

Snail Nature Reserve Management Plan



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The logo for the Government of Canada, featuring the word "Canada" in a serif font with a small Canadian flag icon above the letter "a".

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Introduction

Background to Acquisition

The Fraser Valley Conservancy (FVC) was established in 1998 as charitable organization to protect land and water for future generations. The FVC's mission is to conserve biodiversity in the Fraser Valley by:

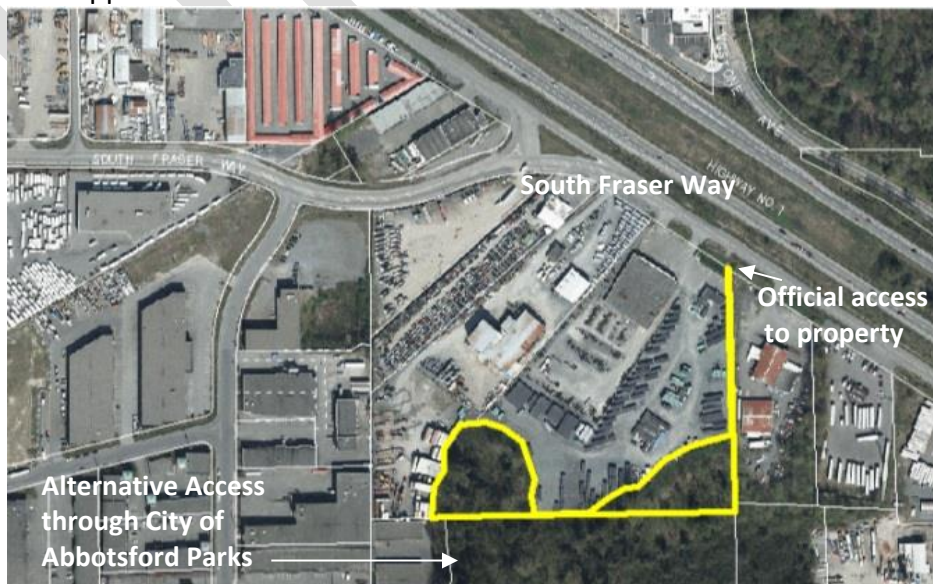
- protecting and preserving land and watercourses that have recognized local and regional ecological value;
- promoting, facilitating, and engaging in land stewardship activities;
- protecting, preserving, and enhancing habitat for native species, including rare and endangered species; and
- protecting and preserving land of recognized local and regional historic value.

The Snail Nature Reserve is 2.46 acres of mixed forest that is zoned as general industrial. The property consists of two parcels divided by industrial property each of which contains tributaries to Fishtrap Creek. The property was donated to the Fraser Valley Conservancy in 2007 by South Fraserway Development Ltd.

The FVC's vision for the Snail Nature Reserve is to protect ecological integrity and biodiversity and to support wildlife and species-at-risk.

Description of Property

The Snail Nature Reserve is located behind commercial properties off South Fraser Way in Abbotsford, BC. Access to the west section of the property is through a gate located behind 30590 Progressive Way and across City of Abbotsford parkland. Access to the east section of the property is through KMS Tools & Equipment (30824 South Fraser Way). Official legal access is through a narrow right of way between 30796 and 30824 South Fraser Way and over a 6ft chain link fence topped with barbed wire.



Land uses adjacent to the property include commercial developments and City of Abbotsford parkland. The adjacent property is currently being used for container storage, parking, and miscellaneous storage. This property is an important buffer between this active commercial land and municipal parkland and also contributes to a large tract of protected land.

This property was acquired by the FVC due to the presence of species-at-risk and its hydrology which creates important habitat for native species both on the property and downstream. The property supports at-risk gastropods including Oregon forestsnails and Pacific sideband snails. The ravine forest habitat provides a refuge for many common wildlife species. This property also encompasses two headwater tributaries to Fishtrap Creek, an important fisheries stream.

