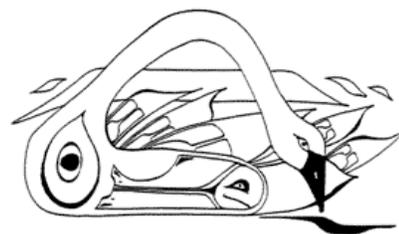


**Comox Valley Nature
Restoration Project 2022
Courtenay River Airpark**



Frank Hovenden

Acknowledgements : I wish to thank all the wonderful volunteers who get their hands dirty working on this project. Many of the tasks are not particularly gratifying and results are often slow to reveal themselves. Nevertheless my workmates have great attitudes and should know that they are a special group of folks I call the “givers”, people who give back to their community and the environment it occupies. These are people who give me hope for our future.



We thank the following organizations for their continued support for our project.



Our Cover: The cover photo is a patch of Dune grass *Elymus mollis*. This native plant is spreading in several locations in the Airpark. It is a beautiful blue shoreline plant which we welcome back.

Introduction

The Courtenay River Airpark is a municipal park on land owned by the City of Courtenay. We acknowledge that it is on the unceded and traditional territories of the K'omox people.

Comox Valley Nature has been working in this park for over 25 years, attempting to improve biodiversity by encouraging native species and removing introduced invasive species. We have a vision for this area which we hold and continue to refine with each passing year. We are working to create a natural meadow landscape. Historically these were called prairies in the Comox Valley and are now known as Garry oak ecosystems. On Vancouver Island the forest ecosystems garner most of the attention by business, government and the citizens. That is perfectly understandable considering their size and importance on many levels. That meadows are overlooked is easily explained by the fact that they are now scarce here on Vancouver Island. The meadow landscapes were quickly converted from natural sources of food for indigenous peoples to farms, towns and cities for the settlers. A quick look at the major population centres on Vancouver Island (Victoria, Cowichan, Comox Valley) all align with the location of historic large meadow landscapes.

Meadowscapes and human beings seem to thrive together. It is believed that humans evolved on the great savannas of Africa and are still most comfortable in this open landscape. Meadows are ecosystems that support pollinators, birds, and wildlife. They also act as carbon sinks and filter our water. We believe that a meadow landscape is the best fit for the Airpark. We have worked toward this for many years and with time we are seeing results from our labours. Our original planting of Garry oak are maturing and beginning to stand out on the land, as are our native shrubs. We are now concentrating our planting efforts on the grasses and forbs that truly define a coastal prairie landscape.

We have faced many adversities on attaining our goal. These have included introduced invasive species as well as climate change with the extreme weather events it has unleashed upon us. On the positive side we have had a continuous source of volunteers from Comox Valley Nature. Without their help this project would not have been possible. In addition to our volunteers we are being supported by the City of Courtenay and their Parks Department crews. In this report I plan to summarize the

work we have done this year, as well as outline our plans for 2023. I collect data on several parameters to monitor the project and I will discuss each of these.

Our budgets have always been very modest as CVN is an all volunteer society. We have addressed this perceived weakness by taking advantage of the often forgotten dimension of time. As the years go by our work in the Airpark is becoming more evident and it is most gratifying for our volunteers and hopefully for all the citizens using the Airpark.

Climate Change and the Airpark

Extreme weather events seem to be the norm now, due to climate change. Last year 2021 we saw a heat dome which set records for the highest temperatures throughout much of BC. This was followed by



Figure 1: Huge growth spurt on this Garry oak

Autumn's atmospheric rivers resulting in widespread flooding and highway destruction in much of BC including on Vancouver Island.

This year 2022 seems to be following a similar vein of extremes which has affected the plantings in the Airpark. The long cold and wet spring suited the camas and resulted in a much higher bloom count than normal (see table 2). It also



Figure 2: Dead Sitka spruce

helped our Garry oak, some of which put on phenomenal growth. However the late summer/autumn drought did result in some mortality in the trees planted by the City. Most notably were dead Sitka spruce, a wet site tree which one would expect to be most vulnerable to drought which proved to be the case. As these trees were adjacent to the River where they could contribute to a future healthy and resilient riparian zone we hope they will be replaced. If requested we (CVN) would be more than willing to water these trees until they are established.

