Comox Valley Nature
Restoration Project 2019
Courtenay River Airpark

Frank Hovenden

Introduction

This is the 25th year for the Restoration Project. We are a group of volunteers who are members of the Comox Valley Nature Society. This in turn is an affiliated member of BC Nature which is a provincial organization representing naturalists throughout BC.

Each year there are new and seemingly greater challenges that myself and our volunteer crew face. This year was no exception. Rabbits have invaded in unprecedented numbers and are causing damage to our plantings. This is a serious problem and the first invasive mammal we have experienced within the Courtenay River Airpark.

The Park is also experiencing greater numbers of homeless using it for a camping spot. In previous years they were camped on the perimeters but this year there were several occasions when homeless could be found camped inside the Park.

The Courtenay River Airpark is not and has never been an easy place to restore native vegetation. It is an artificial construct within a small city which reflects large human impacts over the years. There is the rip-rapped river shoreline as well as the remaining footprint of the old sewage lagoon. What makes the efforts worthwhile, is the value of this estuarine ecosystem, which is the most valuable part of a watershed in terms of biodiversity. Even though this area has been highly impacted through urban development, its geography endows it with high biological value that needs to be protected and enhanced. The Courtenay River Airpark borders the estuary of the Courtenay River where it empties into Comox Harbour and Baynes Sound. Its importance in terms of maintaining biodiversity in the Comox Valley can not be understated.

Illustration 1: A springtime display of bitter cherry and red-flowering currant.

The Airpark is owned and maintained by the City of Courtenay. In the past years we have developed a good working relationship with the Parks Department and its manager Mike Kearns. This year we have worked directly with Park employees horticulture supervisor Tyler Johns, and arborist Shane Tillapaugh in the Airpark. We are thankful for the privilege of working in this park to improve its natural habitat qualities. Our goals reflect the motto of BC Nature, "to know nature and keep it worth knowing". Vancouver Island has been blessed with some spectacular native plants and ecosystems. Our goal in the Airpark has been to highlight these in a natural setting.

The Airpark is an interesting human-constructed experiment in restoration which is continuing to evolve. Its background in recent times has been as 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 to the lagoon by installing a large culvert to the Courtenay River which allowed the free movement of water through the lagoon from the Courtenay River to the estuary. The Courtenay River Walkway passes through the park and is arguably one of the most popular walking trails in the City of Courtenay.

This report attempts to document and record the work our small group of volunteers have done this past year to this small but important area, the Courtenay River Airpark.

Invasive Plants and Animals

Rabbits

Our project started as a simple project to remove the human-introduced Scotch broom plant. Over the years we have targeted other invasive plants while introducing native plant species. There seems to be no end to the number of introduced invasive species that want to occupy this relatively small parcel of land. In the last several years we have a new invasive species in the form of rabbits. I will use the term rabbit to refer to all the species and varieties found in the Park. They seem to come in many colours, shapes, and sizes. The Eastern Cottontail (*Sylvilagus floridanus Allan*) is certainly common but I suspect many of the larger specimens are various domestic varieties of the European Rabbit (*Oryctolagus cuniculus L.*) which have been intentionally released into the Park. To be clear there are no native rabbit species found on Vancouver Island. All the rabbits found here are introduced species which can be considered invasive.

Illustration 2: A flowering red currant which has been browsed and broken by rabbits.

The rabbit displays all the classic characteristics of an invasive species. It ability to reproduce in large numbers is well known. In addition to this it has a very flexible diet and can eat most types of green vegetation as well as bark from shrubs and trees. As well it is very mobile and can travel large distances. (This is often augmented by human assistance.) The Eastern Cottontail was introduced to the Sooke area of Southern Vancouver Island in 1964 It is now found as far north as Sayward on Vancouver Island as it continues to expand its range on Vancouver Island. In its natural range rabbit populations are often controlled by a variety of predators such as the fox, coyote, and lynx. None of these are found on Vancouver Island and therefore there are few natural controls to the rabbit population.

