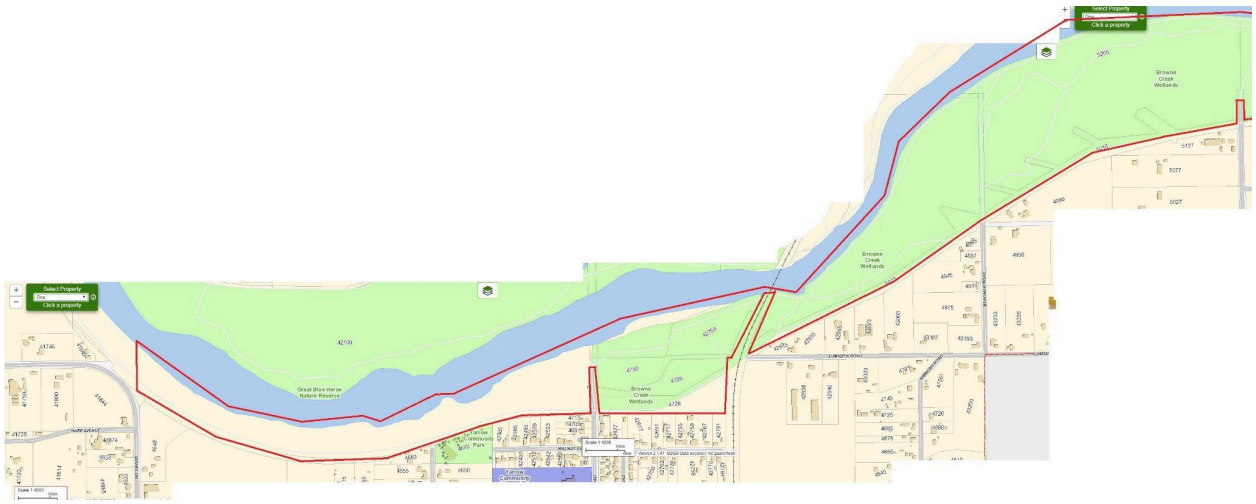
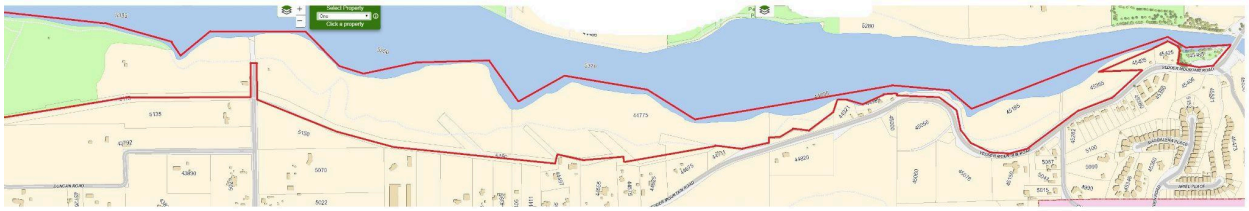
Vedder River Invasive Plant Control Proposal

lanternsedge.neocities.org/invasives





(source: maps.chilliwack.com)

Project Objectives

Inspiration

A visit to any of the protected habitats in Metro Vancouver illustrates how ecologically-sensitive habitats abutting human development require intervention to prevent us from harming the ecosystems we deem protected. This intervention has varying levels of execution and success.

One example is Byrne Creek Ravine Park in south Burnaby. It was protected from development, the stream rehabilitated and salmon reintroduced. Yet it remains vulnerable to urban pollution that reduces ecosystem health and causes fish kills. Mature Douglas-fir trees have thick vines of ivy growing up them, entire slopes are covered in ivy and a variety of other invasives grow in other areas. The whole area is full of garbage. While protected, the ecosystem is hardly at optimum health.

Picking up garbage every time I walked to Byrne Creek while visiting my partner living nearby, I wondered whether there could be a better way to take care of our urban-facing ecosystems. Relying on volunteers and city staff who are already stretched thin isn't enough to keep our green spaces from becoming overwhelmed.

