

**Comox Valley Nature  
Restoration Project  
Courtenay River Airpark**



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November, 2018**

## **Introduction**

Last year for the first time I wrote a report documenting the activities of the Comox Valley Nature Restoration Project in the Courtenay River Airpark. I am one of a small group of volunteers who work in this area, restoring native vegetation and removing invasive plants under the umbrella of Comox Valley Nature and more specifically its Restoration Project. The Restoration Project works on a variety of sites in the Comox Valley. This report concerns itself only with the work done within the City of Courtenay. This Park in which we work is on property owned and administered by the City of Courtenay. The adjacent Courtenay Airpark where we also work is administered by the Courtenay Airpark Association but on land owned by the City.

The Courtenay River Airpark borders the estuary of the Courtenay River which is one of only eight Class 1 estuaries in BC. Its importance in terms of maintaining biodiversity in the Comox Valley can not be understated. The Airpark is an interesting human-constructed experiment in restoration which is continuing to evolve. Its background in recent times has been the site of Courtenay's former sewage lagoon. This was opened to the estuary in the early 1980s and fill was trucked in to form the upland areas. This was done as part of the "no net loss" policy of the DFO to compensate for the expansion of the Comox Marina. In 2015 Project Watershed created a second opening from the Courtenay River to the lagoon by installing a large culvert which allowed the free movement of water through the lagoon from the Courtenay River to the estuary.

Our interest has been mainly with terrestrial planting, while Project Watershed has established plantings in the tidal zones. We work with both the City of Courtenay and the Airpark Association. Other local groups with whom we have an ongoing relationship include Project Watershed, BroomBusters, and the Rotary Club of Strathcona Sunrise.

## **Challenges within the Courtenay River Airpark**

The Courtenay River Airpark is a difficult site to establish plantings. Most of the soils in the park are derived from fill and are deficient in organic matter. This combined with the lack of an up-slope watershed means that low moisture levels can pose a problem. The soils vary a great deal throughout the Park in terms of their parent material and we have seen large variations in the survival rates of our plantings. We have attempted to lessen this problem by planting in the early spring to ensure there is good root growth before the summer drought period hits. As well we have used wood mulch supplied by the City of Courtenay around the new plantings to conserve moisture.

A second large cause of plant mortality in recent years is the foraging of the cottontail rabbits, an introduced species. This was especially severe in the Courtenay Airpark plantings done last year (2017). I estimate that there was only about 20% survival of the Earth Day plantings. The rabbits are noticeably more numerous inside the fence of the Airpark. This can be explained by the lack of dogs, and walkers on the Airstrip side of the fence. By contrast the plantings of 2017 around the new culvert is estimated had close to a 60% survival rate. This is quite acceptable given the nature of the site.

The Courtenay River Airpark is used by a wide segment of the population both locals and visitors. This also includes Courtenay's homeless population which has increased in recent years. They are visible in

the Airpark and surrounding areas. There has been a slight increase in garbage and debris found in the Park. I have no comments other than to acknowledge their presence as users of this Park which the City must take into account when planning for the Park.

## 2018 Activities

### New Challenges

Every year seems to produce new challenges and opportunities for the Project. Because of our group's small size we have been able to react quickly with a changing work plan. This year was no exception. By way of a plant rescue in Comox, a considerable number of camas bulbs was suddenly available. Although this was a windfall for us it did require a lot of site preparation work in the Park before planting the bulbs.

Early in the year we were contacted by the Rotary Club of Strathcona Sunrise who had a plan to plant a tree for each of its members. When we were contacted, we suggested that we could use a couple of Garry oaks for our Airpark project. We gladly took a couple of large specimens for our project which we planted when the Canadian Rotary executive were visiting in the late winter.



*Illustration 1: Robin Harrison of Rotary Club Strathcona Sunrise and Murray Little of Comox Valley Nature plant a Garry Oak*

A third unforeseen event happened just outside the Park when one of our volunteers noticed the invasive plant, purple loosestrife just upriver in a new restoration site bordering the Courtenay River.