Our own tree plantings were very modest with two new Garry oak which we were able to hand water. These trees were able to withstand the drought. It was with an eye on a warming climate that we initially chose many of the native plants found in the Airpark. As these are well established now we

expect that there will be some resistance to future weather extremes.

The Courtenay River Walkway passes through the upper tidal zone of the estuary at the South end of the Park. This has proved to be an ongoing problem during the winter high tides, especially when they occur during storm events. The trail routinely floods in this area and is shut down until City crews can remove the drift wood and debris which is deposited upon it. Anecdotally I believe that this is a problem which is getting worse in recent years. Rising ocean levels are occurring due to climate change. This portion of the trail should be redesigned to reduce these events. As the City owns the adjacent property which may be affected this is a possibility which should be investigated.

Invasive Plants and Animals

History

This project was started in the early 1990s by Betty Lunam, a former president of what was then the Comox Strathcona Natural History Society, as an effort to control the invasive purple loosestrife plant in the Hollyhock marsh area of the Courtenay River Estuary. Over the years the project has expanded both geographically and in its overall concept. The number of introduced invasive species is increasing and every year we find a new one to deal with. This year we were trying to control Reed Canary Grass for the first time. It should be noted that our efforts are concentrated on invasives that threaten our native plantings, pose a risk to the public or have the biggest risk of spreading. Our resources are limited so we have had to be strategic in our fight with invasive species. While controlling invasive species is still in our mandate we recognize the importance of reintroducing native species in returning to a more natural ecosystem. Most of our restoration work is now centred in the Courtenay River Airpark and the Little River Nature Park.



Figure 3 Reed canary grass

The Comox Valley, though arguably largely urban, still possesses the unique geography that is habitat for overwintering waterfowl, migrating salmon, and the northernmost Garry oaks. It is our goal to see that we never lose this rich biodiversity and that the City of Courtenay can exist in harmony with the nature that surrounds us.

Rabbits

Rabbits continue to expand their range and increase in population in Courtenay. It has increased our work as virtually all new plantings in the Airpark require protection. We have found that poultry wire or stucco wire supported by 3/8" rebar is sufficient to keep the rabbits from accessing and damaging our plantings. It is cheap, effective and easy to install.

There are no native rabbits on Vancouver Island. The eastern cottontail was introduced to the Sooke area in 1964. The rabbits found in the Airpark 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.

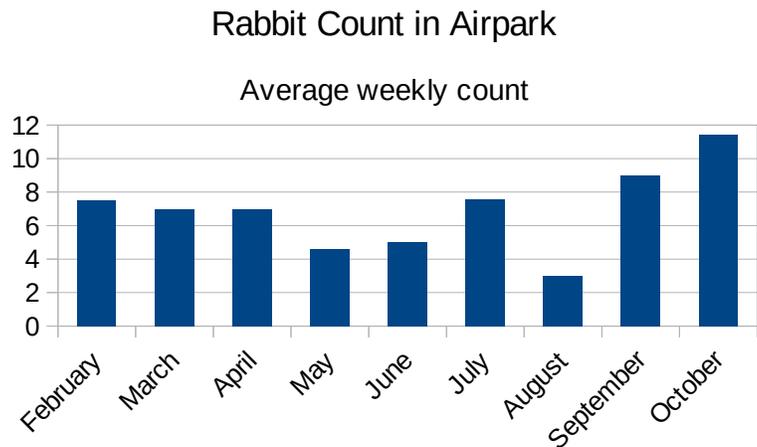


Table 1

When rabbits first appeared four years ago we had hoped that disease, predators, or weather conditions might control their numbers. That has not been the case so far. This year we decided to monitor their numbers in the Airpark. Kathie Woodley, one of our volunteers, does a regular weekly walk through the Airpark from the Cafe to the Rotary Playground. She counts the rabbits seen in the Airpark on each of these walks. We hope that over time this will give us a better idea of the population trends for this invasive species.