Action

My vision is for a system for skilled gardeners to each steward an important ecosystem. Rather than a big crew responsible for a large area, one or two people would perform continuous maintenance in a single park or important ecosystem to rehabilitate infested areas, prevent invasives from becoming established and lead volunteer and educational events in the community. Although progress would initially appear slow, a dedicated individual or group with resources to sustain them can make a big difference over time.

Living by the Vedder River next to the project area, I can see firsthand the need for controlling invasive species and mitigating human impacts on the riparian ecosystem. The Vedder River links the heavily disturbed valley bottom of developed areas and farmland with forested habitats upriver. As such it is a valuable string of second-growth forest, wetlands and an abundance of wildlife, which are under pressure from surrounding farmland, developments, roadways and recreational usage. These uses bring with them chemical pollution, erosion, garbage, displacement of native species, and opportunity for expansion of invasive species.

My intention for this project is to provide an example of how regular maintenance can easily transform a mildly or moderately disturbed ecosystem into a refuge for native species over time through sustained small-scale manual labour. I've identified objectives for control of each target species based only on rough approximations. Progress will be recorded by keeping track of the weight of each species brought to disposal facilities as well as progress photos of sites with concentrated infestations.

Project Area

Public land along the south side of the Vedder River in Chilliwack, BC lying between the Vedder Bridge and No. 3 Road. The corridor is approximately 7.1 km long with a width ranging from approximately 50 m to 350 m.

Native tree species include: *Populus trichocarpa, Pseudotsuga menziesii, Thuja plicata, Tsuga heterophylla, Acer macrophyllum, Acer circinatum, Alnus rubra, Cornus nuttallii, Taxus brevifolia*

Native shrub species include: *Physocarpus capitatus, Rubus parviflorus, Rubus spectabilis, Rubus ursinus, Oemleria cerasiformis, Rosa nutkana, Amelanchier alnifolia, Spiraea douglasii, Crataegus douglasii, Symphoricarpos albus, Lonicera involucrata, Lonicera ciliosa, Cornus stolonifera, Sambucus racemosa, Corylus cornuta* var. *californica, Mahonia nervosa, Mahonia aquifolium, Oplopanax horridus, Salix spp.*

I have chosen this area as the initial site for this project because of its importance as a riparian corridor and the need for control of invasive species in this area. I also live in a rented home on the eastern edge of the project area, and I'm familiar with which plant species exist from walking through the area. Its accessibility to me makes invasive species control over an extensive area a reasonably efficient effort to undertake. Once this area is better controlled I hope to expand to other areas along the Vedder/Chilliwack River.

There is a proliferation of invasive species in this area, however there is tremendous opportunity for restoration because of the health and diversity of existing native vegetation. The most efficient strategy for mitigating the impact of invasive species is preventing them from becoming established in the first place, and this can be achieved by focusing on preserving native vegetation. When invasives are removed using manual methods, native plants are waiting in the wings to re-establish themselves without competition from invasive bullies. While mechanical and chemical methods have their roles in controlling invasives, this project proposes to use manual methods only, in the areas where native species need assistance against invasives.

Target		Projected % of Project Hours
Primary	*Rubus armeniacus*	40%
	Hedera helix	10%
	Ilex aquifolium	3%
	Clematis vitalba	10%
Secondary	*Buddleja davidii*	5%
	Tanacetum vulgare	5%
Tertiary	(see list below)	20%
Garbage		5%
Admin		2%

Methods

Invasive species control recommended under this proposal shall be performed in forested areas with some existing native tree and shrub cover and mild or moderate invasive species proliferation.

Large, open areas heavily disturbed by human activity and dominated primarily by invasive species are outside the scope of this project, as these areas require ecological restoration such as erosion control, mulching, and replanting of native species in order to restore disturbed habitat and prevent reestablishment of invasive species.

