December 10, 2010 at: <http://www.metrovancouver.org/planning/ClimateChange/ClimateChangeDocs/ClimateChangeImpactScenarios.pdf>

blooms and oxygen depletion. Depleted oxygen levels in streams have led to fish mortality and reduced health of fish stocks in specified areas²¹.

The Fraser Valley is in a confined air shed in which air pollutants tend to accumulate. Ground level ozone and inhalable particulate matter are of particular concern. Common air contaminants can also reach unacceptable levels and are generally a result of population growth, increased use of motorized vehicles, and emissions from Metro Vancouver. The summer months are where air quality concerns are most prevalent because of low pollutant dispersal capabilities during the warmer months²².

Water and air pollution can put stress on ecological communities making it more difficult for species to adapt to other environmental impacts.

²¹ Ministry of Environment, Lands and Parks. 1999. Tackling Non-Point Source Water Pollution in British Columbia: An Action Plan. Victoria. Queen's Printer.

²² Fraser Valley Regional District. 1998. Fraser Valley Air Quality Management Plan.

ROLES AND RESPONSIBILITIES

Biodiversity and the natural capital found within the Fraser Valley are important to the health and welfare of Canadians living both locally within the region and across the country. Natural heritage values found here are found no where else across the Province and in some cases Canada. The responsibility for conservation or protection of these values, restoration of modified ecological communities, and the management of impacts on local biodiversity falls across many jurisdictional boundaries. The following outlines the role and responsibility of each level of government and of local conservation groups and individuals.

Federal Government

The federal government is responsible for issues regarding biodiversity that cross international and provincial boundaries. This role generally falls under Environment Canada, which oversees the Canadian Wildlife Service and the Canadian Endangered Species Conservation Council and the Department of Fisheries and Oceans. Environment Canada has responsibility for the management of natural resources, including wildlife and species at risk. It does this through the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) which is a centralized scientific body that assesses the state of species across the country. Recommendations are then made to the federal Species at Risk program for the listing of endangered and vulnerable species. Key legislation for the management of biodiversity under Environment Canada include the Species at Risk Act, Migratory Birds Convention Act, Recovery of Nationally Endangered Wildlife Program (RENEW), and the Canada Wildlife Act. The federal Fisheries Act is administered by the Department of Fisheries and Oceans.

The federal government is limited in terms of not being involved in biodiversity efforts solely under the jurisdiction of the provinces or territories. Not all species listed within British Columbia are recognized under the Species at Risk Act or listed by COSEWIC. Natural Resources Canada and Environment Canada provide research on best practices and provide funding for recovery planning for species at risk recognized at a federal level. The Habitat Stewardship branch of Environment Canada provides funding for local conservation and restoration initiatives. The Department of Fisheries and Oceans has been instrumental in stream stewardship initiatives throughout the Fraser Valley due to the importance of regional waterways for pacific salmon²³.

²³ Environment Canada. Canada Biodiversity Initiative. Accessed December 11, 2010 at: <http://www.cbin.ec.gc.ca/>

Provincial Government

The Ministry of Environment is the provincial ministry responsible for the conservation and recovery of species at risk. It does this through the identification and assessment of plant and animal species through the BC Conservation Data Center. The BC Conservation Data Center ranks species based on population and distribution characteristics highlighting those that are considered endangered or vulnerable to enable further investigation for listing under the provincial Wildlife Act or federally. The Ministry also undertakes Recovery Planning for specified species. In collaboration with the Ministry of Forests and Range an initiative referred to as the Integrated Wildlife Management Strategy identifies regionally important wildlife and species at risk requiring consideration during the development of natural resource plans. British Columbia is the only province in Canada to not have enacted specific Species at Risk legislation²⁴.

The Ecosystems Branch of the Ministry of Environment also conducts mapping and modeling through sensitive ecosystem inventories (SEI), fisheries and wildlife inventories, terrain mapping and soil mapping. These resources are invaluable to conservation efforts by both conservation groups and land use and natural resource planners. Guidelines and Best Management Practices have also been developed to assist local governments, stewardship and conservation organizations and individual property owners. The province provides funding and support for various conservation initiatives and the restoration of modified natural areas through the Habitat Conservation Trust²⁵.

The provincial government contributes to biodiversity efforts through the establishment and management of provincial parks and ecological reserves. These protected areas provide a refuge for plants and animals and act as a baseline for research into the impacts of land management decisions made elsewhere. Strategic Land Use Planning has also occurred in most of the Province resulting in the identification of sensitive and important areas for conservation efforts. Recent initiatives undertaken by the province include parameters for old growth management areas and biodiversity within the Forest and Range Practices Act, Fisheries Act, and Environmental Assessment Act, Invasive Alien Species Framework for BC, the Climate Change Action Plan and Forests for Tomorrow²⁶.

²⁴ Ministry of Environment. 2010. Ecosystems Branch. Accessed December 11, 2010 at: <http://www.env.gov.bc.ca/wld/>

²⁵ Ministry of Environment. 2010. Ecosystems Branch. Accessed December 11, 2010 at: <http://www.env.gov.bc.ca/wld/>

²⁶ Biodiversity BC. 2007. What's Being Done. Accessed December 11, 2010 at: <http://www.biodiversitybc.org/EN/main/22.html>

First Nations

First Nations have been responsible for and dependent upon biodiversity for thousands of years, for traditional diets, cultural expression, and material goods²⁷. The loss of biodiversity has had impacts on traditional lifestyles and livelihoods and is a significant concern to First Peoples in the Fraser Valley.

Local First Nations have been involved in the inventory of biological resources on their lands, conservation efforts, and the restoration of streams and natural areas within the Fraser Valley. First Nations participate in the review of land use management plans within their traditional territories and have been instrumental in ensuring that biodiversity values within regional fisheries and forest management plans are taken into consideration.

Local Government

Local governments regulate land use on private lands and have limited authority over provincial or federal lands although these lands may comprise a large proportion of their area. Private lands may comprise a smaller area within a local government, but may be distributed in a manner in which species at risk are most vulnerable. The Fraser Valley Regional District and its member municipalities are governed by the Local Government Act and the Community Charter and have the ability to pass and administer bylaws that regulate the use of private lands as they pertain to servicing, protection of the natural environment, development, soil removal and deposit, and parks. Lands held within the Agricultural Land Reserve (ALR) are also managed in part by the provincial Agricultural Land Commission.

The Fraser Valley Regional District has adopted a Regional Growth Strategy that has established urban growth boundaries and identified areas of ecological importance. Through this initiative a Fraser Valley Regional Habitat Atlas was created that focuses on aquatic habitat and fisheries values. Habitat Atlases have also been created for the City of Abbotsford, Cultus Lake and the Chilliwack River Valley²⁸.

The Regional District and member municipalities have the most influence over biodiversity goals and values through the establishment of Development Permit areas under Official Community Plans. Official Community Plans can designate development permit areas for the protection of the natural environment, its ecosystems and biological diversity; protection of development from hazardous conditions; the form and character of intensive residential development, commercial and industrial development; and objectives for energy conservation, water conservation and to promote the reduction of greenhouse gas emissions. There are additional

²⁷ Turner, Nancy. 2007. Importance of Biodiversity for First Peoples of British Columbia. Prepared for Biodiversity BC. University of Victoria.

²⁸ Community Mapping Network. 2010. Accessed December 10, 2010 at: <http://www.shim.bc.ca/atlasses/atlas.html>

powers not directly related to the achievement of biodiversity objectives as well. The Regional District has development permit areas for the protection of ecologically sensitive areas within Electoral Areas C, D, E and G. Development Permit areas for the protection of development from geotechnical hazards are outlined in Electoral Areas A and B, which may or may not also serve to provide for biodiversity values found in those areas²⁹. All member municipalities have similar Development Permit Areas for the protection of water quality and natural features.

In addition to Development Permit areas, the Fraser Valley Regional District and its member municipalities all fall within the area for implementation of the Riparian Areas Regulation which requires an assessment of any development within a specified area of watercourses. This regulation was put in place primarily for the protection of fisheries values, but has also been beneficial to other aquatic species and the conservation of riparian corridors.

Biodiversity objectives can also be met through public education initiatives that are best delivered through local governments due to their close relationship to private landowners and developers. Local governments can also contribute to biodiversity through partnerships with other governmental jurisdictions, educational facilities, and with local conservation groups.

Non-profit Organizations

There is a multitude of conservation and stewardship groups within the Fraser Valley focused on biodiversity objectives. These include groups primarily focused on fisheries, stream restoration, lands in trust or land purchases, invasive plants, and natural areas. Many of these groups are aware of one another and many have partnered or collaborated in their efforts. Non-profit organizations play a key role in biodiversity efforts through education and outreach, fundraising, volunteerism, natural systems restoration, monitoring and research.

²⁹ Fraser Valley Regional District. Land Use Bylaws. Accessed December 10, 2010 at: <http://www.fvrd.bc.ca/INSIDETHEFVRD/BYLAWS/LANDUSEPLANNINGANDDEVELOPMENTBYLAWS/Pages/OfficialCommunityPlans.aspx>

BIODIVERSITY CONSERVATION VISION AND GOALS

The Fraser Valley remains a region rich in natural capital; with healthy and resilient ecological communities, and a diverse range of plant and animal species. The vision for a FVRBS is to coordinate biodiversity initiatives under one plan and to support and strengthen existing biodiversity actions.

The goals of the strategy should be:

- 1) Provide data and planning tools to community groups, individuals, and governments undertaking biodiversity actions now and into the future;
- 2) Facilitate the timely delivery of data and resources to undertake these biodiversity actions; and
- 3) Increase partnerships and collaboration between Fraser Valley stewardship groups and all levels of government.

STRATEGIC DIRECTIONS

The Fraser Valley has strong leadership in local government, federal and provincial agencies, first nations and conservation groups. These groups have come together collaboratively to work toward sustainability and biodiversity goals, be it strategic watershed planning, stream restoration or research. These initiatives have laid the foundation for future efforts and successes amongst these groups.

The following outlines gaps and opportunities that have been identified toward biodiversity conservation in the region.

Organizational Capacity

Leadership and volunteerism in the Fraser Valley is strong, but duplication of effort and a lack of strategic planning amongst stewardship groups and agencies can lead to unnecessary competition and a loss of incentive or energy toward conservation goals. Communication and collaboration amongst local stewardship groups, first nations and governmental agencies can assist in bringing these groups together and allow for shared responsibility. Collaboration can also allow for better knowledge sharing and best practices to be shared amongst groups and identify remaining areas of overlap and/or gaps in responsibility for biodiversity.

State of Biodiversity

A lack of scientifically based information on the state of biodiversity within the Fraser Valley is a common barrier to effective conservation efforts. Sensitive Habitat Inventory Mapping (SHIM), Recovery Planning for Species at Risk and other conservation based data collection is contributing to better decision making based on sound knowledge. Existing mapping and inventories should be refined and built upon, ensuring that provincial standards are met or exceeded. Habitat losses and gains should also be accounted for over the long term to account for changes to species composition and designation. Inventories allow for performance measures and indicators to be communicated and understood.

Legislation and Regulation

Cross jurisdictional roles and responsibilities often lead to biodiversity values falling through the cracks. Legislation and regulations at all levels of government need to be examined and better coordinated to ensure that biodiversity values are kept in the forefront of land use decision making. Existing regulations and legislation can then be better utilized. Biodiversity should be integrated into existing plans and regulations such as official community plans and regional growth strategies through the use of best management practices and shared resources for decision making. Local and regional governments are best suited to regulate privately owned lands, but should also be involved in decision making on Crown lands within community

interface areas. A continued relationship between provincial agencies, local governments and industry can lead to knowledge based decision making that is of benefit to all parties.

Implementation and Enforcement

Too often planning efforts are not implemented and forgotten over time either due to funding constraints or lack of incentive. In addition, the resources for enforcement of existing regulations, such as species at risk legislation, are often inadequate or weak. Planning for biodiversity must account for the long term resources required for implementation and enforcement. Education and incentives can assist in ensuring that biodiversity goals are understood and promoted during development activity can be incorporated into the building and permitting process at a local government level.

Monitoring

A comprehensive database of restoration and stewardship efforts should be developed to allow for long term monitoring of progress and successes. Monitoring of past projects can lead to adaptive management during the development of new and existing projects and can also lead toward prioritization of conservation efforts.