The Human Factor

The rabbit is neither good nor bad, however it is causing problems to our project and the larger ecosystem. Many rabbits are bought as pets,

especially as impulse buys at the Easter holiday. Although they are attractive they don't make particularly good pets. They can't be trained as a dog nor do they purr as a cat. The result is children quickly tire of them and are left with an unwanted pet. The solution to uninformed parents is to release the rabbit in the nearest habitat such as local parks that they deem suitable. The situation is further worsened by well-meaning people who then feed the rabbits in the park helping to maintain their high numbers. There is lots of evidence of this already happening in the Airpark.

Solutions to a biological problem are made more difficult because of the human factor. Well thought out action is required to stem this problem. Any action has to be preceded by an education campaign. We are not the first municipality to be faced with this particular invasive species and there are lessons to be learned from municipalities to the south of the Comox Valley where the rabbits are already well established. Because of the human factor, a cull is probably too controversial for any politician to promote however there are easier but effective measures that have been taken by other municipalities. These include a simple ban on rabbit sales or mandated spaying and neutering of rabbits used for the pet trade. The University of Victoria had a live trapping program which was effective although controversial.

An education program should be started by the City to precede any action. In addition to the ecological damage the rabbit is causing, rabbits can carry a variety of diseases transferable to humans especially when their numbers increase in small areas.

I believe that abandonment of pet rabbits into the wild is an offense under the Prevention of Cruelty to Animals Act. An easy start in confronting this problem would be some signage in our parks prohibiting the release of pets such as rabbits in our Parks. I assume the Airpark is not the only Park in Courtenay facing this challenge.

Even if the City succeeds in stopping or reducing the number of abandoned rabbits we are still faced with the existing population. In personal communication with restoration expert Dave Polster, I was told that the best way of dealing with this problem is to reduce habitat favoured by rabbits. In the Airpark we see that the rabbits use the Himalayan blackberry thickets for cover and protection. They venture from these thickets to feed but are quick to retreat to them at any sign of danger.

Our Restoration project has been controlling the Himalayan blackberry in selected parts of the Airpark for some years now (Appendix I). In the last two years the City of Courtenay has joined us in managing the blackberry in parts of the AirPark. I believe a decrease of the blackberry cover will reduce the rabbit population by reducing their protective cover habitat.

Himalayan Blackberry and Tansy

There are large areas infested with Himalayan blackberry and tansy within the Airpark. We have taken a disciplined approach to dealing with these two invasive species. We have prioritized our control efforts. Areas where we have plantings that may be threatened by these invasive plants area have a high priority (see Appendix I) while areas where the infestation is contained from spreading by pathways or water are a low priority. We control these plants by continuously cutting them up to four times during the growing season. In addition some of the weaker blackberry has been dug up. We are

slowly expanding the areas where we control these invasive plants. We have been assisted by the City of Courtenay which is now cutting the patch below the lookout. We have used brush saws to control these invasives while the City is using large mower called a "Billy Goat". It is our understanding that the City hopes to expand its control efforts in the coming year.

Signage

In 2012 we installed some 20 signs in the Airpark close to native plants, most of which we had planted. These gave some basic information about the plant such as its range and traditional uses. These were very well received by the public however the ravages of time were beginning to show in terms of fading due to sun bleaching. It must be noted that there was very little vandalism done to these signs.

It was decided to replace most of these signs this year. The new signs were redesigned slightly from the originals. While the originals had small photos of the plants, we felt this was not necessary as the signs were in close proximity to the plants they described, thus the photos were omitted. The text was updated and the font size increased. We were happy with the small size (20cm x 15cm) as they did not detract from the natural setting of the Airpark. On each sign are the logos for both the City of Courtenay and Comox Valley Nature. (Appendix III)

The signs for the most part were placed on the original 4x4 posts. Most of these were sound, however six of these were replaced. The City of Courtenay Parks paid for the printing of the new signs, while Comox Valley Nature volunteers installed them. There were 17 new signs designed. Some of these were duplicated for a total of 22 signs installed in the Airpark.