Some invasive species control will occur in the riverbed area, primarily in the form of deadheading during the summer to prevent seed proliferation.

Preserving native trees and shrubs is the highest priority. The project area includes patches of ivy and clematis which are killing trees. A diversity of native shrubs mingle amongst invasives, so methods which preserve native plants are most suitable for use in the forest. Only manual methods (cutting and digging) will be utilized according to the best methods for each individual species.

Mechanical methods (mowing, brush cutting) are incompatible with invasive control in the forest as these indiscriminately trim both native plants and invasives. When regrowth occurs invasives tend to outcompete natives, if the disturbance is not paired with other restoration activities such as mulching and replanting. Chemical control is not ideal because much of this area is within the 10m Pesticide-Free Zone and many of the target species are not covered under the Weed Control Act. I am efficient in manual weed control and the purpose of this project is to control invasive species over extensive areas where other methods of control are not available.

The ideal months for digging up the roots of perennial invasives such as blackberry, Clematis, holly and ivy are October-April, when native shrubs are dormant and can withstand some disturbance.

Plant material will be piled onto tarps and transported manually to the nearest road and removed by truck on a daily basis. Deadheaded reproductive material will be placed into paper yard waste bags to avoid spillage of seeds. Both loose and bagged organic matter will be transported to city waste disposal facilities.

A small element of this project will include picking up garbage found in the forest. I volunteer picking up garbage in the project area, and have been working to remove garbage in areas that aren’t easily accessible. On the hill below the road there is an abundance of old buried glass, plastic and other materials hidden just below the surface. With more resources I can do a better job cleaning up garbage from the rest of the project area.

Safety and Community

I will be covered by liability insurance and Worksafe BC for this work.

I am always aware of my surroundings and potential risks that may arise from the work I am doing and the environment I'm in.

Weather
Setting my own hours and not working full-time in this role allows me to be flexible and efficient to work around bad weather.

Tools
Because I am not using power tools in this role, most of the work will be safer than normal landscaping work. I will not be on ladders. The greatest injury risk is bending and lifting strains. I have enough experience to avoid minor injuries.

People
I wear a high-visibility vest to identify myself while working on public land. People resistant to invasive species control being performed in the forest can be defused by providing them with facts without judgement. In extreme cases I would leave the confrontation and walk away.

Plants
Blackberry is a potential danger to unknowing passersby. I have gotten a flat tire from cycling on the Vedder Rotary trail while someone was weed-whacking blackberry. Care will be taken so that no pieces of blackberry (or any other invasive plant) falls onto trails. Any tarp where plant material is being piled next to a trail will be marked with pylons.

I always wear eye protection and two layers of gloves as a basic precaution. Some amount of slivers and scrapes from blackberry is unavoidable.

The most toxic target species in this proposal is *Daphne laureola*. Fortunately there is not currently a huge amount of this plant in the area. When dealing with it I use extra caution to avoid the sap.

Animals
Though there is not a huge risk there is potential for animals such as bear or cougar in the area. I am always mindful to give animals space. The most likely animal conflict is wasps. Paying attention can help identify where a wasp nest is before stumbling into it.

Me
Any human activity causes a disturbance to the ecosystem. I am mindful to minimize soil erosion when working in the forest. Using manual methods causes less harm to native species than other methods, but nonetheless I must be careful to not disturb nesting birds for instance. Spreading the work out can minimize the impact of the disturbance. It is critical to revisit sites on a periodic basis to ensure invasives do not reestablish after performing control.

Target Species

The Fraser Valley Invasive Species Society has identified four categories to prioritize dealing with invasive plants:
Prevent and Eradicate (infestations uncommon)
Eradicate (low density infestation)
Contain (established infestation, keep from spreading)
Control (widespread infestations, prioritize control in sensitive areas)

This proposal utilizes this approach to prioritize species for control based on the relative prevalence of invasive species in the project area.