Although unforeseen and unplanned, all these events were quickly addressed by our volunteers. Our lack of formal structure can and was beneficial in giving us the flexibility to deal with events as they arise. In the lexicon of the day you could call this adaptive management.

The Courtenay Riverway passes through the Courtenay Airpark Park and is arguably one of the most popular walking trails in the City of Courtenay. It a wonderful area to display our native plants.

### Invasive Plants

Invasive plants are generally from other geographies and as a rule are very vigorous and capable of dominating their new ecosystems, to the exclusion of native plants. Many of them have multiple methods of reproduction and spreading, making them difficult to control. As our goal in the Courtenay River Airpark is to reintroduce our native species, invasive plants present an extreme threat to our plans.

With our limited resources a disciplined approach to invasive plant control is necessary. Priorities have been set so that control can be effective. Our highest priority is given to sites where we have native plantings and which are susceptible to invasive plant attack. At the other end of the scale are areas which may be dominated by invasive plants but where their capacity to spread is constrained, or where

we have no plantings. An example in the Airpark is the strip of ground between the Courtenay Riverway and the water.

Our area of work is in a well-used municipal park bordering on fish-bearing waters. For these reasons chemical herbicides for plant control are not an option. We use either continuous cutting method of control, or digging up and removing the invasive plants. Continuous cutting although slow can be very effective. The thinking behind this method is that every time a plant is cut during the growing season it uses its stored energy supplies to regrow. By cutting the plant many times, one forces the plant to exhaust its energy supplies to the point where it can no longer regrow.

In the past much of the Park was dominated by Scotch broom (*Cytisus scoparius*). This invasive has been under control for some years now. Patches of knotweed (*Polygonum spp.*) although limited, have also been brought under control in the Park.

Currently most of our control efforts have been directed at Himalayan blackberry (*Rubus discolor*) and Common Tansy (*Tanacetum vulgare*). These are both widespread on Vancouver Island and capable of dominating a site to the exclusion of all other species. In our designated control areas, these plants were cut four times during the course of the growing season. Line brushcutters were used for this, augmented by hand loppers. This was the third year of this control method for most of our work sites. It is hoped that the number of cuts can be reduced in the future and control still be maintained. Because both the blackberry and tansy are widespread throughout the Comox Valley and in surrounding areas, its complete elimination is not realistic on our chosen sites. However as our planted species get larger and more vigorous we hope that less time and effort can be spent on invasive plant control.



*Illustration 2: The tansy was cut from this site four times over the summer keeping a meadow like appearance*

Our contractor made two sweeps of the Courtenay River Airpark to remove knotweed from the two sites where it was once established. The first site is virtually free of the weed after more than five years of effort. The second site is still sending up weak shoots after three years of removal effort. This site, adjacent to the Airplane ramp is difficult to control because of the large boulders and concrete rip rap which impedes digging out the rhizomes. We will continue an annual sweep and the removal of knotweed on these two sites.

The City of Courtenay has assisted with controlling the blackberry in the Airpark this year. Their crews cut the blackberry on the hillside below the viewing platform a total of three times during the growing season. This area was dominated by large canes and is on a slope. We hope the City will continue and perhaps increase the area in the Park where they control invasive plants.

### **Plantings 2018**

We had a limited but very successful planting program this year. It was centered on two sites shown in Appendix I. The first ( Site 1) is on a small area of land between the taxiway of the Airpark and the

children's Rotary playground. This area supported some native plants such as ocean spray, tall mahonia and Nootka rose. Most of these were planted by the Naturalists about 20 years ago. We had been removing invasive plants from this area, however it was neglected for a couple of years for a variety of reasons and it quickly became infested with common tansy.