Building on Existing Natural Capital Infrastructure

Connecting existing natural habitats along riparian corridors or enhancing existing natural area through restoration efforts can build on biodiversity values within the Fraser Valley. Connectivity allows for species to travel and builds genetic diversity amongst populations. Building on green infrastructure can include placing lands in trust, land purchase and acquisition, and other securement strategies.

Enhancing and Restoring Biodiversity Values

Restoring modified landscapes and enhancing existing natural areas through buffering or private land stewardship are important components of a biodiversity strategy for the region. In many areas, stream modification or degradation has led to fish mortality or obstacles to fish passage. Restoration efforts ensure that wildlife corridors and stream health are improved and ensured.

Education and Voluntary Stewardship

Private land stewardship is important in the Fraser Valley where many species at risk are located in areas experiencing development pressure. Tax incentives and public education can motivate private landowners to follow conservation principles and improve private land stewardship efforts.

MOVING FORWARD

Biodiversity is a shared responsibility and in order to move forward toward the stewardship of biodiversity values in the Fraser Valley, a coordinated and collaborative approach is required. The following outlines some key initiatives that have been undertaken in the Fraser Valley that provide leadership in this regard.

Case Study 1: Sumas Mountain Sensitive Ecosystems Inventory Mapping

The Sumas Mountain Sensitive Ecosystems Inventory (SEI) Mapping is a knowledge based effort to improve information regarding Species at Risk and Ecological Communities at Risk within a specified area of the City of Abbotsford (COA) and Fraser Valley Regional District (Area G). The project originated in 2004 with the COA completing Sensitive Habitat Inventory Mapping (SHIM) of most COA lands on Sumas Mountain to accurately map watercourses and wetlands. Since then, several hundred kilometers of watercourses have been mapped and described, and over one thousand new occurrences of rare species were recorded. In 2009 and 2010 the COA and Fraser Valley Conservancy (FVC) completed Terrestrial Ecosystem Mapping, SEI mapping, and Species-at-Risk habitat suitability assessments over the entire mountain resulting in one of the most comprehensive inventories in the Province. The Sensitive Ecosystem Inventory will allow the city to develop Development Permit Areas within the newly acquired area of the city, as well as the development of conservation plans. The FVC will utilize the data to focus conservation, stewardship and land acquisition projects, and work with the COA to promote conservation activities.

Case Study 2: Chilliwack River Watershed Strategy

The Chilliwack River Watershed Strategy is a multi-stakeholder collaborative watershed planning process that began in 2005. The planning process brought together government agencies, First Nations and stewardship groups to enter into dialogue on shared issues and opportunities involving the Chilliwack River watershed. A backgrounder was developed and several steering committees worked on the development of recommendations on a variety of prioritized issues. As a part of the on-going project, site specific stream restoration efforts and other stewardship initiatives were undertaken on the ground. This project is an excellent example of collaboration and cooperation amongst stakeholders in the Fraser Valley. The project was initiated through a partnership between Fisheries and Oceans Canada, the Fraser Valley Regional District and the Fraser Valley Watersheds Coalition.

The project resulted in development of a comprehensive backgrounder, annotated bibliography, issues and discussion papers and on-going prioritization of natural habitat restoration within the watershed. More information pertaining to this initiative can be found on the project website at: <http://www.chilliwackwatershedstrategy.ca/>.

Case Study 3: Fraser Valley Bald Eagle Festival

The Fraser Valley Bald Eagle Festival was founded in 1995 to bring together people within the Fraser Valley together to celebrate biodiversity and witness the third largest gathering of bald eagles in the Province. Celebrated every third weekend in November, the festival brings together a variety of stakeholders; including naturalists, First Nations, community groups, Chamber of Commerce and all three levels of government, whom are involved through hosting events and sitting on the event's steering committee.

The festival holds a variety of events highlighting the region's biodiversity, with a focus on salmon and bald eagles, their interdependency and lifecycles. Events are typically held from Mission throughout the valley as far east as Chilliwack and often include a keynote speaker whom kicks off the event each year. Past speakers have included environmental advocate David Suzuki, Sto:lo Chief Frank Malloway and artist Robert Bateman.

More information on this initiative can be found on the festival website at:

<http://fraservalleybaldeaglefestival.ca/>

APPENDIX 1: STEERING COMMITTEE MEMBERS

Last Name	First Name	Organization/ Title	Email
Dadalt	Wendy	MVRD Parks, East Area Manager	wendy.dadalt@gvrd.bc.ca
Demarcke	Janet	City of Chilliwack, Environmental Services Manager, COC Engineering Dept.	demarcke@chilliwack.ca
Durand	Ryan	Taara Environmental	rdurand@taara.ca
Fox	Lisa	Fraser Valley Conservancy	lfox@abbotsford.ca
Gadsden	Gord	Parks Resource Technician, Fraser Valley Regional District	ggadsden@fvrd.bc.ca
Helbrecht	Lynn	Washington Biodiversity Conservation Strategy	lynn.helbrecht@biodiversity.wa.gov
Jarvis	Janice	Metro Vancouver, Regional Parks, Resources Management Specialist	janice.jarvis@metrovancover.org
Kirkby	Jan	CWS	jan.kirkby@ec.gc.ca
Knight	Rob	Ministry of Environment, Project Coordinator, Lower Mainland Region	rknight@telus.net
Knopp	Denis		bcwilddenis@uniserve.com
Lilley	Lance	FVRD Watershed Planner	llilley@fvrd.bc.ca
Mason	Brad	DFO, Habitat Inventory Coordinator	brad.mason@dfo-mpo.gc.ca

Last Name	First Name	Organization/ Title	Email
Meier	Jennifer	District of Mission, Environmental Coordinator	jmeier@mission.ca
Mordy	Susan	MOE, GIS Department, Spatial Information Analyst	susan.mordy@gov.bc.ca
Pearson	Mike	Fraser Valley Watershed Coalition, Chair/ Salish Sucker Recovery Team	mike@pearsonecological.com
Perrin	Janne	Chilliwack Field Naturalists President	djperrin@uniserve.com
Saaltink	Henk		henkjs@telus.net
Scott	Michelle	Fraser Valley Regional Biodiversity Strategy Coordinator	michelle_scot80@hotmail.com
Shead	Rod	COA Environmental Coordinator	rshead@abbotsford.ca
Skydt	Paul	CWS greentoolkit	pskydt@shaw.ca
Tanaka	Andrea	Environment Canada, CWS, Planning Analyst	andrea.tanaka@ec.gc.ca
Tranah	Margaret	Chilliwack Field Naturalists	margaret_tranah@hotmail.com
Wilkinson	Kathleen	Central Valley Naturalists	kwilkins2@shaw.ca
Younie	Mike	District of Mission, Manager of Environmental Services	myounie@mission.ca

APPENDIX 2: STEERING COMMITTEE QUESTIONNAIRE

This questionnaire was used to compile feedback from the steering committee, interested parties and stakeholders. The suggestions, comments and information provided were incorporated into the summary document.

1. Are there any plant species that you think would benefit from further protection or rehabilitation efforts in the Fraser Valley (aside from any SAR)?
2. Are there any animal species that you think would benefit from further protection or rehabilitation efforts in the Fraser Valley (aside from any SAR)?
3. Are there any watercourses that you feel should be a priority for rehabilitation, restoration or protection in the Fraser Valley?
4. What sensitive ecosystems/ areas are in need of protection, restoration or rehabilitation in the Fraser Valley?
5. In your opinion, what are the main threats to biodiversity in the Fraser Valley? Please elaborate or be specific if necessary.
6. What are some valuable conservation actions that could be undertaken to address biodiversity issues in the FV? (i.e. monitoring, mapping, community outreach, education, garbage cleanups etc.)
7. How are you willing to participate during the development of the Fraser Valley Regional Biodiversity Strategy?
8. What data should we acquire during this process?
9. Are there gaps in data that you are aware of that should be addressed?
10. Should a Memorandum of Understanding be developed for this process?
11. Is there anyone that you are aware of who may be interested in participating in this process or may wish to contribute in some way? (Please see 5.3 Strategy Participants and Interested Parties for a full list of those involved in developing the FVRBS).

APPENDIX 3: MEETING LOG

Meeting Date	Meeting Attendees	Municipality or Electoral Area	Meeting Outcomes
May 22, 2009	Lisa Fox, Rod Shead, Pauline Favero, Michelle Scott	City of Abbotsford	<p>The FVRBS could work towards creating an online information tool for municipalities and electoral districts which would house a list of BMPs relating to specific species at risk, watercourse management and development guidelines, and other pertinent information relating to the conservation of biodiversity within the Fraser Valley. At present there are websites that provide this information, such as the Stewardship Centre for BC and at www.speciesatrisk.bc.ca, which relates to species at risk and local governments. It may be more beneficial to add information to these existing sites rather than creating a new online resource. Educational outreach material could also be compiled and offered through this site and used for educating the public and municipal staff about biodiversity conservation. Local governments could select resources based on their needs and could design education programs for specific topics and target audiences. An interactive map was also suggested as a potentially useful tool. The map, for example, could display icons for the location of rare species occurrence. Once an icon is selected for a particular species all the related BMPs, fact sheets and field guide information would be displayed. Having all this information in one place would allow for faster and more efficient access to data needed by municipal staff and conservation groups. Abbotsford staff also felt that it would be useful to be able to view or add watercourse buffers into the interactive map.</p>
May 25, 2009	Lisa Fox,	Village of Harrison Hot	A day tour of the Village of Harrison Hot Springs East Sector, the recently purchased Kingma Developments parcels 3 and 4 just east of McCombs Drive, as well as the Nine

Meeting Date	Meeting Attendees	Municipality or Electoral Area	Meeting Outcomes
	<p>Janne Perrin, Grant Sanborn of H.G. Sanborn & Associates Inc., Mayor Ken Becotte, Councillor Alan Jackson,</p> <p>Mark Surakka, Caroline Astley, Denis Knopp, Elizabeth Scotson,</p> <p>Peter Kingma of Kingma Developments, Michelle Scott</p>	Springs	<p>Bridges Trail were completed. Below is an informal wildlife inventory that was taken throughout the day.</p> <p>Northern Alligator Lizard</p> <p>Common Yellowthroat</p> <p>Dark-eyed Junco</p> <p>Black Headed Grosbeak</p> <p>Rufus Hummingbird</p> <p>Cedar Waxwing</p> <p>Chickadee</p> <p>Swainson’s Thrush</p> <p>Northwestern Salamander egg masses</p> <p>Willow Flycatcher</p> <p>Yellow Warbler</p> <p>Downy Woodpecker</p>

Meeting Date	Meeting Attendees	Municipality or Electoral Area	Meeting Outcomes
			<p>Black Bear scat and tracks</p> <p>A formal biological inventory of the East Sector lands was undertaken by Denis Knopp in August and September 1998 for the Green Legacy Society. A number of red and blue listed species were observed during the study including Pacific Water Shrew, Great Blue Heron and Trowbridge Shrew. Species such as the Peregrine Falcon, American Bittern, Green Heron, Turkey Vulture, Barn Owl, Lewis' Woodpecker, and Salish Sucker have been historically recorded in the East Sector Park area. The potential presence of many other red and blue listed species is also high due to habitat suitability and species migration through the area.</p> <p><u>Strategy Recommendations for the Village of Harrison Hot Springs</u></p> <p>Due to the importance of the East Sector park area for wildlife habitat value and Harrison residents, a Wildlife Management Area designation or the renewal of leased park land is desired to conserve this important place. With the help of the Fraser Valley Regional Biodiversity Strategy and Steering Committee perhaps this goal could be realized. A more comprehensive wildlife/ vegetation inventory is also desired for the East Sector which could perhaps be completed by the University of the Fraser Valley. The completion of an official Parks and Trails Master Plan is also desired in the East Sector prior to the start of development on parcels 3 and 4. Peter Kingma has suggested that a meeting should be organized between Kingma Developments, the Village of Harrison Hot Springs, the FVRBS/ FVC, Green Legacy Society, Chilliwack Field Naturalists, and the Fraser-Harrison Smart Growth to facilitate further discussion on</p>