Background and Environmental Values

The Snail Nature Reserve is located in the Coastal Western Hemlock Eastern very dry maritime (CWHxm1) biogeoclimatic zone, which is characterized by warm dry summer and moist mild winters. There is evidence of old logging roads in the adjacent park indicating that this area was likely logged in the early to mid 1900s. The perimeter of the property was previously used as a storage area for pre-formed concrete pipes and culverts and as such is highly disturbed. No archaeological sites are known to occur on the property.

A baseline inventory report containing a legal description, history of the property, and inventory of flora and fauna was completed by Ryan Durand in 2007. This management plan summarizes background information on the property, including its environmental values. For more detailed information, please refer to the FVC document "*Baseline Inventory Report for 30796 South Fraser Way, Abbotsford BC*" (June 19, 2007).

The dominant vegetation species found on this property are Bigleaf maple, Red alder, Western redcedar, Paper birch, Salmonberry, and Himalayan blackberry. One provincially endangered plant species, Pacific waterleaf, has been identified on the property. This plant is colonial in nature and often produces many stems in close proximity. The range of Pacific waterleaf is quite restricted, and the moist woodlands required for its survival are quickly being lost to development increasing its need for protection.

This property supports a diverse range of wildlife species, including Columbia black-tailed deer, coyotes, banana slugs, and songbirds. The intact forest habitat on this property is connected to a large wetland complex protected as Simpson Park. The Snail Nature Reserve encompasses headwater areas of two streams feeding this wetland complex making it important to the ecological integrity of this region. Changes to this habitat could have significant impacts on water quality and quantity downstream.

The property also provides valuable habitat for species-at-risk including Oregon forestsnail and Pacific sideband. The Oregon forestsnail is designated as an endangered species pursuant to the *Species at Risk Act* (SARA) and is a large land snail with a small range in southwestern BC. The Pacific sideband is another large land snail that is considered to be of special concern in BC.

Both of these species are threatened by habitat loss and fragmentation from development as they have limited dispersal abilities between suitable habitats. Other species-at-risk that may occur on the property include Mountain beaver, Pacific water shrew, and Northern Red-legged frog. These species have not been observed on the property but may occur on or adjacent to this area.

The Snail Nature Reserve also supports many abiotic values important to the ecological integrity of the area. The majority of the property is composed of steeply sloping ravine surrounded by a compacted and flattened top of bank area. The western parcel contains the outlet of a municipal culvert, inlet unknown, which feeds the creek. The creek in the eastern parcel begins in a ditch between two commercial properties with several seeps along the steep slope. This creek was re-routed in 2014 by a landslide that resulted in a large section of slope slumping across the stream. The water on this property is an important contributor of resources to the wetland complex downstream that supports many terrestrial and aquatic species.

Cultural values for this property include supporting natural ecological process and sensitive species-at-risk habitats. This property, when combined with adjacent parkland, has the potential to serve as a valuable resource for education and research.

Management Issues

Adjacent Land-Uses and Activities

There are several threats to the natural and cultural resources of the property. Stormwater from adjacent commercial developments results in flash flood conditions and impacts the stability of the stream ecosystem. In addition, these water inputs may contain pollutants or result in a high sediment load from runoff. Accepting runoff from surrounding properties is an important feature of this property and accommodating for natural water cycle processes will help protect the ecological integrity of downstream environments.

This property contributes to a larger section of protected land allowing for connectivity of habitat important to many species-at-risk as well as a refuge for other wildlife in an urban environment. Previously, the property was used as a storage location for pre-cast concrete and the western parcel contains many pieces of leftover debris sliding down the bank and into the creek. The eastern parcel also contains concrete debris due to a landslide from the adjacent commercial property.

Visitor Control

Public access to this property is detrimental to the sensitive habitat required by the at-risk gastropod and plant populations. Soil compaction through walking reduces the habitat required by at-risk snails for reproduction and overwintering. Currently there is no apparent public access to the property as a result of fencing adjacent to commercial developments and the lack of public trails through the adjacent municipal parkland. Future development of trails through

Simpson Park would require the FVC to consider actions to prevent public access to the property from the south. The property is currently not conducive to public access due to dense Himalayan blackberry and very steep slopes.