Primary targets

Primary targets have been chosen because control offers the greatest potential for the improvement of native plant habitat in the project area. They either compete with native plants over a widespread area or cause significant disturbance to trees and shrubs in concentrated parts of the project area. Control will focus on reducing the prevalence of these species through removal of vegetative matter during the fall, winter and spring.

Rubus armeniacus / *Rubus laciniatus* (Himalayan / evergreen blackberry)
“This species is listed by the Greater Vancouver Invasive Plant Council as one of the top twelve most problematic species in the Vancouver Region.” E-flora BC
#2 in Metro Vancouver Invasive Plant Prioritization Rankings (August 2020)
prevalence: common in both large patches and individual plants
methods: manual pruning, manual digging of roots (at least two treatments)
target: 25-50% control in the project area within two years
http://www.metrovancouver.org/services/regional-planning/PlanningPublications/HimalayanBlackberryBMP.pdf

Hedera helix / Hedera hibernica (English / Irish ivy)
“This species is listed by the Greater Vancouver Invasive Plant Council of the twelve most problematic species in the Vancouver region.” E-flora BC
prevalence: concentrated outbreaks in several locations
methods: pruning around the base of trees, removal of vines and roots
target: 90% containment in the project area
http://www.metrovancouver.org/services/regional-planning/PlanningPublications/EnglishandIrishIviesBMP.pdf

Ilex aquifolium (English holly)
“This species is listed by the Greater Vancouver Invasive Plant Council of the twelve most problematic species in the Vancouver region.” E-flora BC
prevalence: individual plants and seedlings in some locations
methods: digging up small plants, pruning large plants
target: 100% containment in the project area
http://www.metrovancouver.org/services/regional-planning/PlanningPublications/EnglishHollyBMP.pdf

Clematis vitalba (old man’s beard)
“*Clematis vitalba* is considered an emerging invasive species by the Greater Vancouver Invasive Plant Council (2009).” E-flora BC
prevalence: large concentrated infestations in numerous locations
methods: pruning stems off trees, digging up roots and stems as much as possible
target: 75% containment in the project area
https://your.kingcounty.gov/dnrp/library/water-and-land/weeds/BMPs/Old-mans-beard-Clematis-vitalba-control.pdf

Secondary targets

My secondary targets have been chosen because they are widespread and eradication is not possible. Control will be focused on reducing seed production during the summer.

Buddleja davidii (butterfly bush)
“*Buddleja davidii* is considered an emerging invasive species by the Greater Vancouver Invasive Plant Council (2009). An emerging invasive is defined by them as: currently found in isolated, sparse populations but are rapidly expanding their range within the region.” E-flora BC
prevalence: widespread, particularly in the riverbed and gravel bars
methods: deadheading flowers, manual pruning
target: control as time permits
https://your.kingcounty.gov/dnrp/library/water-and-land/weeds/Brochures/Butterfly_Bush_Factsheet.pdf

Tanacetum vulgare (common tansy)
“This species has become a common invader in southern British Columbia, often forming thick stands along roadsides and railway track verges. It is listed as one of the top fourteen species of concern by the Coastal Invasive Plant Committee” E-flora BC
prevalence: widespread in open areas
methods: deadheading flowers
target: control as time permits
https://your.kingcounty.gov/dnrp/library/water-and-land/weeds/BMPs/common-tansy-control.pdf

Tertiary targets

My tertiary targets have been chosen because they are either widespread making control difficult or they are uncommon in the project area and control will be to prevent further outbreaks. Control will focus on decreasing the number and size of outbreaks during the spring, summer, and fall. This list is not exhaustive, and while performing control I will monitor for other possible invasives in the area.