Illustration 3: A new sign installed.

Plant Care

2018 Plantings

In the autumn of 2018 we planted camas bulbs and other native plants such as nodding onion in the area referred to as camas 2 (Appendix I). These bulbs much like domesticated bulbs have a spring growth and flowering period and then die back over the hot summer months. These bulbs emerged in good numbers in the spring of this year. However it was immediately apparent that the young plants were being browsed by the feral rabbits in the Airpark. We tried spraying these young plants with a product called Bobbex™. This is sold as a deer and rabbit repellent. We found its effectiveness somewhat questionable.

Illustration 4: Rabbit diggings in new camas bed

We also noticed that the rabbits as is their habit, were digging holes in our planting area. To prevent this we spread blackberry canes on the plot areas. This seems to have reduced their use of the area. We expect that most of the bulbs will survive but in a weaker condition than if they hadn't been browsed. We were concerned about the dry spring weather we experienced this year. The Courtenay Parks department stepped up and watered the plots three times during the crucial spring season.

Fencing is an option for protecting the camas beds in the future. This is a difficult and expensive option. The wire fencing has to be 50 cm high. Due to the rabbit's propensity to dig the rabbit fencing has to be sunk below ground 10 cm.

Last years plant survival in Site 1 was excellent. As an added measure we did some limited watering of these trees and shrubs during the summer drought period this year. We don't expect to do any further watering of these plants in the future.

Illustration 5: Rabbit-browsed camas

In the Spring months we observed rabbit browse on many of our more recent shrub planting as well as gnawed bark on older trees (See Cover). The browse was limited to branches within 50 cm of the ground. We also noted some species like Oregon grape and ocean spray were avoided entirely. As a temporary protection we installed wire cages around the smaller shrubs susceptible to browse. In the future we will only plant larger stock and cage all new shrub plantings. At a recent visit to this site some browse was noted on shrubs which had come through last winter unscathed. Specifically these were lager specimens of Red flowering currant and Garry oak. It seems that the rabbit behaviour is dynamic and unpredictable at this stage. There remains many unanswered questions regarding the population dynamics and the feeding habits of these animals.

Illustration 6: A small planting plot covered with blackberry canes to discourage rabbits

New Plantings

This year we continued with our camas planting program in the Airpark at the camas 3 site (Appendix I). See Appendix II for a list of the planted materials. The bulbs and plants are being grown by myself and Murray Little in our home gardens. Camas bulbs take about four years before they are strong enough to bear flowers. We can reduce this time by growing the bulbs for several years in gardens where they receive greater care and grow quicker than in the field. The bulbs were planted in early October.

We have learned some important lessons from previous years and have incorporated those into this year's planting project. In order to kill the grass turf we use solarization over the hot summer months.

Black poly works best and that is what we used exclusively this year to kill the existing turf. The young camas has limited ability to compete with established grass turf.

We also noticed that smaller plots were subject to less rabbit browse. We therefore decreased the size of our planting plots and separated them from each other. To further discourage the rabbits we covered all the plots with blackberry or rose canes intermediately following planting. A commercial bulb fertilizer was added to the plantings and the plot was covered in sea soil mulch.

Older Plantings

Starting in the early spring we do a cleanup sweep around our plantings in the Airpark. This consists of weeding around the base of the plants as well a minor pruning when required. This gives us a good opportunity to examine the overall condition and vigour of our plantings and decide on future plant choices for the Airpark.

Illustration 7: A mock orange in full bloom

In the past we planted using small stock. The idea guiding this was that this smaller material was cheap and it allowed us to over plant areas to compensate for lower survival rates. In light of changing conditions with the rabbit situation this has to be reconsidered. The rabbits have most severely damaged the smaller plants.