Giant Hogweed

Giant hogweed *Heracleum mantegazzianum* is a member of the carrot family which occasionally shows up in the Airpark. It has a toxic sap which can cause severe irritation if handled. It is very prolific and can produce 50,000 seeds per plant. It is often mistaken for cow parsnip. This particular plant was growing adjacent to the Riverside trail so I was happy to spot and remove it before it grew and matured. These plants are capable of growing well over 2m in height.



Figure 4: Giant Hogweed

Himalayan Blackberry

In the Airpark large areas are infested and dominated by Himalayan blackberry. Control of this introduced invasive weed has been difficult. As this is a highly used park, completely surrounded by fish-bearing waters, the use of chemical herbicides has been taken off the table for consideration. Like many successful invasive plants it has multiple methods to reproduce, such as layering, root shoots, and seeds. The seeds are contained in berries which are attractive to multiple creatures willing to spread them. The plant itself can



Figure 5: Volunteers holding Himalayan blackberry vine.

grow to form thick impenetrable thickets with large thick roots. These can form a very attractive protective habitat for another invasive species, the rabbit. Controlling these areas using hand tools is only possible once the original “old-growth” thickets are removed.. That job we leave to the City with its larger brush-cutting equipment. This year they removed some blackberry to allow tree planting. We are keeping any re sprouting blackberry under control in these areas. We continue to expand the areas where we control these invasive plants. (See Appendix I.) The green shows where we have expanded

our control area in the last two years. After the initial cutting of the blackberry we return to dig up the roots or cut again at least twice a year in areas we are controlling (white areas). Overall we have taken a disciplined approach to dealing with blackberry and have prioritized our control efforts. Areas where we have plantings that may be threatened by these invasive plants have a high priority for control efforts, while areas where the infestation is contained from spreading by pathways or water are a low priority. The City’s crews have joined us and have been cutting and digging the blackberry in front of the lookout for the last three years, shown as orange on the map. Last October (2021) this area was planted with trees including shore pine, Pacific crabapple, and bitter cherry

Plant Care

Camas Plantings

Camas is the iconic plant associated with Garry oak meadows. It was an important food plant for the indigenous peoples of this land. The bulbs formed an important source of carbohydrates in their diet. The bulbs could be stored and were commonly used as a trade good. This year’s cool wet Spring seemed to suit our camas and we had a record number of blooms (Table 2). It should be noted that most of our camas patches are fenced to exclude rabbits. We are trying to plant camas without fencing, by widely spacing it. This is showing some promise but we are still monitoring this technique.



Figure 6: Camas plot 1: Blooming camas with Garry oak in background.

**Courtenay River Airpark
Blooming Camas Plants**

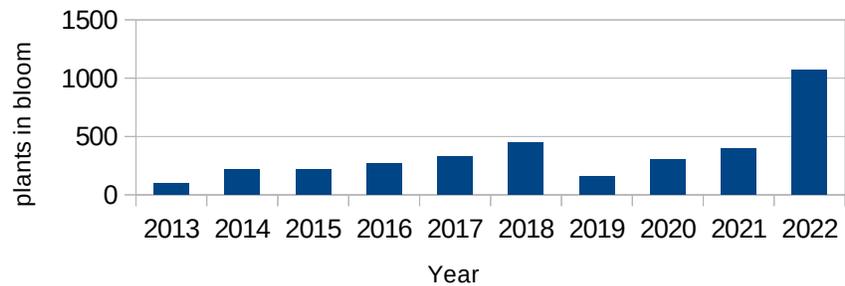


Table 2

To prepare our planting sites we cover them with black poly to solarize the future planting sites and kill existing weeds., during the growing season (April to Oct.). This concentrates the heat on the ground killing all plants and seed in the soil under the poly. It is removed in the autumn and the ground is allowed to take in moisture from the fall rains before the camas bulbs are planted.

This year’s late summer/autumn drought proved problematic as the autumn rains failed to materialize. I did not want to plant our bulbs in bone dry soil so I approached the City for help. They were quick to respond. With a light truck they accessed our planting site supplying water. We were able to soak our new plot with several hundred gallons of water in preparation to planting our bulbs.