In 2016 we once again began to manage the invasive plants in this area. This year we started planting native trees and shrubs in this area as an infill to the historic plantings (see appendix I). Site 1 offers some good conditions for establishing new plantings which are not always found in the rest of the Airpark. The most important of these is easy access to water. In much of the Airpark the soils are very arid and subject to summer drought. New plantings are very susceptible to drought especially with the long hot summers we have been experiencing lately.

We hand watered all the new plantings on Site 1 this year. It is very close to the parking on Mansfield Drive, and there is also a water fountain close by. This site also gets some shade from the large willow trees to the Southeast. We were thus able to keep some moisture in the soils surrounding our plantings and as a result we had excellent survival in our plantings at this site.

Our second planting site shown in Appendix I was west of the bridge over the lagoon outlet. On this area we are trying to introduce native forbs associated with the Garry Oak meadow ecosystems.

A small number, (< 24) of great camas bulbs were planted here in 2015. These have survived and produced seed however they have not spread. In personal communication with a restoration practitioner in Sannich BC it was learned that camas and other plants of the Garry oak meadows can not compete in the solid turf produced by our non-native grasses. Therefore it was decided that a site preparation was required before larger scale plantings were undertaken.

For comparison three different methods of turf reduction were undertaken at this site. Killing the turf through a solarization technique was employed for two plots. This technique uses the sun's energy to generate high temperatures under plastic to cook the soil thus killing the plants and their seeds. In early June one plot was covered with clear plastic, and a second was covered with black plastic. In the third plot the City of Courtenay used a turf cutter which cuts the roots of the turf. The plastic was left on the plots until the middle of October. It appeared that the most effective method was



*Illustration 3: Plantings at Site 1. New plantings are mulched and marked with flagging tape. The planting hole is surrounded by rocks or woody debris.*



*Illustration 4: Plastic was used to kill turf through solarization. Native bulbs such as camas was later planted on this site.*

the black plastic. No living plants were found beneath it when it was removed in October.

Planting of the bulbs took place the following week. Many of the bulbs were those that had been rescued by Murray Little from a development site in Comox. Others had been grown by the author. A number of harvest brodiaea bulbs were obtained from Louise Goulet, a plant rescuer in the Victoria area. The bulbs were planted in lines and mapped for reference and comparison.

The City of Courtenay placed 14 large rock boulders around the site as shown on the cover of this report. This makes an interesting feature and will provide some protection for the young plants from pedestrian and bicycle traffic. A temporary sign explaining our work has been erected. (Appendix III).

### **Plant Care of older plantings**

This year as in most, we commenced our work in the Airpark in the late winter by cleaning up the older plantings. This consists of weeding around the bases and tilling or adding mulch. We will trim and prune where required and add a piece of flagging tape. This is done to alert the public and City work crews that these plants are being cared for have been planted on the site. It should be noted that we receive many "thank yous" and expressions of gratitude from the public when we do this work.



*Illustration 5: Spring clean up around around older plantings*

### **Garry Oaks and associated plants**

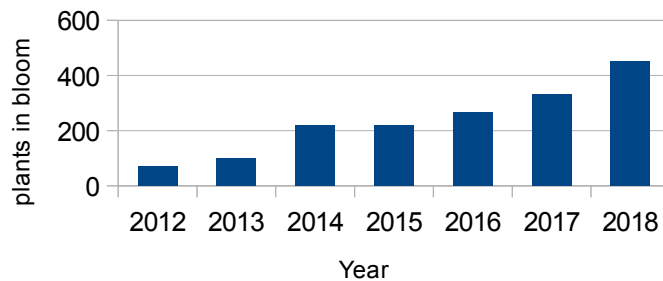
One of our initial goals of the Restoration Project was to create a Garry oak meadow on the Airpark site. In hindsight this was optimistic and not possible in a short time frame. Many of the ecological processes leading to a Garry oak landscape are missing and can not be replicated on this site. For example the soil itself is unnatural. Also it is not really feasible to institute a regular fire regime inside a city. Nevertheless we have been successful in growing Garry oak trees in a meadow setting. To complement these we have also succeeded in growing many of the shrubs one would find in a natural Garry oak meadow. An iconic forb associated with the Garry oak is the camas lily (*Camassia quamash*). We have had mixed results in the introduction of camas in the Airpark. Planting bulbs has been more successful than spreading seed. It is my belief that much of failure can be attributed to the competition from non-native grasses which dominate most sites. It is our plan to carry on introducing camas to various sites in the Park and continue to monitor their numbers.