Many of the small material we planted in the past are starting to mature and show their better features. Shrubs like mock orange have only started to flower in the last few years and are now putting on a good show of blooms. This bodes well for the future displays in the Airpark.

We have monitored the camas numbers by counting the blooming plants each year. There was a significant decrease in the blooms this year. This was especially noticeable in the oldest camas patch. (camas 1, Appendix I) This patch was established over 10 years ago and we considered it self sufficient and only needing minimal care. We are speculating that these plants were impacted by both the dry spring, and rabbit herbivory.

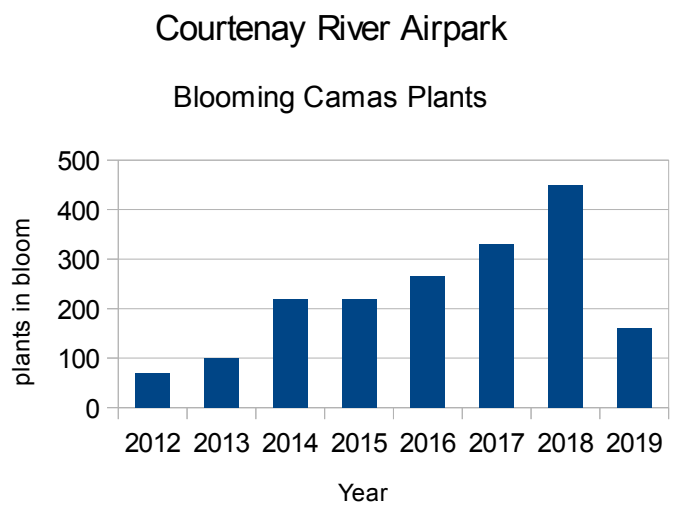


Table 1

Social Problems

Illustration 8: A shopping cart filled with personal possessions in the Airpark

It is has become apparent to most citizens that the "homeless problem" is having an ever increasing impact on our parks (including the Courtenay River Airpark) and other urban spaces. Homelessness is a convenient term for a much larger problem encompassing poverty, substance abuse, and mental disorders. The problem has been growing over the years and is now evident throughout Courtenay. Solutions will not be easy nor quick and will involve all levels of government. Unfortunately much of the day to day dealings falls on the backs of municipalities like the City of Courtenay.

This is a huge problem well beyond the scope of this small report. Our position is that our municipal parks should not be used for camping or places to partake of liquor and other intoxicants. To this end I have asked all our volunteers to immediately report instances of this to the Bylaw Enforcement Officer for the City of Courtenay, Kevin Gurnham. I have had several dealings with Kevin, this past year. I have found him to be reasonable, fair and totally professional. He has a job that few would envy and I think he is a real asset to our municipality.

Illustration 9: Camp site in the Airpark

The more secluded areas within the Airpark are more often used than others for drinking and camping. I believe the City could make these spots less favoured for these activities through vegetation management and revisiting their policy on benches. There are some benches in secluded areas which seem to cater to illegal drinking. These should either be removed or relocated to more public areas. More bike patrols by the RCMP would also add to the security in the Airpark.

Urban Trees

There is a growing awareness of the impact of trees on the urban landscape. The ecological services supplied by trees in a city for climate regulation are well documented. With the impact of the climate crisis upon us, the importance of trees within the City can only increase. The City of Courtenay has recently enacted a Tree Bylaw and is developing an Urban Forest Strategy. They have also added a full-time arborist Shane Tillapaugh to their staff. These are positive steps and reinforces the importance of the tree planting we have done in the Airpark over the years.

I have done some field work helping Shane map the trees in the Courtenay River Airpark. These have

been entered into the Tree data base system, Tree Plotter. (see Appendix IV) We now have over 35 healthy Garry oaks growing in the Airpark. Their exact position as well as size and historical information has been documented and stored on the data base. Note that only trees that had been in the ground for over 2 years and were over 1.5m in height were mapped. It is not our plan to have a fully stocked oak forest, but rather a Garry Oak meadow. This allows park users to enjoy the viewscapes as well as accommodating the adjacent air strip.