Meeting Date	Meeting Attendees	Municipality or Electoral Area	Meeting Outcomes
			<p>how to best conserve and manage the East Sector lands.</p> <p>The designation of and Important Bird Area at Whippoorwill Point is also desired. This location is an important feeding and resting place for migrating birds as is the East Sector Park. The FVRBS could also help with this objective.</p>
<p>May 27, 2009, Site tour June 17, 2009</p>	<p>Jennifer Meier, Mike Younie, Michelle Scott, Lisa Fox (present for site tour)</p>	<p>District of Mission</p>	<p>The District of Mission staff supported the idea put forward by the City of Abbotsford to have an online data and information database but felt that it would be more beneficial to add information to an existing site rather than creating a new one. This site should provide a clear path to implementation and enforcement of BMPs for specific species. A list of R.P.Bio reports on development sites should also be made available. The FVRBS could also investigate a process to make reporting by R.P.Bios mandatory. The FVRBS should be supported by all councils in order to make the implementation of BMPs easier for municipal staff. Having the support of council would also aid in the passing of municipal bylaws relating to the conservation of biodiversity.</p> <p>The District of Mission staff also support the undertaking of SEI or TEM work throughout the FVRD. This type of mapping would help in the identification and designation of environmentally sensitive areas.</p> <p>Any restoration projects undertaken by the FVRBS should have the approach of an overall net gain rather than no net loss of habitat. Some examples of restoration projects that could be undertaken in the FVRD are the creation of small backyard habitats as well as the restoration of brown fields and farmland. Some projects that could be undertaken specifically in the District of Mission would be the restoration of</p>

Meeting Date	Meeting Attendees	Municipality or Electoral Area	Meeting Outcomes
			<p>the section of Lane Creek that flows through the city centre. Lane Creek could be daylighted and restored as a meandering channel with healthy riparian habitat. Perhaps brown field restoration could also occur along the Fraser River in an effort to create more favourable habitat for resident sturgeon populations.</p> <p>Promotion of stewardship is especially important in the District of Mission and the recognition of conservation efforts in the Fraser Valley could be made through the FVRBS.</p> <p>It is essential that the development community is aware of the FVRBS initiative and involved in the planning and implementation of the strategy. Perhaps a representative from the Real Estate Foundation of BC could be contacted to participate on the FVRBS steering committee and provide feedback on how to best involve the development community. A representative from the Union of BC Municipalities could also be approached to participate in the FVRBS steering committee.</p> <p>The District of Mission staff also provided a tour of successful restoration projects and potential restoration sites throughout Mission. There are several gullies throughout town where invasive species removal could take place such as at Windeband Creek and Jamieson Creek. The Silverdale Wetlands are an example of a successful restoration project. Salmon spawning channels have been built and nest boxes for purple martin and swallows have been erected. Native plant species have been planted along the banks of the spawning channels and the park trails and bridges have been improved for better public access. A stop at Mill Pond was also made. Efforts could be made to remove non-native plant and aquatic species from the pond and improved pollution</p>

Meeting Date	Meeting Attendees	Municipality or Electoral Area	Meeting Outcomes
			control measures could be implemented.
June 18, 2009	Denis Knopp, Michelle Scott		A meeting was arranged with Denis Knopp in order to gather more information on biodiversity hot spots throughout the FVRD. A comprehensive list of 20 potential restoration sites and biodiversity hot spots was created and will be added to the existing list of important sites in the FVRD. One of the most important sites discussed was Morris Valley which is just east of the mouth of the Chehalis River. This site provides wintering habitat for many birds. A Wildlife Management Area has been proposed for the Chehalis River delta, but to date has not been approved. The Nature Trust has purchased 478 acres of land at the Chehalis Delta in order to protect this area from development. ³⁰

³⁰ Official Community Plan – Morris Valley, Harrison Mills and Lake Errock; Part of Electoral Area “C”, Bylaw 0020, 1998, Consolidated.

APPENDIX 4: BIODIVERSITY HOT SPOTS, IMPORTANT PLACES AND SPECIES

Important Place	Important Species	Significance	Conservation Efforts
Agassiz Slough		Great bird habitat	
Bear Mountain			
Bridal Creek	Possibly a heron colony located here		<i>Gord Gadsden may be a good source for information on this site</i>
Cedar Valley			An environmental management plan was developed for this area in 1996 and was updated in 2005 with a memorandum of understanding with DFO
Cemetery Hill and Hopyard Hill			Dyking could be done between these hills to allow the Fraser to create marsh land
Cheam Lake Wetlands (just north of Bridal Falls)		Great bird breeding habitat	
Chehalis Delta		Important bird habitat, IBA/ proposed WMA, not yet approved	
Chilliwack River Valley			

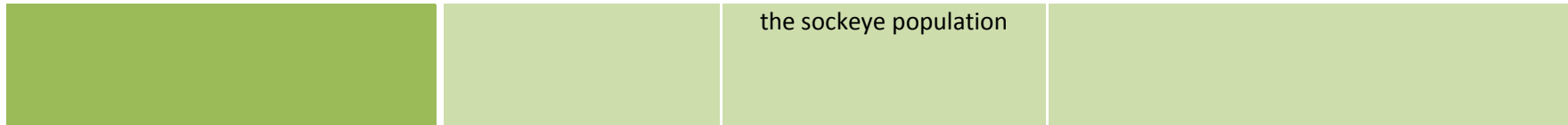
Chilliwack/ Vedder system	Steelhead, rainbow trout, cutthroat trout, Dolly Varden char, mountain whitefish, 5 species of salmon	Important fish habitat	
Cohen Creek Community Watershed		Cohen creek is a tributary of Sakwi Creek, which provides drinking water for some citizens in Electoral Area C	
Columbia Valley			FVC landowner contact is already being done here
Cooks Marsh	Sandhill crane, American bittern breeding area, only breeding area for ruddy ducks in the FV, pintail, shovelers, teal species, green heron		
Coquihalla River Aquifer Protection Area			

Cultus Lake	Cultus Lake sockeye salmon	Genetically unique, spawns in the lake rather than in rivers and streams, latest to spawn of all Fraser River species	Tagging and counting of pikeminnow; annual pikeminnow derby; monitoring of populations at sea, attempts to reduce the number of sockeye caught. Sweltzer Creek (drains Cultus Lake) is an important 3kms; it must be unobstructed for fish to pass through quickly. A Cultus Sockeye conservation team has been assembled and a national conservation strategy has been developed with 4 objectives (pg. 28 'Caring for Cultus').
	Cultus pygmy sculpin	Found only in Cultus Lake, vulnerable to pollution. Full grown adult male is 50mm long	
Ditch at the corner of Towne Rd. and Bellrose Rd.	Coho salmon spawning area, red legged frog		Restoration work could be done here
DND land east of Cultus on the North end		OPSEE lands	Bottom section of the DND land could become part of the park; could introduce Oregon spotted frog here
Dunville and Nevin Creeks		Category 1 watersheds (up to 6mi ²), provide Chilliwack with water	

Goose Lake		Private hunting site (off Lakemount Road)	<i>Talk to Kathleen Fry re access at Central Valley Naturalists</i>
Great Blue Heron Reserve			Could work with farmers to create wintering habitat adjacent to the reserve
Green Mountain			
Gullies throughout the city			Invasive species removal is needed
Harrison River			
Hatzic Lake	Many listed species: bald eagles, swans, cormorants, American bittern	Wintering habitat	Green frog or spotted frog introduction may enhance the area. Lake is full of bullfrogs
Hope Airport		Great bird habitat, great birding area	
Hope Slough			Some salmon restoration work has already occurred here
Judston Lake (located at the end of Clearbrook Rd)	Diverse bird life but lots of introduced species		Restoration work could be done here
Lane Creek			Could be day-lighted and restored
Little Chilliwack River	Salish sucker		In need of better management

McGillivray Slough		New WMA as of April 2009	
McKee Headwaters			
Miami River			
Miami River			Mentioned in OCP, key feature in managing drainage and flooding, enhances quality of environment and tourism, fish bearing
Mill Pond			Restoration work could be done here. Non-native plant and aquatic species could be removed, pollution control is needed
Morris Valley	Sandhill crane	Wintering habitat (Harrison Bay)	** May be the most important place in the FVRD
Mouth of the Vedder River	Fawn lily		
Norrish Creek and Deroche Creek		Could be affected by resource extraction within the watersheds	
Ponds at the end of Ross Road (near Promontory Heights)		Great red legged frog breeding habitat	
Private land near Sarah Falls Creek			Landowners may be open to a covenant. Located off Edmonston Road (<i>owner is Ali Edmonston</i>)

Reserve land near Sweltzer Slough			<i>see Chief</i>
Sakwi Creek		Provides drinking water for area residents	
Sardis park		Great bird habitat	Has been planting with non-native species
Silverdale Creek wetland			Restoration work has already been done here
Stulkawhits, Emory and Yale Creeks		Important salmon spawning habitat	
Sumas Mountain			
Sunshine Valley			
Vedder Mountain			
Vedder River			
West Kawakawa Lake floodplain			
Wetland at the bottom of Ryder Creek			Planting and restoration work could be done here
Whippoorwill Point		Important bird habitat, feeding and resting location for migrating birds. Key predatory species is the Northern pikeminnow, which greatly outnumbers	



APPENDIX 5: LITERATURE RESOURCES AND SUGGESTED READING

Strategy/ Bylaw/ Report	Author	Notes	Link
Abbotsford Trail Development Strategy	COA		http://www.abbotsford.ca/AssetFactory.aspx?did=2307
Access Near Aquatic Areas	The Stewardship Series		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/access2.pdf
Agricultural Land Commission	BC		http://www.alc.gov.bc.ca/
Agricultural Land Commission Act	BC	Gravel extraction permitting; must get approval from PALC	http://www.alc.gov.bc.ca/Legislation/Act/alca.htm
Agricultural Land Reserve Use, Subdivision and Procedure Regulation	BC		http://www.alc.gov.bc.ca/legislation/Reg/ALR_Use-Sub-Proc_Reg.htm
Analysis of Best Management Practices and Emission Inventory of Agricultural Sources in the Lower Fraser Valley	FVRD		http://www.fvrd.bc.ca/Services/AirQuality/Documents/DraftReport_Dec6_final.pdf
BC Conservation Framework	BC MOE		http://www.env.gov.bc.ca/conservationframework/index.html
BC Guide to Watershed Law and Planning	West Coast Environmental Law		http://www.bcwatersheds.org/issues/water/bcgwlp/

Strategy/ Bylaw/ Report	Author	Notes	Link
BC Wildlife Act			http://www.bclaws.ca/Recon/document/freeside/--%20W%20--/Wildlife%20Act%20%20RBC%201996%20%20c.%20488/00_96488_01.xml
BCS for the Metro Van Region	Metro Vancouver		http://www.metrovancouver.org/planning/development/biodiversity/Pages/default.aspx
Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in BC	MOE		http://www.env.gov.bc.ca/wld/BMP/herptile/HerptileBMP_final.pdf
Best Management Practices for Raptor Conservation during Urban and Rural Land Development in BC	MOE		http://www.env.gov.bc.ca/wld/documents/bmp/raptor_bmp_final.pdf
Biodiversity of BC	UBC	List of articles/ papers/ relating to biodiversity (references from a paper produced by the Dept. of Zoology at UBC)	http://www.geog.ubc.ca/biodiversity/hotspotoverview.html http://www.geog.ubc.ca/biodiversity/index.html
Canada Marine Conservation Areas Act	Canada Department of Justice		http://laws.justice.gc.ca/en/C-7.3/index.html
Canada National Parks Act	Canada Department of Justice		http://laws.justice.gc.ca/en/N-14.01/
Canada Wildlife Act	Canada Department of Justice		http://laws.justice.gc.ca/PDF/Statute/W/W-9.pdf
Canadian Environmental Assessment Act	Canada Department of Justice		http://laws.justice.gc.ca/en/C-15.2/

Strategy/ Bylaw/ Report	Author	Notes	Link
Canadian Environmental Protection Act	Canada Department of Justice		http://laws.justice.gc.ca/en/C-15.31/
Caring for Wildlife Habitat at Home	The Stewardship Series		http://www.naturescapebc.ca/naturescape/Provincial_Guide_2003.pdf
Charter of Sustainability	Abbotsford		http://www.abbotsford.ca/AssetFactory.aspx?did=1702,
Chilliwack River Watershed Strategy	Chilliwack		http://www.chilliwackwatershedstrategy.ca/
Choices for Our Future, Regional Growth Strategy	FVRD		http://www.fvrd.bc.ca/InsidetheFVRD/RegionalPlanning/Documents/RGS%20Choices%20for%20our%20Future.pdf
Climate Change Calculator	American Forests, Safe Climate		http://www.americanforests.org/resources/ccc/ , http://www.safeclimate.net/calculator/
Climate Secretariat	MOE		http://www.climateactionsecretariat.gov.bc.ca/
Community Charter	BC		http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/03026_10
Community Greenways: Linking Communities to Country and People to Nature	The Stewardship Series		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/cg.pdf
Community Stewardship: A Guide to Establishing Your Own Group	The Stewardship Series		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/comstew.pdf