*Illustration 6: camas patch below the lookout hill in Courtenay River Airpark*

We do an annual count of the camas bloom in the Park to gauge our progress in returning a key species of the Garry oak meadow ecosystem. Because the plant's foliage is rather nondescript we count the blooming stems. The graph to the right shows a steady increase in the number of camas blooms. We hope to see this positive trend continue, by planting more bulbs and weeding the existing patches to decrease the competition.

Courtenay River Airpark  
Blooming Camas Plants

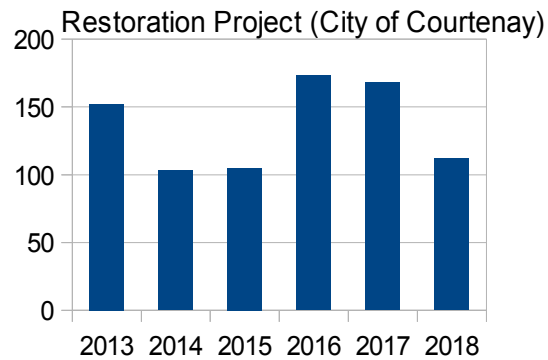


### Volunteer Statistics

Graph 1: blooming camas

The hours put in by our volunteers working on City of Courtenay property have been recorded for the last six years. These hours (Graph 2) reflect the time spent on the ground and do not include administration time. A diary is kept to record the participants, the site and the nature of the work done at every work party. This the graph reflects only the hours spent in the City of Courtenay, and not the hours spent on other areas in the Comox Valley Regional District. The majority of our work in the City of Courtenay has been in the Courtenay River Airpark, however this year effort has also been spent on the Courtenay Riverway trail when an infestation of purple loosestrife was discovered by one of our volunteers. There has been an overall decrease in hours this year. This can be explained by the extra hours put in working on the lagoon breach project with Project Watershed and with the clean up with the Airpark Association in the previous two years.

Comox Valley Nature Volunteer Hours



Graph 2; Volunteer Hours

### Other Activities

In addition to the Courtenay River Airpark our project also does work beside the Rotary trail, north of the Courtenay Rail Station. There were no new plantings on this site this year. There was one sweep of this site to remove a small amount of Scotch broom and Himalayan blackberry. The sign at this site has been vandalized with spray paint. We were not able to clean it and it will need replacing.

An annual event that Comox Valley Nature hosts in the



Illustration 7: Nature Kids helping to clean up the shoreline in the Courtenay Airpark

Courtenay River Airpark is the Shoreline Clean up in September of each year. This is part of a province wide event associated with Rivers Day to bring attention to our shorelines and the problem with litter and other sorts of pollution affecting them. This year we were happy to be joined by the NatureKids in cleaning up the shoreline in the Park. This is a group of young people learning about nature under the guidance of Comox Valley Nature.

Reaching out to the community and public education are important for the continuation and success of our project. Through public events we can distribute information on invasive plants and sometime recruit new volunteers. This year we participated at the Ecofair held at Mark R Isfeld Secondary as well as an open house hosted by the Mountaineer Avian Rescue Society (MARS).

We offer brochures on invasive plants to the public in the Courtenay River Airpark. We maintain a plastic weatherproof dispenser containing these attached to the fence just past the Airpark Cafe.