Figure 7 City Parks crew watering bone dry planting plot in late October

We keep track of the number of camas bulbs planted each year. Our numbers are slightly down this year. Last year we received a late season donation of bulbs from Louise Goulet, a Victoria plant rescue person and well-known naturalist. This year’s number

should be sustainable over the long term. Note that I have not differentiated between great and common camas. We are sourcing our camas bulbs from within the Comox Valley. I am growing great camas in my garden from seed collected in the estuary. The common

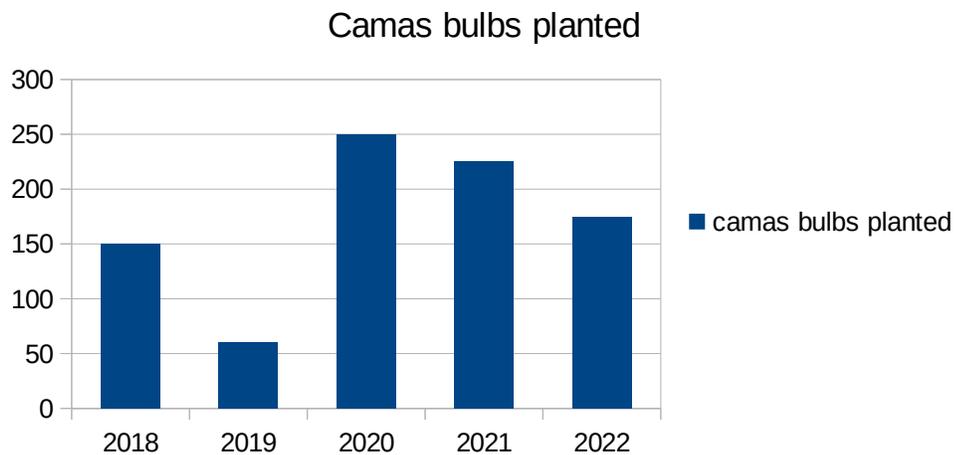


Table 3

camas is collected on a local farm from what is the remnants of a historic population.

Special Plantings

In March, 2 large (2m) Garry oaks were planted in the Airpark. These trees were planted in memory of Bill Heidrick and Thomas Krug. In accordance with the wishes of the City no plaques will be installed, and the trees will form a fitting memorial in themselves. The trees were donated by Loys Maingon and planted by the Restoration Project volunteers. During the summer dry season these were watered by the families of those memorialized. Despite adverse conditions caused by our drought both trees are doing fine.

Other Plantings

Last year we planted some Henderson's checker-mallow at the south end of the lagoon. This was to avoid the wood and debris deposition we are seeing at the north end of the lagoon. The plants which are blue listed in BC are thriving and flowering at this new site. More rhizomes were planted this year.



Figure 8: Flowering Henderson's checker-mallow

As our project matures we are attempting to introduce more of the smaller plants found or associated with coastal prairies. Last year we had success with plugs of Roemer's fescue. This is a native bunch grass which I started in my greenhouse. These were planted in the area recently cleared of blackberry next to camas plot 2

(Appendix I). They survived both the summer drought without being watered, as well as rabbit browsing. It seems to be a good tough native grass well suited to the challenging conditions in the Airpark.

In October for the first time we broadcast seeded suitable areas with a mixture of coastal prairie seeds in several areas which had been raked to remove the thatch . A seed mixture of (Appendix II) Roemer's fescue, tomcat clover, bicoloured lupine, seablush, sneezeweed, common yampah, spring gold, gumweed, and Hooker's onion was mixed with sand and peatmoss before being sown on open

areas with no thatch. Much of the seed had been collected locally. The remainder was purchased from Northwest Meadowscares in Port Townsend Wa..

In my greenhouse I started most of the coastal prairie seeds in plug trays which were then transplanted in the spring of 2022. They include tomcat clover, bicoloured lupine, sneezeweed and collinsia. Other seeds being grown include the red-listed deltoid balsamroot and Menzies delphinium. The plan is to replot these and let them grow for another year before planting them in the Airpark.in 2024.