Lamium galeobdolon (yellow archangel)
"In Canada, [yellow archangel] is reported from British Columbia, where it is recognized as a naturalized urban invasive in the Greater Vancouver area. It has become established in natural areas, parks and ravines." E-flora BC
prevalence: uncommon, concentrated infestations
methods: manual digging of plants
target: containment as time permits
http://www.metrovancouver.org/services/regional-planning/PlanningPublications/YellowArchangelBMP.pdf

Daphne laureola (spurge laurel)
"This species is listed by the Greater Vancouver Invasive Plant Council of the twelve most problematic species in the Vancouver region." E-flora BC
prevalence: uncommon infestations, potential for expansion into the target area as this is an emergent invasive
methods: manual digging of plants
target: prevention and eradication
https://goert.ca/wp/wp-content/uploads/IS-Best-Practices-Daphne-2007.pdf

Impatiens parviflora (small-flowered touch-me-not)
prevalence: medium-size infestations
methods: manual digging/pulling of plants
target: control as time permits
http://www.metrovancouver.org/services/regional-planning/PlanningPublications/HimalayanBalsamBMP.pdf (Page 10)

Aegopodium podagraria (bishop's weed)
"In British Columbia, it is found [in] several sites in the southern part of the province, where it can form infestations. Infestations are noticeable in ravines near urban gardens in the Vancouver area, and there are recent reports of infestations in campsites along the Chilliwack river, and at Blackie Spit." E-flora BC
prevalence: uncommon, concentrated infestations
methods: manual digging of roots
target: containment as time permits
https://www.invasive.org/weedcd/pdfs/wgw/goutweed.pdf

Humulus lupulus (hops)
prevalence: small, concentrated infestations
methods: manual digging of roots
target: containment as time permits

Jacobaea vulgaris (tansy ragwort)
prevalence: small infestations
methods: manual digging of plants before seed-set
target: containment
https://stewardshipcentrebc.ca/PDF_docs/GOERT/Publications/Invasives_PDF/S.jacobaea.pdf

Euphorbia cyparissias (cypress spurge)
Regional EDRR - high priority
prevalence: uncommon
methods: manual digging of roots
target: eradication
https://www.fs.fed.us/database/feis/plants/forb/eupcyp/all.html

Arctium minus (common burdock)
prevalence: small infestations
methods: deadheading, manual digging of roots as time permits
target: containment

Echium vulgare (blueweed)
prevalence: medium-size infestations
methods: manual digging of roots as time permits
target: containment
https://bcinvasives.ca/wp-content/uploads/2021/01/Blueweed_Factsheet_26032019.pdf

Parthenocissus quinquefolia (Virginia creeper)
“This plant is also considered locally invasive.” BMP for English and Irish Ivies in the Metro Vancouver Region
prevalence: uncommon, small infestations
methods: manual cutting of vines and digging of roots as time permits
target: containment

Calystegia sepium (hedge bindweed)
prevalence: uncommon, medium-size infestations
methods: manual digging of roots in spring and fall
target: containment
http://www.metrovancouver.org/services/regional-planning/PlanningPublications/HedgeBindweedBMP.pdf

Resources Required

Labour $23,040 (768 hours at $30 per hour, 16 hours per week for 48 weeks) + GST
(Includes cost of liability insurance, business licence, worksafe, fuel)

Estimated cost of disposal $960 (2-3 dumps per week at $7.50-$10 each, or 12.8 metric tonnes)
(In-kind donation of dump passes for Parr Road depot possibly available from the City of Chilliwack)

Total: $24,000 per year + GST

“It’s a tough job but somebody’s got to do it” is a phrase that rings true with me. I require resources for this project, because having worked on invasive plants on a volunteer basis in many different areas, I know volunteers can only achieve so much. While extremely rewarding, invasive plant control is physically demanding and the scope of most projects is daunting. For instance, when controlling Himalayan blackberry as part of volunteer events, I’ve always been told to cut the plant but not dig out the roots. It sort of makes sense not to ask volunteers to do this challenging and potentially disruptive task, but on the other hand cutting a blackberry is like pruning a rose.