## Future Plans

Barring unforeseen circumstances, there are several projects we would like to tackle in 2019. Starting in 2005 we installed signage describing some of the native vegetation we had planted in the Airpark. However the ravages of time has begun to show on this signage, as many have faded and cracked, making them difficult to read. It is time for replacement signage to be installed which we hope to do this year. We do not want to overwhelm the park users with signage so we will keep the plant signs to manageable number of twenty or so and keep them at the same small size (6"x8"). These have been well received by the public. Each sign describes the native plant that is nearby and gives some basic botanical information on it. These were placed on 4x4 posts in the ground. We plan to keep the same basic format.



*Illustration 8: Faded and cracked plant information sign*

In terms of plant maintenance the camas and other native bulbs planted this year will need extra care and maintenance including watering as they become established. These native bulbs are adapted to sites that are moist to wet in the winter and spring and then experience a summer drought. Watering will be limited to the early summer thereby reducing our labour.

It is also our plan to hold the line on the invasive Himalayan black berry and tansy in the areas we designated and showed in last years report. This will involve regular cutting with a weed wacker. We hope that we can reduce the number of cuts on this site but that will depend on the vigor shown in the surviving weeds.

On our wish list is a project to map all the Garry oaks we have planted in the Park. This may be a project where we can get some technical help from the local colleges.

## **Acknowledgements**

Comox Valley Nature has membership with a wide variety of nature related interests, whether it be birding, botany or photography. There is no doubt that this diversity gives us strength. Our work in the community gives us a chance to interact with other groups and organizations with diverse interests. The common thread is desire to make the Comox Valley a better place.

I want to thank the City of Courtenay for their continued support of this project. In particular Tyler Johns the horticulture supervisor and Mike Kerns the Parks Manager who have been eager to help.

Murray Little coordinates the Restoration Project for Comox Valley Nature and attends most of the work parties as well. His steady hand at the wheel has ably guided this project for the last two years and I look forward to working with him for another year. Lastly I would like to thank all the unnamed volunteers who do the real work outside in the dirt.

# Appendix I



## Appendix II

### 2018 Plant List for Courtenay Airpark (Site 1)

		Number	Size
Indian Plum	<i>Oemleria cerasiformis</i>	1	2 gal
Garry oak	<i>Quercus garryana</i>	2	5 gal
Tall Oregon grape	<i>Mahonia aquifolium</i>	3	1 gal
Red Osier Dogwood	<i>Cornus stolonifera</i>	1	1 gal
Red Elderberry	<i>Sambucus racemosa</i>	1	1 gal
Red flowering Currant	<i>Ribes sanguineum</i>	2	2 gal

### (Site 2)

		Estimated number
Common camas	<i>Camassia quamash</i>	100
Great Camas	<i>Camassia leichtlinii</i>	50
Hooker's onion	<i>Allium acuminatum</i>	25
Harvest brodiaea	<i>Brodiaea coronaria</i>	50
Fool's onion	<i>Brodiaea hyacinthina</i>	10

## Appendix III

# Please Do Not Disturb

## Plant Restoration Site

Volunteers from Comox Valley Nature have worked in the Courtenay River Airpark for over 20 years. We have planted and cared for most of the native trees and shrubs you observe in this park.

On this site we are attempting to introduce native forbs such as camas, Hookers onion and Oregon sunshine. These plants do not compete well with introduced weeds and grasses. We have therefore prepared the site by killing the weeds and grasses under plastic. Most of the plants used here were rescued from development sites in the Comox Valley.



*camas in bloom*

This is part of the continuing work done by Comox Valley Nature, and the City of Courtenay to restore and maintain the Courtenay River Airpark.

### WHAT YOU CAN DO

Please enjoy the flowers in this park but do not pick them. Allow them to go to seed and spread through out the park.

Stay on established trails so as not to disturb the many native plants in this park.



**City of Courtenay**



**Comox Valley Naturalists Society**