Strategy/ Bylaw/ Report	Author	Notes	Link
Community Watershed Guidebook	MOFR		http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/WATRSLED/watertoc.htm
Consumption Calculators	Environment Canada	Variety of calculators available: fuel consumption, idling etc.	http://www.ecoaction.gc.ca/tools-outils-eng.cfm
Culvert Guidelines: Recommendations for the Design and Installation of Culverts in British Columbia to Avoid Conflict with Anadromous Fish	DFO		http://www.dfo-mpo.gc.ca/Library/59380.pdf
Develop with Care Guidelines	MOE		http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html
Drainage, Ditching and Diking Act	BC		http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96102_01
Drinking Water Protections Act	BC		http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_01009_01
Ecological Reserves Act	BC		http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96103_01
Develop with Care: Environmental Guidelines for Urban and Rural Development in British Columbia	BC		http://www.env.gov.bc.ca/wld/documents/bmp/devwithcare2006/develop_with_care_intro.html
Environmental Farm Plan	MAL		http://www.agf.gov.bc.ca/resmgmt/EnviroFarmPlanning/index.htm

Strategy/ Bylaw/ Report	Author	Notes	Link
Environmental Management Act	BC	This Act protects against pollution but makes no reference to habitat protection directly. Similarly, the Code, which is concerned with agricultural wastes, makes no direct references to fish habitat. Compliance with the Code does not necessarily ensure habitat protection.	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/03053_00
Environmentally Sensitive and Watercourse Development Permit Areas	Regional District of the Okanagan-Similkameen	Brochure	http://www.rdosmaps.bc.ca/min_bylaws/planning/Forms/WDP_ESDP_Brochure_Jan09.pdf
Field Guide to Noxious and Other Selected Weeds of Canada	MAL		http://www.agf.gov.bc.ca/cropprot/weedguid/weedguid.htm
Fish Protection Act	MOE	Allows for some basic changes affecting water licenses	http://www.env.gov.bc.ca/habitat/fish_protection_act/act/document/s/act-theact.html
Fish Stream Crossing Guidebook	MOFR, DFO, MOE	Designed to help forest and other resource managers and practitioners plan, prescribe and implement sound forest practices for fish stream crossings that comply with the Forest Practices Code and the Fisheries Act	http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/fishstreamcrossing/fscgdbk.pdf

Strategy/ Bylaw/ Report	Author	Notes	Link
Fisheries Act	Government of Canada	<p>This Act has several sections regarding aquatic life are:</p> <ul style="list-style-type: none"> ◆Sections 20, 21 and 22: fish passage ways, sufficient flow at obstructions ◆Sections 27 and 29: prohibits obstructions to fish passage ◆Section 30: requires water intakes to be screened to protect fish ◆Section 32: prohibits the destruction of fish except by fishing ◆Section 35: prohibits harmful alteration, disruption or destruction of fishhabitat unless authorized ◆Section 36(3): prohibits the deposit of deleterious substances intowatercourses (deleterious substance could include many farm products orwastes) ◆Section 37(4): requires approval for work that may impact fish habitat ◆Section 38(4): requires reporting infractions of 	<p>http://laws.justice.gc.ca/PDF/Statute/F/F-14.pdf</p>

Strategy/ Bylaw/ Report	Author	Notes	Link
		Sections 35 or 36	
Forest Act	BC		http://www.bclaws.ca/Recon/document/freeside/--%20F%20--/Forest%20Act%20%20RSBC%201996%20%20c.%20157/00_Act/96157_08.xml
Forest Land Reserve Act	MAL		http://www.agf.gov.bc.ca/ministry/legsum/FLRE.stm
Forest Practices Code Act	MOFR		http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcact/confpc.htm#top
Forest Practices Code Act - Regulations	MOFR		http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcaregs/pforuse/pfur.htm
Forest Practices Code Guidebooks	MOFR		http://www.for.gov.bc.ca/tasb/legsregs/fpc/FPCGuide/Guidetoc.htm

Strategy/ Bylaw/ Report	Author	Notes	Link
Forests and Range Practices Act	BC		http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_02069_01
Forests Practices Code of British Columbia Act	Ministry of Forests and Range		http://www.for.gov.bc.ca/tasb/legsregs/fpc/
Fraser Valley Regional District West Nile Reduction	FVRD		http://www.fvrd.bc.ca/SERVICES/MOSQUITOES/WESTNILEVIRUSREDUCTION/Pages/default.aspx
Fraser Valley Regional Growth Strategy	FVRD		http://www.fvrd.bc.ca/InsidetheFVRD/RegionalPlanning/Documents/RGS%20Choices%20for%20our%20Future.pdf
Future Forest Ecosystem Initiative	MOFR		http://www.for.gov.bc.ca/hts/Future_Forests/
FVC Wildlife Reports	Abbotsford		http://fraservalleyconservancy.ca/Services.aspx
FVRD Air Quality Management Plan	FVRD		http://www.fvrd.bc.ca/Services/AirQuality/Documents/20060213ConsolidatedFVRDAQManagementPlanFeb1998.pdf
Get Involved in Forest Stewardship Plan Review	MOFR		http://www.for.gov.bc.ca/code/training/frpa/FSP_brochure.pdf
Green Bylaws Toolkit	ENVIRONMENTAL LAW CLINIC, UNIVERSITY OF VICTORIA FACULTY OF LAW, AND DEBORAH CURRAN & COMPANY		http://www.greenbylaws.ca/images/greenbylaws_web1207.pdf
Green Legacies		Will have donors guides available	http://givegreencanada.ca/

Strategy/ Bylaw/ Report	Author	Notes	Link
Grizzly Bear Conservation Strategy	North Cascades		http://www.env.gov.bc.ca/wld/grzz/
Heart of the Fraser initiative	Government, First Nations, and private sector		http://commons.bcit.ca/heartofthefraser/
Income Tax Act	Government of Canada		http://laws.justice.gc.ca/en/l-3.3/
Integrated Pest Management	MOE		http://www.env.gov.bc.ca/epd/ipmp/
Invasive Plant Council of BC	IPCBC		http://www.invasiveplantcouncilbc.ca/
Invasive Plant Strategy for BC	IPCBC		http://www.invasiveplantcouncilbc.ca/publications/invasive-plant-strategy.pdf
Islands Trust Tax Exemption Program	Gulf Islands		http://www.bclaws.ca/Recon/document/freeside/--%20I%20--/Islands%20Trust%20Act%20%20RSBC%201996%20%20c.%20239/05_Regulations/10_41_2002.xml
Land Act	BC		http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96245_01
Land Development Guideline for the Protection of Aquatic Habitat	DFO		http://www-heb.pac.dfo-mpo.gc.ca/publications/pdf/165353.pdf
Land Use Framework	Province of Alberta		http://www.landuse.alberta.ca/

Strategy/ Bylaw/ Report	Author	Notes	Link
Landowner Contact Guide	The Stewardship Series		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/contact.pdf
LEED Standards	LEED		http://www.cagbc.org/leed/what/index.php
Local Government Act	BC	Indicates that an OCP must have a regional context statement, Part 26 indicates content of an OCP. Parts 25–30 address a variety of planning and land use authorities that empower local governments to make environment-friendly decisions	http://www.bclaws.ca/Recon/document/freeside/--%20L%20--/Local%20Government%20Act%20%20RSBC%201996%20%20c.%20323/00_Act/96323_03.xml
Lower Fraser Valley Streams Strategic Review, Lower Fraser Valley Stream Review, Vol. 1	DFO		http://www.dfo-mpo.gc.ca/Library/240006.pdf
Migratory Birds Convention Act	Government of Canada	<p>◆Section 6: no person shall: disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird without permit</p> <p>◆Section 24(1): any person may, without a permit, use equipment, other than an aircraft or firearms, to scare migratory birds that are causing, or a likely</p>	http://laws.justice.gc.ca/en/ShowFullDoc/cs/M-7.01//20091005/en

Strategy/ Bylaw/ Report	Author	Notes	Link
		<p>to cause damage to crops or other property (other control measures require a permit)</p> <p>◆Section.33: no person shall introduce into Canada for the purpose of sport, acclimatization or release from captivity a species of migratory bird not indigenous to Canada except with the consent in writing of the Director.</p> <p>◆Section 35(1): prohibits the deposit of oil, oil wastes or any other substance harmful to migratory birds in any area frequented by migratory birds</p>	
Ministry of Environment Conservation Framework	MOE		http://www.env.gov.bc.ca/conservationframework/

Strategy/ Bylaw/ Report	Author	Notes	Link
Nature Conservancy of Canada: Eco-regional Assessments for Willamette Valley-Puget Trough-Georgia Basin, and North Cascades and Pacific Ranges	Nature Conservancy of Canada		http://science.natureconservancy.ca/resources/docs/NorthCascadesVol1_MainReport.pdf full report with maps http://science.natureconservancy.ca/resources/resources_w.php?Type=all&Region=all&Key=north+cascades
Nature Without Borders, CVLT	Comox Valley Land Trust		http://www.cvlandtrust.org/rcs-maps/land_trust_ph1report.pdf
Oceans Act	Government of Canada		http://laws.justice.gc.ca/en/O-2.4/
OCP Abbotsford	Abbotsford		http://www.abbotsford.ca/strategic_community/community_planning/official_community_plan.htm
OCP Chilliwack	Chilliwack		http://www.chilliwack.com/main/page.cfm?id=774

Strategy/ Bylaw/ Report	Author	Notes	Link
OCP District of Kent	District of Kent		http://www.district.kent.bc.ca/pdf/zoning-ocp/OCP.pdf
OCP District of Mission	Mission		http://www.mission.ca/AssetFactory.aspx?did=775
Electoral Area A Bylaws	Electoral Area A		http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/ServiceAreaBylaws/ElectoralAreaABylaws/Pages/default.aspx
Electoral Area B Bylaws	Electoral Area B		http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/ServiceAreaBylaws/ElectoralAreaBBylaws/Pages/default.aspx
Electoral Area C Bylaws	Electoral Area C		http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/ServiceAreaBylaws/ElectoralAreaCBylaws/Pages/default.aspx
Electoral Area D Bylaws	Electoral Area D		http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/ServiceAreaBylaws/ElectoralAreaDBylaws/Pages/default.aspx
Electoral Area E Bylaws	Electoral Area E		http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/ServiceAreaBylaws/ElectoralAreaEBylaws/Pages/default.aspx
Electoral Area E Official Community Plan	Electoral Area E		http://www.fvrd.bc.ca/InsidetheFVRD/CommunityPlanning/Pages/ElectoralAreaEOCP.aspx
Electoral Area F Bylaws	Electoral Area F		http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/ServiceAreaBylaws/ElectoralAreaFBylaws/Pages/default.aspx
Electoral Area F Official Community Plan	Electoral Area F		http://www.fvrd.bc.ca/InsidetheFVRD/CommunityPlanning/Pages/ElectoralAreaFOCP.aspx
Electoral Area G Bylaws	Electoral Area G		http://www.fvrd.bc.ca/InsidetheFVRD/Bylaws/ServiceAreaBylaws/ElectoralAreaGBylaws/Pages/default.aspx

Strategy/ Bylaw/ Report	Author	Notes	Link
Deroche Local Area Plan	Deroche		http://www.fvrd.bc.ca/InsidetheFVRD/CommunityPlanning/Pages/DLAPlan.aspx
Hemlock Valley Community Planning	Hemlock Valley		http://www.fvrd.bc.ca/InsidetheFVRD/CommunityPlanning/Pages/HemlockValley.aspx
Sunshine Valley Community Planning	Sunshine Valley		http://www.fvrd.bc.ca/InsidetheFVRD/CommunityPlanning/Pages/SunshineValley.aspx
OCP Village of Harrison Hot Springs	Harrison		http://www.harrisonhotsprings.ca/pdf/bylaws/Harrison%20OCP.pdf
Pacific Region Operational Statements	DFO		http://www-heb.pac.dfo-mpo.gc.ca/decisionsupport/os/operational_statements_e.htm
Plant Protection Act	BC	provide for the prevention of the spread of designated pests destructive to specific plants	http://www.bclaws.ca/Recon/document/freeside/--%20P%20--/Plant%20Protection%20Act%20%20RSBC%201996%20%20c.%20365/00_96365_01.xml
Restoring Wetlands in Washington: A Guidebook for Wetland Restoration Planning and Implementation	Michelle L. Stevens and Ron Vanbianchi		http://www.ecy.wa.gov/pubs/93017.pdf
Rio Declaration	The United Nations Conference on Environment and Development		http://www.unep.org/Documents.Multilingual/Default.Print.asp?DocumentID=78&ArticleID=1163
Riparian Areas Regulation	MOE		http://www.bclaws.ca/Recon/document/freeside/--%20F%20--/Fish%20Protection%20Act%20%20SBC%201997%20%20c.%2021/05_Regulations/10_376_2004.xml