Volunteer Stats

The hours put in by our volunteers have been recorded for the last seven years. These hours (Table 2) show 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. 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 effort has also been spent at the Rotary Trail adjacent to the old Railway Station. The increase in hours for the last year reflects the extra work done working replacing signs in the the Airpark.

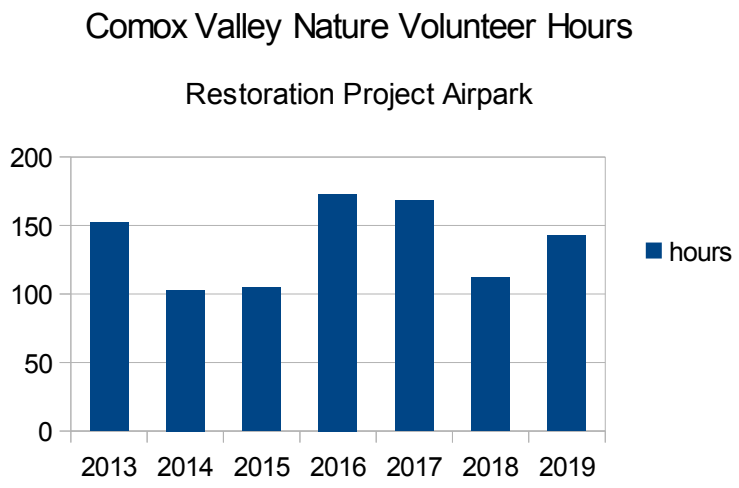


Table 2

Looking Forward

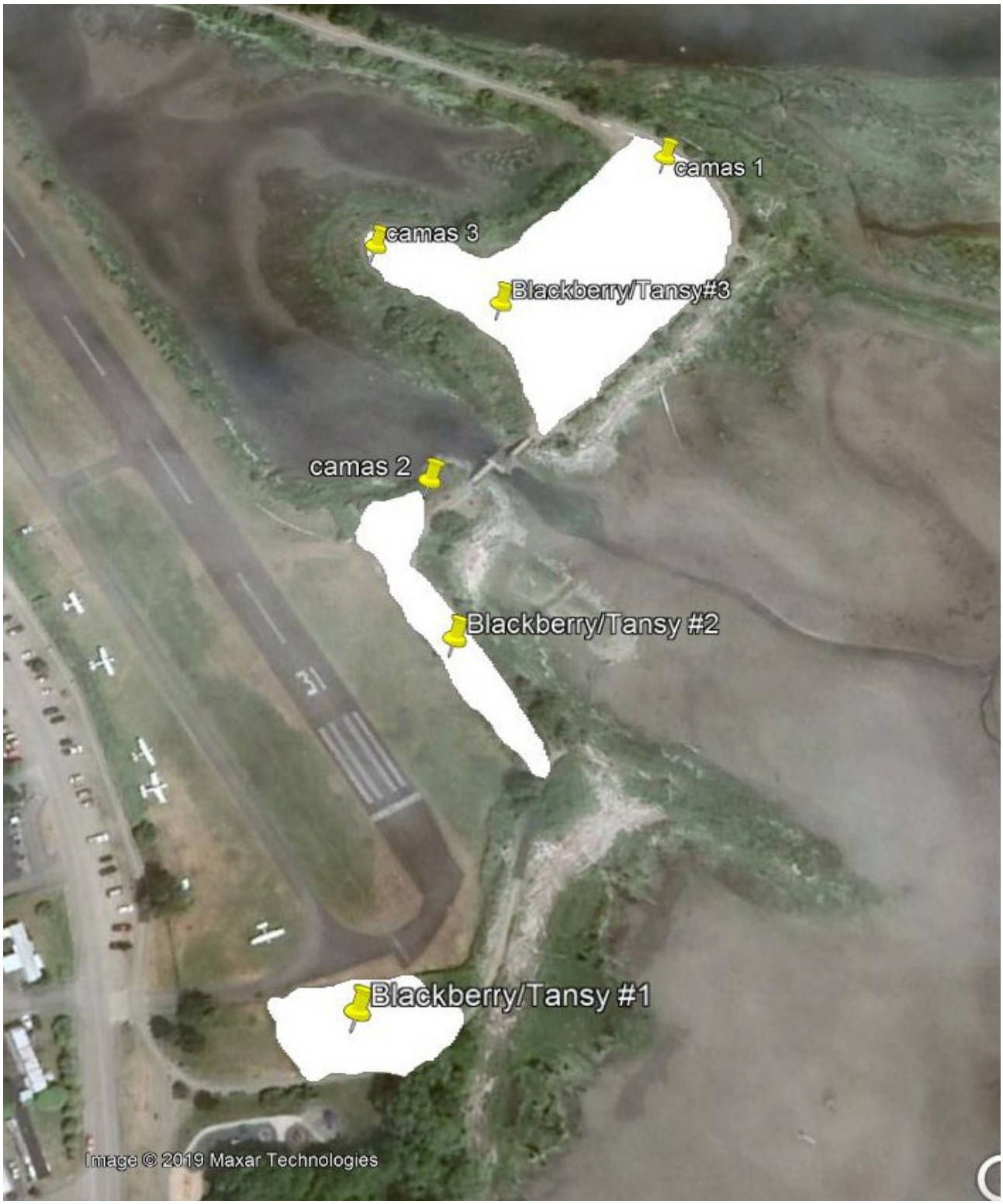
The rabbit problem is still fluid as to be expected of a newly arrived invasive species. It will require more time and effort to see where it is heading in terms of the population. Will it stabilize, crash, or decrease? This is difficult to predict. The rabbit population is susceptible to rabbit hemorrhagic disease, which is caused by an infectious virus. It has so far not seemed to have affected the Airpark population despite outbreaks reported on other parts of Vancouver Island. Then of course there is the human factor which I discussed earlier in this report. Will more rabbits be dumped in the Park? These are questions which we don't know the answers to at this time. However we will further protect all vulnerable plantings. This may mean some fencing around the camas plots. It is our plan to experiment with this method next year next