Having performed a significant amount of invasive species control for property owners, on my rental property, and as a volunteer, I know how much value a skilled gardener can have in controlling invasive plants in the very large gaps not covered by regional crews, contractors doing things like knotweed control, city staff and volunteers.

I believe that one possible deciding factor in our success at controlling and preventing invasives is as simple as funding for projects allowing gentle dedicated maintenance of peri-urban ecosystems at the local level. If I could volunteer all my time on this project I would, but being self-employed it is difficult enough staying in the black. Securing funding for this project will give me the resources I need to abate the establishment of invasives in this part of the Vedder River, and the hope that others will be able to embark on similarly funded projects in their local ecosystems.

Policy Context

This proposal fits into the objectives of **Chilliwack's 2018 Greenspace Plan**:

- Quality: "Where a greenspace is a primarily natural area, it should be preserved in a manner that maintains or improves natural features and functions."
- Sustainability: "Both passive areas and constructed active facilities must be planned and constructed with quality components that will minimize the need for human intervention and future maintenance"

This proposal fits into the objectives of the **Invasive Species Strategy for British Columbia 2019-2022**:

- Strengthen Collaboration: “...collaboration must occur both in local communities where people know the land best, and also provincially, where planning occurs at the landscape and regional levels.”
- Implementing Effective Control, Restoration, and Monitoring Programs: “Increase funding and operational programs across all jurisdictions to ensure effective invasive species control and management”
- Provide Stable, Long-Term Funding: “Identify and promote new, diverse funding mechanisms; increase funding and investments from all jurisdictions, including industry, with a focus on prevention and control of high priority provincial and regional species.”
- Promote Action Through Communication and Education: “Create a network of invasive species specialists that can contribute ideas, approaches, and expert advice that will be used to develop and support messaging and training programs for officials, educators, professionals and the public.”

About Me

My interest in working on invasive species comes from my love of gardening. I love working in the forest because forests are just really productive gardens. A lot of my knowledge of plants is self-taught, but I was also fortunate to do an urban agriculture internship with Environmental Youth Alliance, and later took an organic orchard maintenance course they offered. In Vancouver as an urban farmer and a landscaper, both with a conventional company and independently by bike trailer, I've worked in countless gardens of every type. As much as I am happy helping homeowners with their gardens, I feel like I can achieve more working in threatened ecosystems and teaching people about native and invasive plants.

In addition to the work I do on my own in Chilliwack, I have volunteered with the Great Blue Heron Nature Reserve Society doing invasive species pulls and worked with a group of volunteers cleaning up garbage at Sweltzer Creek. I attended Chilliwack Pride and Chilliwack River Salmon Run in 2022 with displays of common invasive plants to spread the word. In my spare time I propagate and sell plants, and have focused on growing mainly native plants. I live on a one and a third acre rental property that has been heavily disturbed and overrun with invasive plants, and have been doing invasive control, building gardens, performing erosion control and planting trees to remediate the site.

I am nonbinary and on the autistic spectrum. I am a big picture thinker but prefer to create change through hands-on work and in-person teaching rather than structured intellectual work like writing. Earlier in my gardening career I also worked at a social enterprise community bike shop where I was a senior mechanic and taught a wide variety of people bike mechanics. As someone with heightened senses I have a strong attention to detail, which has allowed me to learn the names of hundreds of ordinary weeds, and helps me to identify nearly invisible buried pieces of garbage.

