

Three Creeks Management Plan



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Fraser Valley Conservancy
Placing lands in trust for our future

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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 Three Creeks property is 7.833 acres of mixed forest that is zoned as one unit rural residential. On September 17, 2012, Modern Developments Ltd. and the FVC reached an agreement to transfer ownership of the property to the FVC. The terms of the transfer agreement were fulfilled in 2014. Modern Developments Ltd. also provided a donation to the FVC's property endowment fund to cover annual maintenance and monitoring costs in perpetuity.

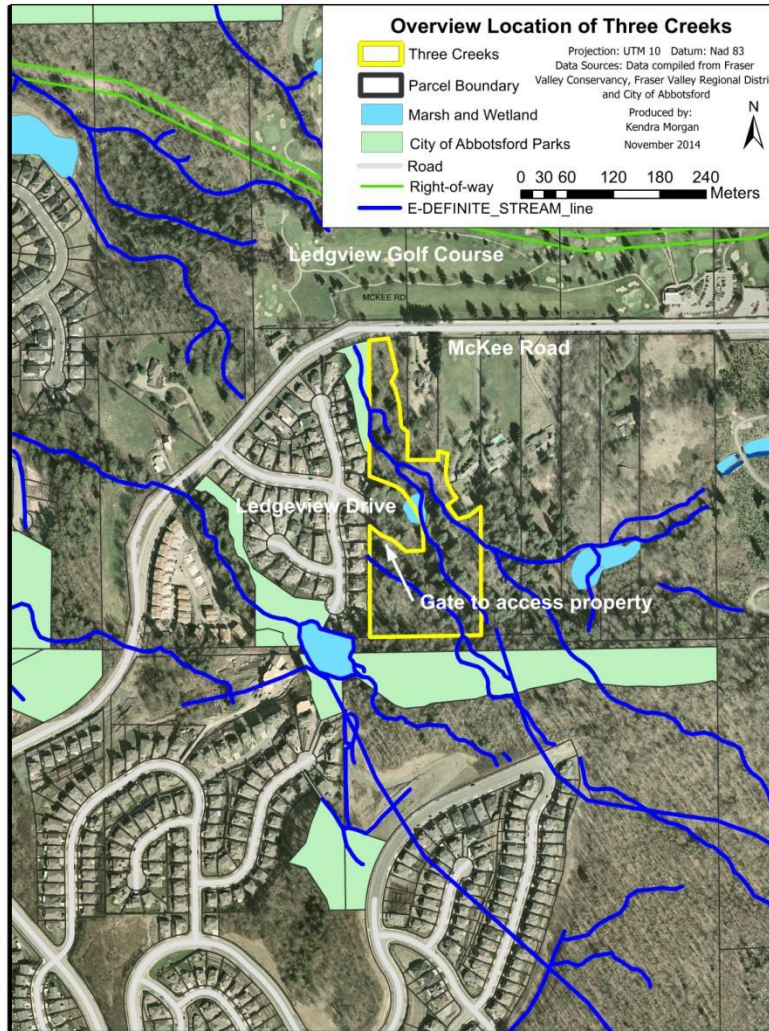
Separate from the land transfer, the FVC was contracted by Modern Developments Ltd. to complete the planting requirements of a habitat augmentation plan, including a three-year maintenance and monitoring program, on the property. The habitat augmentation plan was required by the City of Abbotsford for Modern Developments Ltd. to meet their requirements for development.

The FVC's vision for Three Creeks is to protect ecological integrity and biodiversity, support wildlife and species-at-risk, and to engage neighbours and the public in conservation.

Description of Property

Three Creeks is located on McKee Peak (Sumas Mountain) in Abbotsford, BC. Access to the property is through a gate located at the east end of Ledgeview Drive.

Figure 1: Map showing location of Three Creeks and access gate.



Land uses adjacent to the property include residential developments, roads, a golf course, and City of Abbotsford parkland and right-of-ways. Further residential developments are planned for the parcels to the east of Three Creeks, and continued development in this area is anticipated. The property is connected to a larger tract of protected green space as well as developable forested areas. As development pressures increase, the protection of the habitat values of the property and its connectivity to other green spaces will further increase its conservation significance.

This property was acquired by the FVC due to the presence of species-at-risk and its hydrology that 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 property also supports other at-risk species by encompassing a large occurrence of at-risk

Pacific waterleaf, providing habitat for the Northern red-legged frog, and historically providing burrow habitat for Mountain beaver. In addition, the undisturbed forest habitat provides a refuge for many common wildlife species. This property also boasts intact mature coastal western hemlock forest habitat and three headwater tributaries to Clayburn Creek, an important fisheries stream.