Invasive Species

Invasive plants often out-compete native vegetation, such as the provincially red-listed Pacific waterleaf, by creating dense thickets. These thickets may also cause adverse changes to the microclimates and microhabitats that support the at-risk snail species. Himalayan blackberry is prevalent in the disturbed top of bank area and is spreading down the banks of the ravine towards the creek. Surveys for other invasive species should be completed to assess potential threats to native flora and fauna. In addition, invasive gastropod species found on the property such as the Chocolate arion slug and Grovesnail compete with native species for natural resources, and may have detrimental impacts on native fauna.

Bank stability

The western parcel contains steep banks leading to the stream and has evidence of several old landslides that have brought concrete rubble down the bank and into the stream. This concrete debris is being grown over by blackberry and other species but is not completely stable and will likely continue shifting over time. However, the removal of this concrete debris would be prohibitively expensive and could result in more damage to the existing natural habitat.

The eastern parcel experienced a recent landslide possibly as a result of changes to an adjacent development. The landslide occurred in 2014 and resulted in parts of an adjacent parking lot and fence slumping down onto the property. Several alders slid approximately 30 meters downslope and are now growing on an angle. Continued slumping of land could further disturb the existing terrestrial and aquatic habitat and set back natural succession.

Management Goal and Objectives

As the property is now owned by the Fraser Valley Conservancy, it will be protected from development and managed in a manner that is consistent with the FVC's mission to conserve biodiversity. The management goal is to preserve and protect the ecological integrity and natural values of the Snail Nature Reserve.

The FVC's management objectives for the of the Three Creeks property are as follows:

1. to protect native biodiversity and natural ecological processes;
2. to support the persistence of species-at-risk;
3. to collaborate with the City of Abbotsford Parks Department to manage the sensitive wildlife habitat in this area; and
4. to provide value to the surrounding natural habitats.

Strategies and Actions

In support of the management goal, to date the following actions have been taken by the FVC:

- completed Baseline Inventory Report in 2007; and
- fulfilled requirements of property transfer agreement including provision of tax receipts.

Specific actions to be undertaken over the next five years address protecting and enhancing wildlife values, landscape planning, and supporting ecological processes.

Protecting and Enhancing Wildlife Values

Management actions to be implemented include:

- using mechanical control methods on the invasive blackberry occurring throughout the property, which will require 3-4 treatments per year until the infestation is under control;
- monitoring the property to identify unauthorized access and, if deemed necessary, installing signage along the southern property border;
- restoring the top of bank area by loosening the compacted soil and planting natives species;
- researching impacts of concrete debris on local environment, flora and fauna;
- removing garbage present on the property; and
- registering a covenant on the land title to ensure the vision for the property is protected in perpetuity.

Landscape Planning

The Snail Nature Reserve is adjacent to Simpson Park, part of the City of Abbotsford's parks system. Working with the City of Abbotsford to maintain the ecological integrity and biodiversity of this area will be important part of the management of this property.

Management actions to be implemented include:

- collaborating with the City of Abbotsford's parks department to protect the habitat features, species-at-risk populations, and ecosystem functions of this area.

Supporting Ecological Processes

This property plays an important role by slowing down stormwater and filtering out some of the garbage and silt. This benefits the downstream habitat.

Management actions to be implemented include:

- maintaining stream characteristics that naturally manage stormwater inputs; and

- if required, using bioengineering methods to stabilize slopes and prevent landslides from further degrading the habitat.

Management Phases

Phase 1: Short Term (1-2 years)

- repeat monitoring from Baseline Inventory to assess current conditions of property;
- collaborate with City of Abbotsford parks to collectively manage property with the adjacent parkland;
- complete annual review of Management Plan;
- communicate with adjacent commercial landowners to establish access permission; and
- talk to neighbours of eastern parcel to address land slumpage and address possible preventative measures to further damage.

Phase 2: Medium Term (3-5 years)

- apply for funding to complete required restoration works including invasive plant control, native plantings, and monitoring;
- remove small garbage items from the property;
- research costs and benefits of removing concrete debris from property;

Phase 3: Long Term (5-10 years)

- conduct mechanical control efforts on invasive blackberry found throughout the property; and
- continue to conduct yearly monitoring assessments to evaluate success of restoration efforts and the health and stability of species-at-risk populations