year. We have already made wire cages to protect small shrubs. We will continue to remove Himalayan blackberry and thus reduce protective habitat for the rabbits. We will encourage our municipal partners to do the same.

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. City staff I want to thank include Horticulture Supervisor Tyler Johns, Arborist Shane Tillapaugh and the Parks Manager.Mike Kearns.

The Restoration Project is coordinated by Murray Little for whom I am grateful. Lastly I would like to thank all the unnamed volunteers who do the real work outside in the Park.

Appendix I
Camas patches and Blackberry Control Areas



Appendix II
2019 Plant List

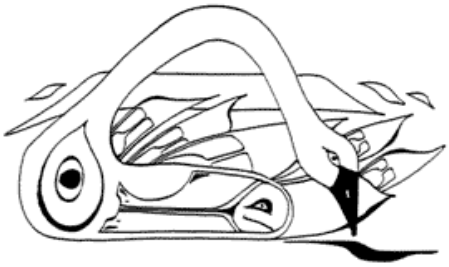
common camas	*Camassia quamash*	35 bulbs
great camas	*Camassia leichtlinii*	25 bulbs
nodding onion	*Allium cernuum*	8 x 1 gal
Oregon sunshine	*Eriophyllum lanatum*	6 x1gal

Appendix III

Red-flowering Currant

Ribes sanguineum

This beautiful red flowering shrub is one of the earliest to bloom in coastal BC. Its timing often coincides with the return of of the Rufous hummingbirds in early spring, which feed upon its nectar. This shrub was highly prized by early explorers who brought it home to decorate English gardens. Many commercial cultivars have since been developed including a white one.



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Appendix IV
Garry Oak map