Strategy/ Bylaw/ Report	Author	Notes	Link
Riparian Areas Regulation	MOE		http://www.env.gov.bc.ca/habitat/fish_protection_act/riparian/documents/regulation.pdf
Riparian Areas Regulation Assessment Methods	MOE		http://www.env.gov.bc.ca/habitat/fish_protection_act/riparian/documents/assessment_methods.pdf
South Coast Conservation Program Data	FVRD, GVRD, Metro Van		http://www.sccp.ca/
Shoreline Structures Environmental Design: A Guide for Structures along Estuaries and Large Rivers	The Stewardship Series		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/ShorelineStructures.pdf
Smart Growth BC	ENVIRONMENTAL LAW CLINIC, UNIVERSITY OF VICTORIA FACULTY OF LAW, AND DEBORAH CURRAN & COMPANY		http://www.smartgrowth.bc.ca/
Smart Growth Toolkits	Smart Growth BC		http://www.smartgrowth.bc.ca/Default.aspx?tabid=159
Soil Removal and Deposit Bylaw	Abbotsford		http://abbotsford.fileprosite.com/FileStorage/C5A47ED59AB6425CA1FA1D0DE5730667-Soil%20Removal%20and%20Deposit%20Bylaw,%20Consolidated%20(1228-2003-cons).pdf
Solid Waste Management Plan	FVRD		http://www.fvrd.bc.ca/Services/GarbageandRecycling/FVRDSolidWasteManagementPlan/Documents/FVRD%20Solid%20Waste%20Management%20Plan.pdf

Strategy/ Bylaw/ Report	Author	Notes	Link
South Okanagan-Similkameen Conservation Program (SOSCP)	Okanagan-Similkameen region		http://www.soscp.org/
Species at Risk Act	Government of Canada	This Act has sections that protect listed species, their residence and critical habitat. It applies to federal lands, internal waters (i.e., all watercourses), territorial sea of Canada, and the air space above them.	http://www.sararegistry.gc.ca/approach/act/sara_e.pdf
Standards and Best Practices for Instream Works	MOE		http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf
Stewardship Bylaws: Revised June 1999, A Guide for Local Government	Stewardship Canada		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/bylaws.pdf
Stewardship Options for Private Landowners in BC	Stewardship Canada		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/StewardshipOptions/StewardshipOptionsNew.pdf
Stormwater Planning: A Guidebook for BC	MOE	Framework for effective stormwater management throughout the province	http://www.env.gov.bc.ca/epd/epdpa/mpp/stormwater/stormwater.html
Stream Stewardship: A Guide for Planners and Developers	Stewardship Canada		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/ssg.pdf

Strategy/ Bylaw/ Report	Author	Notes	Link
Streamside Protection Bylaw	Abbotsford		http://abbotsford.fileprosite.com/contentengine/launch.asp?ID=15
The Importance of Shorelands	The Living by Water Project		http://www.livingbywater.ca/shorelands.pdf
The Streamkeepers Handbook: A Practical Guide to Stream and Wetland Care	Stewardship Canada		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/StreamkeepersHandbookandModules.pdf
The Wetlandkeepers Handbook: A Practical Guide to Wetland Care	Stewardship Canada		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/wetland.pdf
Tree Protection Bylaw	Abbotsford		http://abbotsford.fileprosite.com/contentengine/launch.asp?ID=15
City of Mission Bylaws	Mission		http://www.mission.ca/work/city-hall/bylaws/
UN Conference on Environment and Development	UN		http://www.eoearth.org/article/United_Nations_Conference_on_Environment_and_Development_(UNCED),_Rio_de_Janeiro,_Brazil
United Nations Convention on Biological Diversity	UN		http://www.cbd.int/
Untidy and Unsightly Premises bylaw	Regional District of the Okanagan-Similkameen		http://www.rdos.bc.ca/index.php?id=118
Water Act	BC	Allows “changes in and about a stream” under an approval,	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96483_01

Strategy/ Bylaw/ Report	Author	Notes	Link
		<p>license, or by regulation</p> <p>Part 9 of the Water Act governs all works in or about a stream. Works need an approval or notification, depending on the type of work being carried out and risk to the stream. See “Changes in or about a stream.” Specified routine activities (installation of clear-span bridges, installation or repair of a wharf or pier, replacement and maintenance of culverts and outfalls, temporary diversions around worksites, minor maintenance of municipal utilities [water works]) to be carried out without the need for a formal approval under the Water Act so long as the work is carried out in compliance with the regulations. Notification must be provided to the Ministry of Environment on the prescribed forms. Major works such as erosion protection, bridges with support structures, relocating streams, etc. require approvals. For more</p>	

Strategy/ Bylaw/ Report	Author	Notes	Link
		information see “Approval Application or Notification for Changes In andAbout a Stream Under Section 9 of the Water Act and Part 7 of the Water ActRegulations”. Note that some works may also require approvals from Fisheries andOceans Canada.	
Water Conservation Strategy	MOE		http://www.env.gov.bc.ca/wsd/plan_protect_sustain/water_conservation/wtr_cons_strategy/wce.html
Water Quality Starts at Home	The Living by Water Project		http://www.livingbywater.ca/waterquality.pdf
Watershed Stewardship: A Guide for Agriculture	The Stewardship Series		http://dev.stewardshipcanada.ca/sc_bc/stew_series/pdf/ag.pdf
Waterways Protection Bylaw	Abbotsford		http://abbotsford.fileprosite.com/contentengine/launch.asp?ID=15
Weed Control Act	Province of BC	imposes a duty on all land occupiers to control designated noxious plants	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96487_01
Weeds BC	MAL	includes links to legislation, resources, management and other links	http://www.weedsbc.ca/index.html
Wetland Ways: Interim Guidelines for Wetland Protection and	MOE		http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways_docintro.html

Strategy/ Bylaw/ Report	Author	Notes	Link
Conservation in BC			
Wetlands in Washington State: Volume 2, Guidance for Protecting and Managing Wetlands	Washington State Department of Ecology		http://www.ecy.wa.gov/pubs/0506008.pdf
Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley	DFO		http://www-heb.pac.dfo-mpo.gc.ca/publications/pdf/229864.pdf
Wildlife Act	BC	<p>This Act as amended by the Wildlife Amendment Act 2004, regulates species at risk on Crown and private lands, regulates harassment, trapping, poisoning, shooting and other actions harmful to wildlife</p> <p>◆Section 6 (as amended by the Wildlife Amendment Act 2004) regulates species at risk on Crown and private lands</p> <p>◆Section 7: makes it an offence to alter, destroy or damage wildlife habitat within a wildlife management area</p> <p>◆Section 9: makes it an offence</p>	http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96488_01

Strategy/ Bylaw/ Report	Author	Notes	Link
		<p>to disturb, molest or destroy a muskrat or beaver house, den or dam unless you are a licensed trapper or have lawful authority to protect property or maintain irrigation or drainage facilities</p> <p>◆ Section 33.1: makes it an offence to intentionally feed or attract dangerouswildlife to any land or premises</p> <p>◆ Section 34: makes it an offence, except by regulation, to possess, take,injure, molest or destroy a bird or its egg; the nest of an eagle, peregrine falcon, osprey, heron or burrowing owl; or the nest of any bird not mentioned above when the nest is occupied by the bird or its egg</p>	
Wildlife Amendment Act, 2004, Bill 51	MLWAP	Applies species at risk protection to private and provincial Crown lands in BC	http://www.leg.bc.ca/37th5th/3rd_read/gov51-3.htm
Wildlife Guidelines for Backcountry Tourism/ Commercial Recreation in BC	MOE		http://www.env.gov.bc.ca/wld/twg/documents/wildlife_guidelines_recreation_may06_v2.pdf

Strategy/ Bylaw/ Report	Author	Notes	Link
Working Around Water or Wetlands	DFO	Brochure	http://www.ltc.on.ca/images/Working%20Around%20Water%20&%20Wetlands%20Brochure.pdf
World Conservation Strategy	Published by the International Union		http://data.iucn.org/dbtw-wpd/edocs/WCS-004.pdf

APPENDIX 6: STRATEGY LESSONS LEARNED

Lesson #1 – Involve Municipal and Regional councils at the start of strategy development

Municipal and Regional councils could have been notified about the FVRBS and involved in the planning process from the onset of the development of the strategy. The notification of council may have ensured strategy buy-in by municipalities and electoral areas immediately.

Lesson #2 – Involve local First Nations groups at the start of the strategy development

The Fraser Valley is home to many First Nations groups. Their input is desired in the planning and development of the FVRBS. To date, no successful contact has been made with First Nations; however we will continue to strive to involve these groups in the strategy development process.

Lesson #3 – Clearly define strategy goals, and methods of achieving those goals prior to engaging stakeholders

More defined goals and methods of achieving these goals may have aided in defining steering committee member roles and responsibilities in the short and long term. This may also have aided in engaging other stakeholders and encouraging individual membership and participation on the steering committee.

Lesson #4 – Arrange frequent team (i.e.: FVRBS Coordinator, GIS technician, members of FVC) meetings

More frequent team meetings may have facilitated better planning of steering committee meetings and may have better defined team roles, expectations and goals. It is suggested that the strategy planning team meet 1-2 times per month throughout the 2nd and 3rd stages of the FVRBS. The team could also meet prior to steering committee meetings to review meeting agendas, outcomes and structure.

Lesson #5 – Create a small advisory board for the FVRBS Coordinator and GIS technician during the first stage of strategy development

An advisory board for the GIS technician and FVRBS Coordinator may have been useful in order to ensure that contacts were made with as many potential stakeholders as possible, and that data gaps were filled.

Lesson #6 – Provide appropriate steering committee meeting space

During the first stage of the FVRBS development we were fortunate to be able to use the FVRD boardroom for our steering committee meetings. This space accommodated our group size but

the room was too large and created distance between meeting attendees. A smaller meeting room is recommended in order to facilitate dialogue and interaction between meeting attendees.

Lesson #7 – Promote the FVRBS at initial steering committee meetings

The Scoping document could have been distributed the week prior to the first steering committee meeting to allow more time for the review of the document. Visual examples of potential mapping products and printed examples of biodiversity strategies could have been presented at initial steering committee meetings to familiarize the group with biodiversity issues and existing strategies.