Background and Environmental Values

Three Creeks is located in the Coastal Western Hemlock dry maritime (CWHdm) biogeoclimatic zone, which is characterized by warm relatively dry summer and moist mild winters. The property was logged in the early 20th century using springboard logging techniques and was used previously as grazing land as evidenced by deteriorating fence lines. 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 the FVC in 2014. 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 Three Creeks 2014*".

The dominant vegetation species found on this property are Western redcedar, Western hemlock, Douglas fir, Bigleaf maple, Red alder, Vine maple, Salmonberry, and Sword fern. One provincially endangered plant species, the 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.

This property supports a diverse range of wildlife species, including Black bears, Black-tailed deer, rabbits, coyotes, owls, and songbirds. The intact forest habitat on this property is connected to other natural protected areas as well as areas slated for housing development. Continuing to provide habitat for wildlife species as McKee Peak develops in the future is important to the ecological integrity and biodiversity of the area.

The property also provides valuable habitat for species-at-risk including Oregon forestsnail, Pacific sideband, Mountain beaver, and Northern Red-legged frog. 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. The FVC began a mark-recapture population study on these gastropods in 2014. Northern Red-legged frogs have been observed on this property. Though there is no standing water suitable for breeding, this species, which has been designated as of special concern pursuant to *SARA*, likely is using the property for foraging and migrating.

Mountain beavers are also designated as of special concern pursuant to *SARA* due to a limited range that is being further reduced by habitat loss due to development and forestry. Though there are historic sightings and records of burrows, no evidence of this species was found in surveys conducted in 2014. Continued monitoring and protection of this suitable habitat will be important as development continues in this area.

Three Creeks also supports many abiotic values important to the ecological integrity of the area. The property slopes (downhill from the southeast) and has two distinct gullies bearing two of the three creeks on the property. The third creek is intermittent and does not have a defined stream bed before draining into the northern creek; however, it extends across a large swath of the property when water levels are high and during heavy storms, creating a moist microclimate year-round. The property's hydrology has resulted in special drainage swales being built along the property lines to prevent flooding of adjacent developments. The water on this property creates the habitat required by the species-at-risk found here. In addition, the property allows for natural hydrologic processes before the streams are culverted under development and roads. These natural headwater processes impact the quality of water provided downstream to the salmon-bearing Clayburn Creek.

Cultural values for this property include supporting natural ecological process and sensitive species-at-risk habitats as well as providing a view of green space to neighbouring properties. This property serves as a valuable educational and research resource.

Management Issues

Adjacent Land-Uses and Activities

There are many threats to the natural and cultural resources of the property. Development pressures on adjacent lands will likely create further habitat fragmentation in the area over time. Fragmentation threatens connectivity of habitats and species-at-risk populations, whereas connectivity enhances the ability of wildlife to survive in urban habitats.

Previously, some adjacent landowners have used the property as a composting location for yard waste and for the disposal of garbage. Others have extended their non-native gardens onto the property, which reduced native habitat and introduced invasive species that have the potential to spread further onto the property with associated harmful effects. House pets, such as cats, have been noted on the property, and may be detrimental to native birds and small mammals.

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 or mountain biking 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 the fencing near developments, the unsuitable nature of the property for mountain biking due to wet soils, and the presence of bothersome plants such as Stinging nettle and Devil's club.

Invasive Species

Invasive plants often out-compete native vegetation by creating dense thickets that may also cause adverse changes to the microclimates and microhabitats that support the at-risk snail species. Species including Himalayan blackberry, Evergreen blackberry, Tansy ragwort, Oxeye daisy, Canada thistle, Creeping buttercup, and Perennial sow-thistle have been identified on this property. In addition, invasive gastropod species such as the Chocolate arion slug and Grovesnail compete with native species for natural resources, and may have detrimental impacts on native fauna.

Water Levels

Continued development upstream of the Three Creeks property could change drainage patterns and natural water levels with detrimental impacts to the streams and habitats downstream. The streams running through this property are fed by groundwater as well as precipitation. Development upstream of this property may result in reduced water levels or flash flood conditions that accompany some stormwater management systems, with associated negative impacts to the flora and fauna dependent on water on this property. Current plans to re-direct water back onto this property using a hand-dug swale should limit any water loss due to the Ledgeview Drive, 5-lot cul-de-sac development.