My partner supports a lot of the work I do and assists with some of the heavy lifting.

above photo courtesy of Streams Foundation Canada

above photo courtesy of Great Blue Heron Nature Reserve Society

All photos below taken by me

Rubus armeniacus

Rubus armeniacus daughter plants rooted over the winter with new buds

Rubus armeniacus mixed with native shrubs

Native shrubs one year later after manual removal of *Rubus armeniacus*

Hedera helix

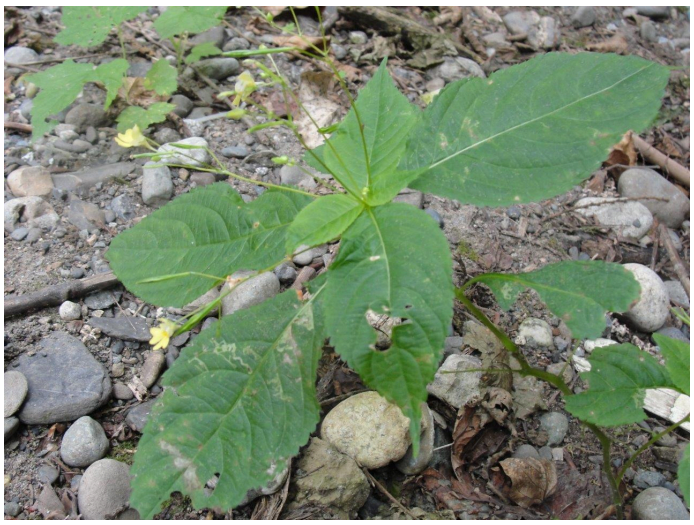
Ilex aquifolium, Rubus armeniacus and *Tellima grandiflora*

Clematis vitalba

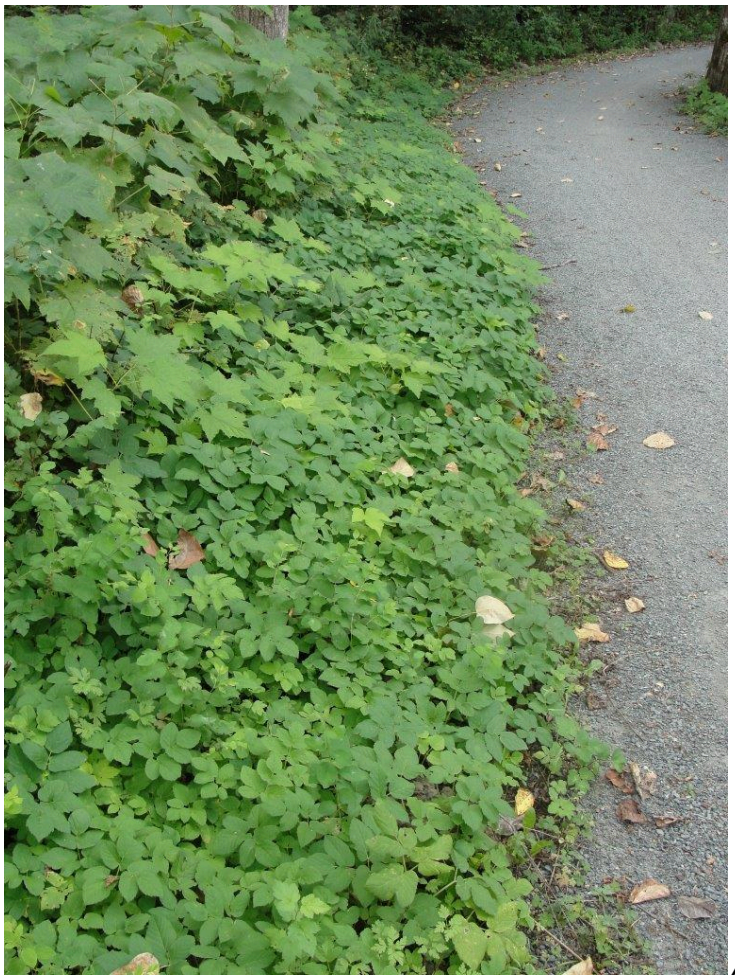
Buddleja davidii

Tanacetum vulgare

Daphne laureola



Impatiens parviflora



Aegopodium podagraria

Jacobaea vulgaris

Euphorbia cyparissias

Echium vulgare

Parthenocissus quinquefolia

Calystegia sepium, Arctium minus and *Rubus armeniacus*

Lythrum salicaria

Project area