APPENDIX 7: PROVINCIALY LISTED ECOLOGICAL COMMUNITIES

Scientific Name	English Name	Status		
		Provincial	BC List	Global
<i>Abies amabilis</i> - <i>Picea sitchensis</i> / <i>Oplopanax horridus</i>	amabilis fir - Sitka spruce / devil's club	S3 (2004)	Blue	GNR
<i>Abies amabilis</i> - <i>Thuja plicata</i> / <i>Gymnocarpium dryopteris</i>	amabilis fir - western redcedar / oak fern	S3 (2004)	Blue	GNR
<i>Abies amabilis</i> - <i>Thuja plicata</i> / <i>Oplopanax horridus</i> Moist Submaritime	amabilis fir - western redcedar / devil's club Moist Submaritime	S3 (2004)	Blue	G3G4
<i>Abies lasiocarpa</i> / <i>Rhododendron albiflorum</i> / <i>Valeriana sitchensis</i>	subalpine fir / white-flowered rhododendron / sitka valerian	S3 (2004)	Blue	GNR
<i>Carex limosa</i> - <i>Menyanthes trifoliata</i> / <i>Drepanocladus</i> spp.	shore sedge - buckbean / hook-mosses	S3 (2010)	Blue	G3
<i>Carex lyngbyei</i> - <i>Cicuta douglasii</i>	Lyngbye's sedge - Douglas' water-hemlock	S3 (2004)	Blue	G4
<i>Carex sitchensis</i> - <i>Oenanthe sarmentosa</i>	Sitka sedge - Pacific water-parsley	S3 (2004)	Blue	G3
<i>Deschampsia cespitosa</i> Community	tufted hairgrass Community	S3 (2004)	Blue	G4
<i>Equisetum fluviatile</i> - <i>Carex utriculata</i>	swamp horsetail - beaked sedge	S3 (2010)	Blue	G4
<i>Eriophorum angustifolium</i> - <i>Carex limosa</i>	narrow-leaved cotton-grass - shore sedge	S3 (2004)	Blue	G3
<i>Ledum groenlandicum</i> / <i>Kalmia microphylla</i> / <i>Sphagnum</i> spp.	Labrador tea / western bog-laurel / peat-mosses	S3 (2004)	Blue	G4
<i>Picea engelmannii</i> x <i>glauca</i> / <i>Equisetum</i> spp. / <i>Mnium</i> spp.	hybrid white spruce / horsetails / leafy mosses	S3 (2004)	Blue	GNR

<i>Picea engelmannii</i> x <i>glauca</i> / <i>Ribes lacustre</i> - <i>Oplopanax horridus</i>	hybrid white spruce / black gooseberry - devil's club	S2S3 (2001)	Blue	GNR
<i>Pinus contorta</i> / <i>Juniperus communis</i> - <i>Paxistima myrsinites</i>	lodgepole pine / common juniper - falsebox	S3 (2004)	Blue	GNR
<i>Pinus contorta</i> / <i>Sphagnum</i> spp. Very Dry Maritime	lodgepole pine / peat-mosses Very Dry Maritime	S3 (2004)	Blue	GNR
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i> - <i>Alnus rubra</i> / <i>Rubus spectabilis</i>	black cottonwood - red alder / salmonberry	S3 (2004)	Blue	GNR
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i> / <i>Salix sitchensis</i>	black cottonwood / Sitka willow	S2S3 (2004)	Blue	GNR
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i> / <i>Salix</i> spp. Dry Submaritime	black cottonwood / willows Dry Submaritime	S2S3 (2004)	Blue	GNR
<i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Arctostaphylos uva-ursi</i> Moist Submaritime	Douglas-fir - lodgepole pine / kinnikinnick Moist Submaritime	S3 (2004)	Blue	GNR
<i>Pseudotsuga menziesii</i> - <i>Thuja plicata</i> / <i>Corylus cornuta</i>	Douglas-fir - western redcedar / beaked hazelnut	S3 (2004)	Blue	GNR
<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Gaultheria shallon</i> Dry Maritime	Douglas-fir - western hemlock / salal Dry Maritime	S2S3 (2004)	Blue	G3G4
<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> / <i>Paxistima myrsinites</i>	Douglas-fir - western hemlock / falsebox	S3 (2004)	Blue	GNR
<i>Salix drummondiana</i> / <i>Calamagrostis canadensis</i>	Drummond's willow / bluejoint reedgrass	S2S3 (2004)	Blue	G3
<i>Salix sitchensis</i> / <i>Carex sitchensis</i>	Sitka willow / Sitka sedge	S3 (2004)	Blue	G3
<i>Thuja plicata</i> / <i>Carex obnupta</i>	western redcedar / slough sedge	S2S3	Blue	GNR

		(2004)		
<i>Thuja plicata - Picea sitchensis / Lysichiton americanus</i>	western redcedar - Sitka spruce / skunk cabbage	S3? (2004)	Blue	G3?
<i>Thuja plicata / Polystichum munitum</i> Dry Maritime	western redcedar / sword fern Dry Maritime	S2S3 (2006)	Blue	G2G3
<i>Thuja plicata / Polystichum munitum</i> Very Dry Maritime	western redcedar / sword fern Very Dry Maritime	S2S3 (2009)	Blue	GNR
<i>Thuja plicata - Pseudotsuga menziesii / Acer circinatum</i>	western redcedar - Douglas-fir / vine maple	S2S3 (2009)	Blue	G2G3
<i>Thuja plicata / Tiarella trifoliata</i> Dry Maritime	western redcedar / three-leaved foamflower Dry Maritime	S2S3 (2004)	Blue	G3
<i>Thuja plicata - Tsuga heterophylla / Polystichum munitum</i>	western redcedar - western hemlock / sword fern	S3? (2005)	Blue	GNR
<i>Trichophorum cespitosum / Campylium stellatum</i>	tufted clubrush / golden star-moss	S2S3 (2004)	Blue	G2G3
<i>Tsuga heterophylla - Abies amabilis / Blechnum spicant</i>	western hemlock - amabilis fir / deer fern	S3 (2010)	Blue	GNR
<i>Tsuga heterophylla - Abies amabilis / Hylocomium splendens</i>	western hemlock - amabilis fir / step moss	S2S3 (2005)	Blue	G2G3 (2005)
<i>Tsuga heterophylla / Acer circinatum - Paxistima myrsinites</i>	western hemlock / vine maple - falsebox	S3 (2004)	Blue	GNR
<i>Tsuga heterophylla / Plagiothecium undulatum</i>	western hemlock / flat-moss	S2S3 (2004)	Blue	G3G4
<i>Tsuga heterophylla - Thuja plicata / Gaultheria shallon</i> Very Wet Maritime	western hemlock - western redcedar / salal Very Wet Maritime	S3 (2006)	Blue	G3 (2005)

<i>Typha latifolia</i> Marsh	common cattail Marsh	S3 (2004)	Blue	G5
<i>Calamagrostis purpurascens</i> Herbaceous Vegetation	purple reedgrass Herbaceous Vegetation	S2 (2004)	Red	G2
<i>Carex lasiocarpa</i> / <i>Drepanocladus aduncus</i>	slender sedge / common hook-moss	S3 (2010)	Red	G3
<i>Carex lasiocarpa</i> - <i>Rhynchospora alba</i>	slender sedge - white beak-rush	S2 (2004)	Red	G2
<i>Carex sitchensis</i> / <i>Sphagnum</i> spp.	Sitka sedge / peat-mosses	S2 (2004)	Red	G2
<i>Eleocharis quinqueflora</i> / <i>Drepanocladus</i> spp.	few-flowered spike-rush / hook-mosses	S2 (2004)	Red	GNR
<i>Juniperus communis</i> / <i>Pseudoroegneria spicata</i>	common juniper / bluebunch wheatgrass	S2 (2004)	Red	GNR
<i>Myrica gale</i> / <i>Carex sitchensis</i>	sweet gale / Sitka sedge	S2 (2004)	Red	G3
<i>Picea sitchensis</i> / <i>Rubus spectabilis</i> Dry	Sitka spruce / salmonberry Dry	S1S2 (2004)	Red	G1G2
<i>Picea sitchensis</i> / <i>Rubus spectabilis</i> Moist Submaritime	Sitka spruce / salmonberry Moist Submaritime	S1S2 (2004)	Red	G3
<i>Picea sitchensis</i> / <i>Rubus spectabilis</i> Very Dry Maritime	Sitka spruce / salmonberry Very Dry Maritime	S2 (2004)	Red	G3
<i>Picea sitchensis</i> / <i>Rubus spectabilis</i> Very Wet Maritime	Sitka spruce / salmonberry Very Wet Maritime	S2 (2004)	Red	G3
<i>Pinus contorta</i> / <i>Rhododendron macrophyllum</i>	lodgepole pine / Pacific rhododendron	S2 (2004)	Red	G2
<i>Populus balsamifera</i> ssp. <i>trichocarpa</i> / <i>Salix sitchensis</i> - <i>Rubus parviflorus</i>	black cottonwood / Sitka willow - thimbleberry	S2 (2004)	Red	GNR
<i>Pseudotsuga menziesii</i> / <i>Acer glabrum</i> / <i>Prosartes hookeri</i>	Douglas-fir / Douglas maple / Hooker's fairybells	S2 (2004)	Red	GNR

<i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Arctostaphylos uva-ursi</i> Dry Submaritime	Douglas-fir - lodgepole pine / kinnikinnick Dry Submaritime	S2 (2004)	Red	G2G4 (2005)
<i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Holodiscus discolor</i> / <i>Cladina</i> spp.	Douglas-fir - lodgepole pine / oceanspray / reindeer lichens	S2 (2005)	Red	G2G3
<i>Pseudotsuga menziesii</i> - <i>Pinus contorta</i> / <i>Racomitrium canescens</i>	Douglas-fir - lodgepole pine / grey rock-moss	S2 (2004)	Red	GNR
<i>Pseudotsuga menziesii</i> / <i>Polystichum munitum</i>	Douglas-fir / sword fern	S2 (2004)	Red	G2G4
<i>Puccinellia nuttalliana</i> - <i>Hordeum jubatum</i>	Nuttall's alkaligrass - foxtail barley	S2 (2004)	Red	G3?
<i>Quercus garryana</i> - <i>Acer macrophyllum</i> - <i>Prunus</i> spp.	Garry oak - bigleaf maple - cherries	S1 (2004)	Red	G1
<i>Rhododendron macrophyllum</i> / <i>Gaultheria ovatifolia</i> / <i>Cladonia</i> spp.	Pacific rhododendron / western tea-berry / clad lichens	S1 (2004)	Red	G1
<i>Salix sitchensis</i> - <i>Salix lucida</i> ssp. <i>lasiandra</i> / <i>Lysichiton americanus</i>	Sitka willow - Pacific willow / skunk cabbage	S2 (2004)	Red	G2
<i>Sidalcea hendersonii</i> Tidal Marsh	Henderson's checker-mallow Tidal Marsh	S1 (2004)	Red	G1
<i>Thuja plicata</i> / <i>Lonicera involucrata</i>	western redcedar / black twinberry	S1 (2010)	Red	GNR
<i>Thuja plicata</i> / <i>Oplopanax horridus</i>	western redcedar / devil's club	S1S2 (2004)	Red	G2G4
<i>Thuja plicata</i> / <i>Rubus spectabilis</i>	western redcedar / salmonberry	S1S2 (2009)	Red	GNR
<i>Thuja plicata</i> / <i>Tiarella trifoliata</i> Very Dry Maritime	western redcedar / three-leaved foamflower Very Dry Maritime	S2 (2004)	Red	G3

<i>Tsuga heterophylla / Clintonia uniflora</i>	western hemlock / queen's cup	S2 (2009)	Red	G3G4
<i>Tsuga heterophylla - Pseudotsuga menziesii / Eurhynchium oreganum</i>	western hemlock - Douglas-fir / Oregon beaked-moss	S2 (2004)	Red	G3G4
<i>Tsuga heterophylla - Pseudotsuga menziesii / Rhytidiadelphus triquetrus</i> Dry Submaritime 1	western hemlock - Douglas-fir / electrified cat's-tail moss Dry Submaritime 1	S2 (2004)	Red	G2G3
<i>Tsuga heterophylla - Thuja plicata / Blechnum spicant</i>	western hemlock - western redcedar / deer fern	S2 (2004)	Red	G2G3

APPENDIX 8: PROVINCIALY LISTED ANIMAL SPECIES

Scientific Name	English Name	RISC Code	Status				CF Priority
			Provincial	BC List	COSEW IC	Global	
<i>Accipiter gentilis laingi</i>	Northern Goshawk, <i>laingi</i> subspecies	B-NOGO-LA	S2B (2010)	Red	T (2000)	G5T2 (2008)	1
<i>Acipenser transmontanus</i> pop. 4	White Sturgeon (Lower Fraser River population)	F-ACTR-04	S2 (2010)	Red	E (2003)	G4T2Q (2002)	1
<i>Acipenser transmontanus</i> pop. 6	White Sturgeon (Middle Fraser River population)	F-ACRT-06	S2 (2010)	Red	E (2003)	G4T1Q (2006)	3
<i>Actinemys marmorata</i>	Western Pond Turtle	R-ACMA	SX (2007)	Red	XT (2002)	G3G4 (2006)	2
<i>Allogona townsendiana</i>	Oregon Forestsnail	IM-ALLTOW	S1S2 (2008)	Red	E (2002)	G3G4 (2005)	1
<i>Aplodontia rufa rainieri</i>	Mountain Beaver, <i>rainieri</i> subspecies	M-APRU-RA	S3 (2006)	Blue	SC (1999)	G5T4 (1996)	1
<i>Aplodontia rufa rufa</i>	Mountain Beaver, <i>rufa</i> subspecies	M-APRU-RU	S3 (2006)	Blue	SC (1999)	G5T4? (1996)	2
<i>Ardea herodias fannini</i>	Great Blue Heron, <i>fannini</i> subspecies	B-GBHE-FA	S2S3B,S4N (2009)	Blue	SC (2008)	G5T4 (1997)	1
<i>Argia emma</i>	Emma's Dancer	IO-ARGEMM	S3S4 (2004)	Blue		G5 (1990)	4
<i>Ascaphus truei</i>	Pacific Tailed Frog	A-ASTR	S3S4 (2007)	Blue	SC (2000)	G4 (2004)	1
<i>Asio flammeus</i>	Short-eared Owl	B-SEOW	S3B,S2N (2009)	Blue	SC (2008)	G5 (2008)	2
<i>Botaurus lentiginosus</i>	American Bittern	B-AMBI	S3B (2010)	Blue		G4 (1996)	2
<i>Brachyramphus marmoratus</i>	Marbled Murrelet	B-MAMU	S3B,S3N (2010)	Blue	T (2000)	G3G4 (2008)	1