Plant Maintenance

We try to plant at the best times to get the plants established before the summer drought season hits. This generally means from mid-autumn to mid-spring. As a rule we only water a few select vulnerable plants during the summer months. We don't have the equipment nor the personnel required for widespread watering.. As one would expect there is some mortality, and growth may be slower than otherwise possible. This can be compensated for by over planting. Last year even with the record breaking heat dome we only lost one of our established shrubs.

In the spring we do a general cleanup and weeding around our most visible shrubs and trees. Small amounts of fertilizer may be applied at this time.

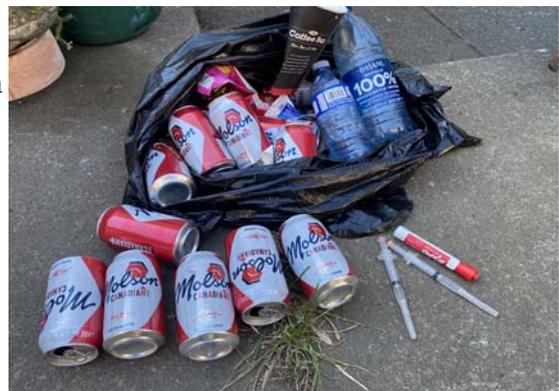
Due to rabbits browsing, stucco wire cages are now placed as protection around smaller shrubs and trees. Around the camas plots we have used chicken wire framed with 1.3m pieces of 3/8" rebar. This has proven effective in excluding rabbits. We do have two unfenced camas plot which serve as controls.

Social Problems

The homeless situation in Courtenay is larger and more visible than ever based on my personal observations.

However within the Airpark it seems to be less visible than in the past two years. There has been some camping which was quickly moved on by Bylaw enforcement officers. On our work parties we have picked up garbage consisting

Figure 9: Discarded trash including needles.



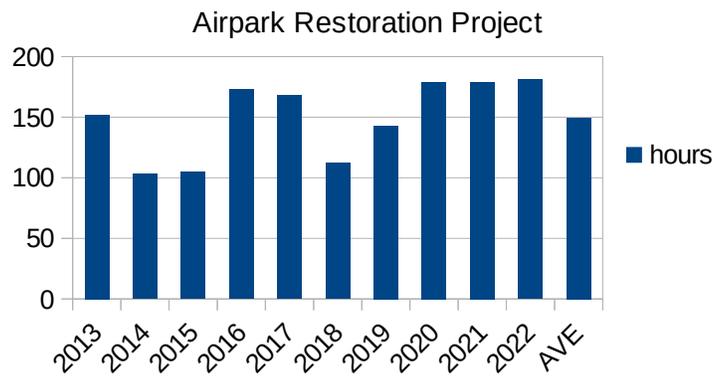
largely of liquor containers, clothing, and needles. I don't imagine this is any different from other parks in the Comox Valley. More disturbing is the deliberate damage that we observed on some trees in order to enlarge a party area.

Volunteer Statistics

For close to 10 years I have been keeping track of our volunteers hours working in the Airpark . A diary is kept to record the participants, the site and the nature of the work done at every work party. I am happy to report that this year we slightly exceeded our previous high number. This graph reflects only the hours spent in the City of Courtenay.

Table 4

Comox Valley Nature Volunteer Hours



Looking Forward (2023)

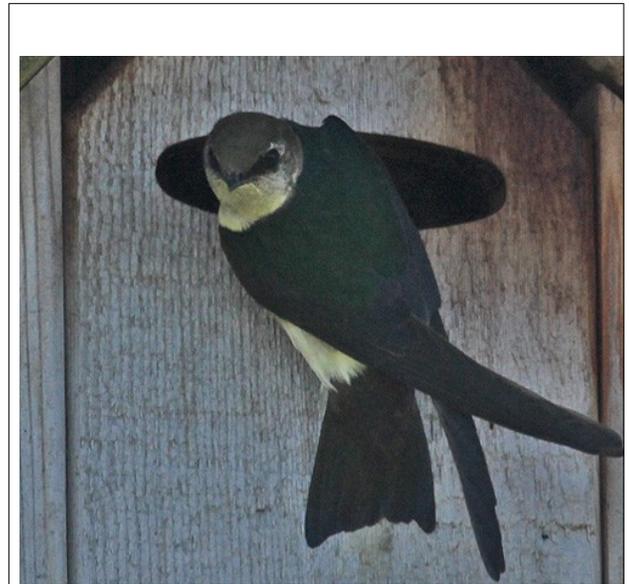
I hope to do a bit more outreach to the general public who are frequent users of the Airpark. This has been difficult as many people still feel uncomfortable in large groups due to the pandemic.