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 Three Creeks in perpetuity.

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

1. to restore, maintain, and protect natural ecological processes and wildlife habitat with minimal human interference;
2. to create and maintain habitat to aid in the recovery of the Mountain beavers, using the most recent scientific knowledge;
3. to achieve a stable or increasing population of Oregon forestsnail, Pacific sideband, and Pacific waterleaf;
4. to support species-at-risk research intended to better understand the requirements of the species we are trying to conserve; and
5. to increase community involvement in environmental stewardship without impairing the natural condition of the property.

Strategies and Actions

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

- fulfilled requirements of property transfer agreement including provision of tax receipts;
- completed danger tree assessments that resulted in the removal or topping of 13 trees;
- completed native species plantings in accordance with required restoration works, including planting 314 native conifers, shrubs and ferns;
- completed land owner contact with adjacent landowners in Ledgeview Estates;
- completed Baseline Inventory Report; and
- commenced population study on Oregon forestsnail and Pacific sideband populations.

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

Protecting and Enhancing Wildlife Values

Management actions to be implemented include:

- monitoring the property to identify unauthorized access and, if deemed necessary, installing signage along the southern property border;
- removing old barbed wire fencing and garbage from the property;
- 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;
- using mechanical control methods on other invasive plant species occurring on the property to prevent their spread into the undisturbed forest habitat;
- following up invasive plant removal by planting native species to help shade out invasive plants over time and prevent re-infestations;
- installing bird/bat boxes to compensate for local reductions in cavities for nesting;
- working with neighbouring landowners to ensure non-native species and garbage do not spread onto the property and to suggest nature-friendly gardening practices through the landowner contact program;
- registering a covenant on the land title to ensure the vision for the property is protected in perpetuity; and
- fulfilling the conditions of the habitat augmentation plan.

Landscape Planning

The Three Creeks property is within the area covered by the McKee Peak Neighbourhood Plan (currently under review for updating in 2016) and therefore may be impacted by decisions made in this area. The property is connected to City of Abbotsford park land in the northwest corner. Complementary management of Three Creeks and the City of Abbotsford park land property could benefit the ecological integrity of the area as well as the relationship between the City of Abbotsford and the FVC.

Management actions to be implemented include:

- participating in local land use planning processes to ensure protection of connected natural areas and to limit negative impacts on the property from development; and
- collaborating with the City of Abbotsford's parks department to manage the small park parcel bordering the property with a focus on controlling invasive blackberry and eliminating garbage.

Research

The FVC is committed to helping better understand the species-at-risk occurring on the property and as such will continue to assist the BC Ministry of Environment in efforts to study the endangered Oregon forestsnail and Pacific sideband snail. Research will be consistent with the vision and management objectives of the Three Creeks property.

Management actions to be implemented include:

- monitoring the species-at-risk populations occurring on the property to ensure increasing or stable population size by conducting snail and vegetation surveys of the established plots as often as funding allows or at least once every two years;
- completing bird surveys of the property with the Abbotsford Nature Club to inventory bird species utilizing this habitat; and
- researching possible reasons for loss of Mountain beavers in this area and actions to be taken to assist in recovery.

Management Phases

In order to accomplish the above strategies and actions the FVC will aim to follow the schedule below:

Phase 1: Short Term (1-2 years)

- Remove garbage and barbed wire fencing;
- Install bird and bat boxes;
- Complete invasive plant removal and restoration of edge habitat bordering existing development properties;
- Complete bird surveys to inventory songbird species utilizing this habitat;
- Coordinate with City of Abbotsford parks to manage invasive species on adjacent parkland;
- Continue gastropod and vegetation surveys to assess health of species-at-risk population on the property;
- Explore opportunities to expand and connect the network of protected areas on McKee Peak;
- Review danger tree assessments following development actions on the adjacent properties and follow up as necessary; and
- Complete annual review of Management Plan.

Phase 2: Medium Term (3-5 years)

- Conduct mechanical control efforts on invasive blackberry found throughout the property;
- Look for opportunities to work with adjacent property owners to facilitate large-scale removal of blackberry patch on northeastern edge of property;
- Evaluate additional opportunities for research;
- Establish if Mountain beaver recovery is attainable on this property; and
- Continue community stewardship activities with a focus on educating new neighbouring landowners on the environmental values of the property and how they can help preserve those values.

Phase 3: Long Term (5-10 years)

- Continue to conduct yearly monitoring assessments to evaluate success of restoration efforts and the health and stability of species-at-risk populations.