<i>Butorides virescens</i>	Green Heron	B-GRHE	S3S4B (2009)	Blue		G5 (1996)	4
<i>Callophrys johnsoni</i>	Johnson's Hairstreak	IL-CALJOH	S1S2 (2006)	Red		G3G4 (2004)	2
<i>Catostomus platyrhynchus</i>	Mountain Sucker	F-CAPL	S2S3 (2010)	Blue	SC (2010)	G5 (2003)	2
<i>Catostomus</i> sp. 4	Salish Sucker	F-CASP-04	S1 (2010)	Red	E (2002)	G1 (2004)	1
<i>Chlosyne hoffmanni</i>	Hoffman's Checkerspot	IL-CHLHOF	S2 (2006)	Red		G4 (1998)	3
<i>Chrysemys picta</i> pop. 1	Western Painted Turtle - Pacific Coast Population	R-CHPI-01	S2 (2007)	Red	E (2006)	G5TNR	2
<i>Contopus cooperi</i>	Olive-sided Flycatcher	B-OSFL	S3S4B (2009)	Blue	T (2007)	G4 (2008)	2
<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	M-COTO	S3 (2006)	Blue		G4 (1996)	2
<i>Cottus</i> sp. 2	Cultus Pygmy Sculpin	F-COSP-02	S1S2 (2010)	Red	T (2010)	G1 (1995)	1
<i>Cryptomastix devia</i>	Puget Oregonian	IM-CRYDEV	SX (2008)	Red	XT (2002)	G3 (2005)	1
<i>Danaus plexippus</i>	Monarch	IL-DANPLE	S3B (2006)	Blue	SC (2010)	G5 (2010)	2
<i>Dendragapus fuliginosus</i>	Sooty Grouse	B-SOGR	S3S4 (2009)	Blue		G5 (2007)	2
<i>Dicamptodon tenebrosus</i>	Pacific Giant Salamander	A-DITE	S2 (2007)	Red	T (2000)	G5 (2003)	1
<i>Epitheca canis</i>	Beaverpond Baskettail	IO-EPICAN	S3 (2004)	Blue		G5 (2004)	4
<i>Erynnis propertius</i>	Propertius Duskywing	IL-ERYPRO	S2S3 (2006)	Blue		G5 (2009)	2
<i>Erythemis collocata</i>	Western Pondhawk	IO-ERYCOL	S3 (2004)	Blue		G5 (2000)	2
<i>Euphyes vestris</i>	Dun Skipper	IL-EUPVES	S3 (2006)	Blue	T (2000)	G5 (2006)	2

Falco peregrinus anatum	Peregrine Falcon, <i>anatum</i> subspecies	B-PEFA-AN	S2B (2005)	Red	SC (2007)	G4T4 (2006)	2
Fossaria parva	Pygmy Fossaria	IM-FOSPAR	S3S4 (2008)	Blue		G5 (2008)	2
Gulo gulo luscus	Wolverine, <i>luscus</i> subspecies	M-GUGU-LU	S3 (2006)	Blue	SC (2003)	G4T4 (1996)	2
Hirundo rustica	Barn Swallow	B-BASW	S3S4B (2009)	Blue		G5 (1996)	2
Icteria virens	Yellow-breasted Chat	B-YBCH	S1S2 (2005)	Red	E (2000)	G5 (1996)	1
Lepus americanus washingtonii	Snowshoe Hare, <i>washingtonii</i> subspecies	M-LEAM-WA	S1 (2006)	Red		G5T3T5 (1996)	1
Macromia magnifica	Western River Cruiser	IO-MACMAG	S3 (2004)	Blue		G5 (2004)	2
Megascops kennicottii kennicottii	Western Screech-Owl, <i>kennicottii</i> subspecies	B-WSOW-KE	S3 (2009)	Blue	SC (2002)	G5T4 (2003)	1
Myotis keenii	Keen's Myotis	M-MYKE	S1S3 (2006)	Red	DD (2003)	G2G3 (2006)	1
Octogomphus specularis	Grappletail	IO-OCTSPE	S2 (2004)	Red		G4 (1990)	2
Oncorhynchus clarkii clarkii	Cutthroat Trout, <i>clarkii</i> subspecies	F-ONCL-CL	S3S4 (2004)	Blue		G4T4 (1997)	2
Oncorhynchus clarkii lewisi	Cutthroat Trout, <i>lewisi</i> subspecies	F-ONCL-LE	S3 (2004)	Blue	SC (2006)	G4T3 (2003)	2
Papilio indra	Indra Swallowtail	IL-PAPIND	S1 (2006)	Red		G5 (2009)	1
Patagioenas fasciata	Band-tailed Pigeon	B-BTPI	S3S4B (2009)	Blue	SC (2008)	G4 (2000)	2
Physa acuta	Pewter Physa	IM-PHYACU	S1S3 (2008)	Red		G5Q (2008)	2
Pituophis catenifer catenifer	Gopher Snake, <i>catenifer</i> subspecies	R-PICA-CA	SX (2007)	Red	XT (2002)	G5T5 (1998)	6
Polites sonora	Sonora Skipper	IL-	S1S2 (2006)	Red	SC	G4 (2006)	1

		POLSON			(2006)		
<i>Pristiloma arcticum</i>	Northern Tightcoil	IM-PRIARC	S3S4 (2008)	Blue		G3G4 (2004)	4
<i>Pristiloma johnsoni</i>	Broadwhorl Tightcoil	IM-PRIJOH	S2S3 (2008)	Blue		G2G3 (2004)	2
<i>Progne subis</i>	Purple Martin	B-PUMA	S2S3B (2005)	Blue		G5 (1996)	3
<i>Prophyaon vanatta</i>	Scarletback Taildropper	IM-PROVAN	S3S4 (2008)	Blue		G4 (2002)	4
<i>Rana aurora</i>	Northern Red-legged Frog	A-RAAU	S3S4 (2007)	Blue	SC (2004)	G4 (2008)	1
<i>Rana pretiosa</i>	Oregon Spotted Frog	A-RAPR	S1 (2007)	Red	E (2000)	G2 (2005)	1
<i>Rhinichthys cataractae</i> - Chehalis lineage	Nooksack Dace	F-RHSP-04	S1 (2010)	Red	E (2007)	G3 (1996)	1
<i>Salvelinus confluentus</i>	Bull Trout	F-SACO	S3 (2004)	Blue		G3 (2003)	2
<i>Salvelinus malma</i>	Dolly Varden	F-SAMA	S3S4 (2004)	Blue		G5 (2000)	2
<i>Scapanus townsendii</i>	Townsend's Mole	M-SCTO	S1 (2010)	Red	E (2003)	G5 (1996)	1
<i>Sorex bendirii</i>	Pacific Water Shrew	M-SOBE	S1S2 (2010)	Red	E (2006)	G4 (1996)	1
<i>Sorex rohweri</i>	Olympic Shrew	M-SORO	S1S2 (2010)	Red		G4G5 (2007)	1
<i>Sorex trowbridgii</i>	Trowbridge's Shrew	M-SOTR	S3 (2010)	Blue		G5 (1996)	2
<i>Sphaerium patella</i>	Rocky Mountain Fingernailclam	IM-SPHPAT	SH (2008)	Red		G5 (2006)	2
<i>Spirinchus</i> sp. 1	Pygmy Longfin Smelt	F-SPSP-01	S1 (2004)	Red	DD (2004)	G1Q (1995)	1
<i>Strix occidentalis</i>	Spotted Owl	B-SPOW	S1 (2009)	Red	E (2008)	G3 (2007)	2
<i>Sympetrum vicinum</i>	Autumn Meadowhawk	IO-	S3S4 (2004)	Blue		G5 (1985)	4

		SYMVIC					
Tanypteryx hageni	Black Petaltail	IO-TANHAG	S3 (2004)	Blue		G4 (2000)	4
Thaleichthys pacificus	Eulachon	F-THPA	S2S3 (2004)	Blue		G5 (2005)	2
Tyto alba	Barn Owl	B-BNOW	S3 (2009)	Blue	T (2010)	G5 (1996)	2
Ursus arctos	Grizzly Bear	M-URAR	S3 (2006)	Blue	SC (2002)	G4 (2000)	2
Zonitoides nitidus	Black Gloss	IM-ZONNIT	S3S4 (2008)	Blue		G5 (2003)	2

APPENDIX 9: PROVINCIALY LISTED PLANT SPECIES

Scientific Name	English Name	RISC Code	Status				CF Priority
			Provincial	BC List	COSEWIC	Global	
<i>Actaea elata</i>	tall bugbane	ACTAELA	S1 (2005)	Red	E (2001)	G3 (2004)	1
<i>Alopecurus carolinianus</i>	Carolina meadow-foxtail	ALOPCAR	S2 (2000)	Red		G5 (1986)	3
<i>Alsia californica</i>		ALSICAL	S2S3	Blue		G4 (1992)	3
<i>Amphidium mougeotii</i>		AMPHMOU	S2S3	Blue		G5 (1992)	3
<i>Anemone drummondii</i> var. <i>drummondii</i>	alpine anemone	ANEMDRU1	S2S3 (2000)	Blue		G4T4 (1997)	3
<i>Anemone virginiana</i> var. <i>cylindroidea</i>	riverbank anemone	ANEMVIR3	S1 (2000)	Red		G5T4T5 (2005)	2
<i>Asplenium adulterinum</i>	corrupt spleenwort	ASPLADU	S2S3 (2000)	Blue		G3? (2000)	2
<i>Atrichum haussknechtii</i>		ATRIHAU	S2S3	Blue		GU (2000)	2
<i>Barbula amplexifolia</i>		BARBAMP	S1	Red		G4?Q (2000)	2
<i>Berula erecta</i>	cut-leaved water-parsnip	BERUERE	S3 (2008)	Blue		G4G5 (1984)	2
<i>Bidens amplissima</i>	Vancouver Island beggarticks	BIDEAMP	S3 (2008)	Blue	SC (2001)	G3 (1988)	1
<i>Brachydontium olympicum</i>		BRACOLY	S1S3	Red		G2G3 (2001)	2

			(2000)				
<i>Brachythecium holzingeri</i>		BRACHOL	S1S3 (2000)	Red		GU (2000)	2
<i>Brotherella roellii</i>		BROTROE	S3 (2001)	Blue		G3 (2004)	2
<i>Bryum gemmiparum</i>		BRYUGEM	S1S3 (2000)	Red		G3G5 (1991)	2
<i>Bryum muehlenbeckii</i>		BRYUMUE	S2S3	Blue		G4G5 (1991)	3
<i>Bryum schleicheri</i>		BRYUSCH	S2S3	Blue		G5? (2000)	3
<i>Cacaliopsis nardosmia</i>	silvercrown	CACANAR	S1 (2000)	Red		G4G5 (1988)	2
<i>Callicladium haldanianum</i>		CALLHAL	S2S3 (2000)	Blue		G5 (1991)	3
<i>Callitriche heterophylla</i> ssp. <i>heterophylla</i>	two-edged water-starwort	CALLHET2	S2S3 (2000)	Blue		G5T5 (1998)	3
<i>Campylium hispidulum</i>		CAMPHIP	S2S3	Blue		G4G5 (1991)	3
<i>Carex comosa</i>	bearded sedge	CARECOM	S2 (2005)	Red		G5 (1998)	3
<i>Carex interrupta</i>	green-fruited sedge	CAREINE	S2 (2000)	Red		G4 (2006)	2
<i>Carex lenticularis</i> var. <i>lenticularis</i>	lakeshore sedge	CARELEN3	S2 (2000)	Red		G5T5 (1988)	3
<i>Carex scoparia</i>	pointed broom sedge	CARESCO	S2S3 (2000)	Blue		G5 (1984)	2