I also hope to recruit some younger volunteers. To that end I am currently meeting with the Youth Coordinator for the Invasive Species Council of BC who is living in the Comox Valley. This has always proven difficult in the past but I am hopeful that something comes from this.

We plan to carry on removing invasive plants and shrinking the boundaries of where they dominate while expanding the areas where native plants are thriving. We are expanding the boundaries of our Camas patches. We will continue to prepare areas using black poly, adjacent to our established plots. This reduces the amount of fencing required if we can make use of some of the fencing already in the ground. The coloured areas in Appendix I shows were we are currently battling invasive plants. The white shows areas where we have a degree of control, which only requires routine maintenance.

Looking forward is very difficult to predict these days as historical weather patterns are not dependable anymore so we need to be prepared for the unexpected as these may change our plans.

Two years ago we installed a couple of nest boxes for swallows. There was not much interest shown in the first year however this year Violet-green Swallows were observed entering the boxes. We can't be sure that any chicks fledged however it was a positive sign. This coming year we plan to install a couple more bird boxes.



Text 1: Violet-green swallow at a nestbox in the Airpark

Further Acknowledgements

Our project is a part of and supported by Comox Valley Nature which has a wide membership of nature lovers whether it be birding, botany or nature photography. I wish to thank the executive for their support. A special thanks to those who donated native plants and seeds to the project. These include Bob Hauser, Peter and Carol Hobbins, and Jack Bindernagel. The Restoration Project is coordinated by Karen Cummins and it has been my pleasure to work with her.

Gerry Fairbrother a regular in the Airpark has taken and supplied many of the photos used in this report for which I am grateful. A special thanks goes out to Courtenay's Bylaw Enforcement Officers who often have to deal with the homeless in the Park. Having observed them, I can say that they bring both fairness and compassion while doing a very difficult job.

Appendix I

Camas patches and Blackberry Control Areas



Appendix II 2022 Plant List

Common camas	<i>Camassia quamash</i>	115 bulbs
Great camas	<i>Camassia leichtlinii</i>	70 bulbs
Hookers onion	<i>Allium acuminatum</i>	40 bulbs
Henderson's checker- mallow	<i>Sidalcea hendersonii</i>	2 rhizomes
Collomia	<i>Collomia grandiflora,</i>	6 nursery pack
Roemers fescue	<i>Festuca roemeri</i>	6 x 4"pots
Harvest brodiaea	<i>Brodiaea coronaria</i>	20 bulbs
Tomcat clover	<i>Trifolium wildenovii</i>	11 nursery pack
Bicolored lupine	<i>Lupinus bicolor</i>	16 nursery pack
Blue-eyed Mary	<i>Collinsia parviflora</i>	6 Nursery pack
Sneezeweed	<i>Hymenoxys hoopesii</i>	10 Nursery pack
American wild carrot	<i>Daucus pusilla</i>	4 Nursery pack
Woodland tar weed	<i>Anisocarpus madioides</i>	2 Nursery pack
Thimble clover	<i>Trifolium microcephalum</i>	2 Nursery pack
Garry Oak	<i>Quercus garryana</i>	2 x 2m

Appendix III Seed Mixture List 2022

Roemers fescue	<i>Festuca roemerii</i>
Tomcat clover	<i>Trifolium wildenovii</i>
Bicolored lupine	<i>Lupinus bicolor</i>
Seablush	<i>Plectritis congesta</i>
Sneezeweed	<i>Hymenoxys hoopesii</i>
Common yampah	<i>Perideridia gairdneri</i>
Spring gold	<i>Crocidium multicaule</i>
Gumweed	<i>Grindelia integrifolia</i>
Hookers onion	<i>Allium acuminatum</i>