<i>Carex vulpinoidea</i>	fox sedge	CAREVUL	S2S3 (2000)	Blue		G5 (1984)	2
<i>Castilleja rupicola</i>	cliff paintbrush	CASTRUP	S3 (2008)	Blue	T (2005)	G3G4 (2006)	3
<i>Cephalanthera austini</i>	phantom orchid	CEPHAUS	S2 (2000)	Red	T (2000)	G4 (1990)	2
<i>Ceratophyllum echinatum</i>	spring hornwort	CERAECH	S3 (2002)	Blue		G4? (1995)	4
<i>Claytonia multiscapa ssp. pacifica</i>	Rydberg's spring beauty		S1 (2010)	Red		G5T3 (1998)	1
<i>Claytonia perfoliata ssp. intermontana</i>	miner's-lettuce		S1 (2010)	Red		GNR	2
<i>Coleanthus subtilis</i>	moss grass	COLESUB	S1 (2008)	Red		G3G5 (2004)	2
<i>Crepis occidentalis ssp. conjuncta</i>	western hawksbeard	CREPOCC4	S2 (2008)	Red		G5T3T5 (2002)	2
<i>Cryptogramma cascadenis</i>	Cascade parsley fern	CRYPCAS	S2S3 (2001)	Blue		G5 (1989)	2
<i>Cyrtomnium hymenophyllum</i>		CYRTHYE	S2S3	Blue		G3G5 (2000)	3
<i>Delphinium bicolor ssp. bicolor</i>	Montana larkspur	DELPBIC1	S2S3 (2000)	Blue		G4G5T4T5 (2002)	3
<i>Desmatodon latifolius var. muticus</i>		DESMLAT1	S2S3	Blue		G4G5TNR	2
<i>Desmatodon leucostoma</i>		DESMLEU	S1S3 (2000)	Red		G2G4 (2000)	2
<i>Dicentra uniflora</i>	steer's head	DICEUNI	S2S3 (2001)	Blue		G4? (1995)	2

<i>Dicranella cerviculata</i>		DICRCER	S2S3	Blue		G5? (2000)	3
<i>Dicranum spadiceum</i>		DICRSPA	S2S3	Blue		G5? (2000)	3
<i>Drepanocladus aduncus</i> var. <i>polycarpus</i>		DREPADU	S2S3	Blue		G5T5 (1991)	3
<i>Drepanocladus pseudostramineus</i>		WARNPSE	S2S3 (2000)	Blue		G3 (2001)	3
<i>Elatine rubella</i>	three-flowered waterwort	ELATRUB	S2S3 (2000)	Blue		G5 (1988)	2
<i>Eleocharis nitida</i>	neat spike rush	ELEONIT	S1 (2003)	Red		G4 (2007)	2
<i>Eleocharis rostellata</i>	beaked spike-rush	ELEOROS	S2S3 (2000)	Blue		G5 (2000)	3
<i>Elmera racemosa</i> var. <i>racemosa</i>	elmera	ELMERAC1	S2S3 (2001)	Blue		G4G5T4 (1997)	3
<i>Elodea nuttallii</i>	Nuttall's waterweed	ELODNUT	S3 (2010)	Blue		G5 (1984)	4
<i>Encalypta affinis</i> ssp. <i>macounii</i>		ENCAAFF1	S2S3 (2000)	Blue		G5?TNR	3
<i>Epilobium glaberrimum</i> ssp. <i>fastigiatum</i>	smooth willowherb	EPILGLA1	S2S3 (2000)	Blue		G5T4T5 (2004)	3
<i>Epilobium leptocarpum</i>	small-fruited willowherb	EPILLEP	S2S3 (2000)	Blue		G5 (1984)	3
<i>Epipterygium tozeri</i>		EPIPTOZ	S2S3	Blue		G4? (1996)	2

<i>Eucladium verticillatum</i>		EUCLVER	S2S3	Blue		G4 (1998)	3
<i>Eurhynchium riparioides</i>		PLATRIP	S2S3	Blue		G4 (2004)	2
<i>Fabronia pusilla</i>	silver hair moss	FABRPUS	SH (2008)	Red	E (2002)	G4G5 (2005)	3
<i>Fissidens fontanus</i>		FISSFON	S1	Red		G5 (1991)	2
<i>Fissidens ventricosus</i>		FISSVEN	S2S3	Blue		GU (2000)	2
<i>Fontinalis hypnoides</i>		FONTHYP	S1S3 (2000)	Red		G4G5 (1991)	2
<i>Funaria muhlenbergii</i>		FUNAMUH	S2S3 (2000)	Blue		G4 (1995)	2
<i>Grimmia affinis</i>		GRIMAFF	S2S3	Blue		G4G5 (1991)	3
<i>Grimmia elatior</i>		GRIMELA	S2S3	Blue		G3G5 (2000)	2
<i>Grimmia holzingeri</i>		GRIMTEE	S2S3	Blue		GNR	2
<i>Helenium autumnale</i> var. <i>grandiflorum</i>	mountain sneezeweed	HELEAUT1	S2S3 (2000)	Blue		G5T3T5 (2002)	2
<i>Herzogiella seligeri</i>		HERZSEL	S2S3	Blue		G3G4 (2001)	2
<i>Heterocodon rariflorum</i>	heterocodon	HETERAR	S3 (2002)	Blue		G5 (1988)	2
<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	HYDRTEN	S2 (2007)	Red		G4G5 (1988)	2
<i>Hygrohypnum styriacum</i>		HYGRSTY	S2S3	Blue		GU (2000)	3

<i>Hymenostylium insigne</i>		HYMEINS	S2S3	Blue		G3 (1997)	2
<i>Hypericum scouleri</i> ssp. <i>nortoniae</i>	western St. John's-wort	HYPESCO1	S2S3 (2000)	Blue		G5T3T5 (2002)	3
<i>Hypnum holmenii</i>		HYPNHOL	S1S3 (2000)	Red		GNR	2
<i>Idahoia scapigera</i>	scalepod	IDAHSCA	S2 (2000)	Red		G5 (1987)	2
<i>Juncus oxymersis</i>	pointed rush	JUNCOXY	S2S3 (2000)	Blue		G5 (1993)	3
<i>Lewisia columbiana</i> var. <i>columbiana</i>	Columbia lewisia	LEWICOL1	S2S3 (2005)	Blue		G4T4 (1985)	3
<i>Lomatium brandegeei</i>	Brandegee's lomatium	LOMABRA	S2S3 (2000)	Blue		G3? (2000)	3
<i>Megalodonta beckii</i>	water marigold	MEGABEC	S3 (2001)	Blue		G4G5 (1984)	4
<i>Melica fugax</i>	little oniongrass	MELIFUG	S2 (2005)	Red		G4 (1988)	3
<i>Mitella caulescens</i>	leafy mitrewort	MITECAU	S2S3 (2001)	Blue		G5 (1990)	2
<i>Myriophyllum hippuroides</i>	western water-milfoil	MYRIHIP	S3 (2001)	Blue		G5 (1990)	4
<i>Myriophyllum ussuriense</i>	Ussurian water-milfoil	MYRIUSS	S3 (2002)	Blue		G3 (1998)	4
<i>Nephroma occultum</i>	Cryptic Paw	NEPHOCC	S2S3 (2007)	Blue	SC (2006)	G4 (2007)	2

<i>Orthotrichum affine</i>		ORTHAFF	S2S3	Blue		G3G5 (1991)	3
<i>Orthotrichum alpestre</i>		ORTHALP	S2S3	Blue		G4G5 (1991)	3
<i>Orthotrichum rivulare</i>		ORTHRIV	S1	Red		G4 (1999)	2
<i>Philonotis yezoana</i>		PHILYEZ	S2	Red		G2G3 (1999)	3
<i>Pinus albicaulis</i>	whitebark pine	PINUALB	S3? (2007)	Blue	E (2010)	G3G4 (2008)	3
<i>Pohlia atropurpurea</i>		POHLATR	S2S3	Blue		G4G5 (1991)	2
<i>Pohlia bolanderi</i>		POHLBOL	S2S3	Blue		G3G4 (2004)	2
<i>Pohlia cardotii</i>		POHLCAR	S2S3	Blue		G2G3 (2007)	1
<i>Pohlia erecta</i>		POHLERE	S1	Red		G3G5 (2000)	2
<i>Pohlia filum</i>		POHLFIU	S2S3	Blue		G4G5 (1991)	3
<i>Pohlia ludwigii</i>		POHLLUD	S2S3	Blue		G5? (2000)	2
<i>Polemonium elegans</i>	elegant Jacob's-ladder	POLEELE	S2S3 (2000)	Blue		G4 (1988)	3
<i>Polystichum kruckebergii</i>	Kruckeberg's holly fern	POLYKRU	S2S3 (2000)	Blue		G4 (1993)	3
<i>Polytrichum longisetum</i>		POLYLOG	S2S3	Blue		G5 (1991)	2
<i>Potamogeton nodosus</i>	long-leaved pondweed	POTANOD	S1 (2001)	Red		G5 (1984)	2
<i>Potamogeton oakesianus</i>	Oakes' pondweed	POTAOAK	S2S3	Blue		G4 (1988)	2

			(2001)				
<i>Potamogeton perfoliatus</i>	perfoliate pondweed	POTAPER	S2S3 (2001)	Blue		G5 (1988)	3
<i>Potamogeton strictifolius</i>	stiff-leaved pondweed	POTASTR	S2S3 (2001)	Blue		G5 (1984)	3
<i>Pseudocypbellaria rainierensis</i>	oldgrowth specklebelly	PSEURAI	S2S3 (2010)	Blue	SC (2010)	G3G4 (2006)	2
<i>Ptychomitrium gardneri</i>		PTYCGAR	S2S3 (2000)	Blue		G4 (1994)	2
<i>Pyrola elliptica</i>	white wintergreen	PYROELL	S2S3 (2000)	Blue		G5 (1984)	3
<i>Racomitrium pacificum</i>		RACOPAC	S3 (2001)	Blue		G3 (1999)	2
<i>Racomitrium pygmaeum</i>		RACOPYG	S1S3 (2000)	Red		GU (2000)	2
<i>Rhizomnium punctatum</i>		RHIZPUN	S1S3 (2000)	Red		G5 (1991)	2
<i>Rubus lasiococcus</i>	dwarf bramble	RUBULAS	S2S3 (2000)	Blue		G5 (1990)	2
<i>Rupertia physodes</i>	California-tea	RUPEPHY	S3 (2001)	Blue		G4 (1985)	2
<i>Schistidium frigidum</i>		SCHIFRI	S2S3	Blue		GNR	2
<i>Scrophularia lanceolata</i>	lance-leaved figwort	SCROLAN	S2S3	Blue		G5 (1984)	2

			(2001)				
<i>Seligeria campylopoda</i>		SELICAM	S2S3	Blue		G3G5 (1991)	2
<i>Seligeria tristichoides</i>		SELITRI	S2S3	Blue		G4 (1991)	2
<i>Smelowskia ovalis</i>	short-fruited smelowskia	SMELOVA	S2S3 (2000)	Blue		G5 (1996)	3
<i>Solidago gigantea</i> ssp. <i>serotina</i>	smooth goldenrod	SOLIGIG2	S1 (2000)	Red		G5TNR	2
<i>Sparganium fluctuans</i>	water bur-reed	SPARFLU	S2S3 (2000)	Blue		G5 (1984)	3
<i>Sphagnum rubiginosum</i>		SPHARUI	S1S3 (2000)	Red		GNR	2
<i>Tetraplodon angustatus</i>		TETRANG	S2S3	Blue		G4 (1999)	3
<i>Tortula bolanderi</i>		TORTBOL	S1	Red		G3G5 (2000)	2
<i>Tortula subulata</i>		TORTSUB	S2S3	Blue		G5? (2000)	2
<i>Toxicodendron diversilobum</i>	poison oak	TOXIDIV	S2S3 (2000)	Blue		G5 (1999)	2
<i>Tripterocladium leucocladulum</i>		TRIPLEU	S2S3	Blue		G3 (1998)	2
<i>Verbena hastata</i> var. <i>scabra</i>	blue vervain	VERBHAS1	S2 (2000)	Red		G5T5 (2002)	2
<i>Viola purpurea</i> var. <i>venosa</i>	purple-marked violet yellow	VIOLPUR1	S1S3 (2005)	Red		G5T4T5 (2002)	2

<i>Wolffia borealis</i>	northern water-meal	WOLFBOR	S2 (2000)	Red		G5 (1991)	3
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