Comox Valley Nature

Restoration Project 2023 - Courtenay River Airpark

Frank Hovenden

Acknowledgements

Comox Valley Nature is an entirely volunteer driven society. We are grateful to the varied and wonderful group of people who show up with work tools and energy to make this Park, our Community, and the Environment a better place for all. Thank you volunteers. A big shout out to our official photographer, Gerry Fairbrother,

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

Our Cover: We have been working to return and restore the natural systems to the Courtenay River Airpark as part of the Courtenay River Estuary. The cover photos of violet-green swallows, a black bear, and a garter snake with a vole were all taken in the Park this year. It reminds me of an adage from a popular movie from the 1980s (Field of Dreams) "**If you build it, they will come**."

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.

While this area is a designated municipal park, I have never thought of it as such. Our vision has never been to transform this into a traditional urban park with manicured lawns, complete with sprinklers. This was the vision of a large landscape architecture company which drew up an elaborate plan for this area some 40 years ago, which was never fully implemented. As time passes and our world changes so does the relevance of that plan. Our vision is simpler, cheaper and more sustainable. We are working to make this park a meadowscape. Meadows were once common in the Comox Valley, prior to settlement. Because these areas had very few trees they were quickly converted to farms and towns, until they are virtually non-existent in this area today. Meadows are open landscapes which are **not** dominated by trees. They sequester carbon, filter rainwater and require less energy inputs than lawns or non-native gardens. They support pollinators and are often associated with the First Nations who maintained them, often using fire as an agricultural tool. I hope our readers and Park users agree that this urban park checks off many of the criterion for an ecologically sound, urban green space.

It must be noted that the land in question at the Courtenay River Airpark has been severely modified over the years. It was a relatively short time ago that this area was a sewage lagoon. We are witnessing changes every year as nature creeps in and slowly reclaims parts of this area. (I write about this in the Native Plants section.) Our role is to assist, and not impede, the natural processes taking place. We do this mainly by controlling the non-native invasive species in the Park, and by planting and introducing native plants. In addition, in the Maintenance section I will talk about using a light hand to direct the growth to attain a landscape suitable for people, as well as nature.

How is this cheaper and more sustainable? We use very little water. This is of increasing importance in light of climate change and the limited water supply we have in the Comox Valley. The Valley's water is collected from a relatively small watershed and must support hydro production, fish, wildlife, as well as a ballooning human population. I think it is safe to say that watering lawns is luxury we can't afford in this day and age.. From the project's beginning we have chosen plants that are capable

of handling moderate droughts. The iconic Garry oak is a good example. Note that some watering is done until the plants are established, usually after a year. We may be witnessing an example of sustainability this year with respect to our Garry oaks (fig. 1). The older trees are producing acorns and regenerating young Garry oaks in the Airpark. Time will tell how if this is sustainable here in the Comox Valley. Many of the remaining Garry oak meadows on the South Island have trouble regenerating due to heavy deer browse on the young trees. Fortunately we do not have deer in the Park, although we are plagued with invasive rabbits.

Figure 1: This is the first youmg Garry oak sprouted from an acorn from a tree we planted 20 year ago.

We are noticing many changes happening with vegetation within the park as new plants arrive every year. The good news is that many are native plants which are perhaps returning to the sites they once occupied. This might be considered an example of ecological memory where native plants return to areas where they were found historically. Assisting this process is the changing soil within the park. The substrate was originally largely municipal waste materials and river dredgings. When digging for plantings, one often comes across broken concrete and tarmac. What was noticeable some years ago was a total lack of organics in the soil. With time this is starting to change as the vegetation constantly dies and breaks down in the soil, increasing its organic content. This makes for healthier soil with a greater moisture holding capacity.

Figure 2: Jack Bindernagel's keen eyes picked up this Vancouver Island Beggarticks growing in the lagoon

Initially we concentrated on planting trees and shrubs as these take the longest to grow and mature. Although we still plant some trees and shrubs we are putting more effort on planting the smaller meadow plants. These included the native bulbs such as camas and various wild onions. This last year we started experimented with spreading seed on bare ground where the turf has been raked up and removed. We have had some success and will continue to experiment with more forbs and grasses next year.

Comox Valley Nature works closely with the City of Courtenay Parks Department and we hope to continue with this relationship. In this report I plan to summarize the work we have done this year, as well as outline

our plans for 2024. 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 registered 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 caused by climate change are happening most years now. This summer the Comox Valley experienced drought conditions (class 5) during the summer. Unlike the previous year (2022) the fall rains did return. I think we are all learning a tough lesson on the importance of flexibility in landscape management. Traditional weather patterns can not be relied upon. This year City of Courtenay crews did regular watering of newly planted trees and shrubs and I have not seen any mortality like we did in 2022. For our part we did our shrub plantings in the Autumn to take advantage of the soils condition once moisture had returned.

Climate change has been on our minds since we first started our work in the Courtenay River Airpark. This is why we have been planting Garry oak, a tree more common in the drier more temperate biogeoclimatic zone, (Coastal Douglas Fir CDF) to the south of ourselves on Vancouver Island. Similarly, many of the shrubs we plant are more commonly found on the South Island. These seem to be faring well with minimum care and watering once established. These include Indian plum, mock orange and evergreen huckleberry. Our own tree plantings this year were very modest with one 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 now found in the Airpark. As these are well established now, we expect that they will have some resistance to future dry weather extremes.

Figure 3: Winterstorms and high tides routinely flood the south part of the walkway

As in previous reports I have to point out the walkway(Fig. 3) at the south end of the Park. It is located on the upper tidal zone is very vulnerable to

flooding. In past winters it has been routinely covered with drift wood which the city removes with heavy equipment. This will only get worse with more storms and rising sea levels expected.

Invasive Plants and Animals

History

Figure 4: Don S. cutting Himalayan blackberry

This project had its beginnings as an effort to remove an invasive plant, purple loosestrife. It has expanded its scope to not only remove invasive plants, but to restore native plants in the ecosystem.

Most of the restoration work done by Comox Valley Nature is now centred in the Courtenay River Airpark and the Little River Nature Park. In the near future there are plans to start working with the City of Courtenay in the Vanier Garry oak grove.

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.

Figure 5: In the early winter months of 2023 there were many dead rabbits observed in the Airpark due to RHD.

Rabbits

Protecting our new plantings from rabbit browsing has consumed a great deal of our time. It is particularly disturbing as rabbits are an introduced pest on Vancouver Island and have no place in our ecosystems. We have found that poultry wire or stucco wire supported by 5/8” rebar is sufficient to keep the rabbits from accessing and damaging our plantings. It is cheap, effective and easy to install. However, it is time consuming and wasn’t necessary until a few short years ago.

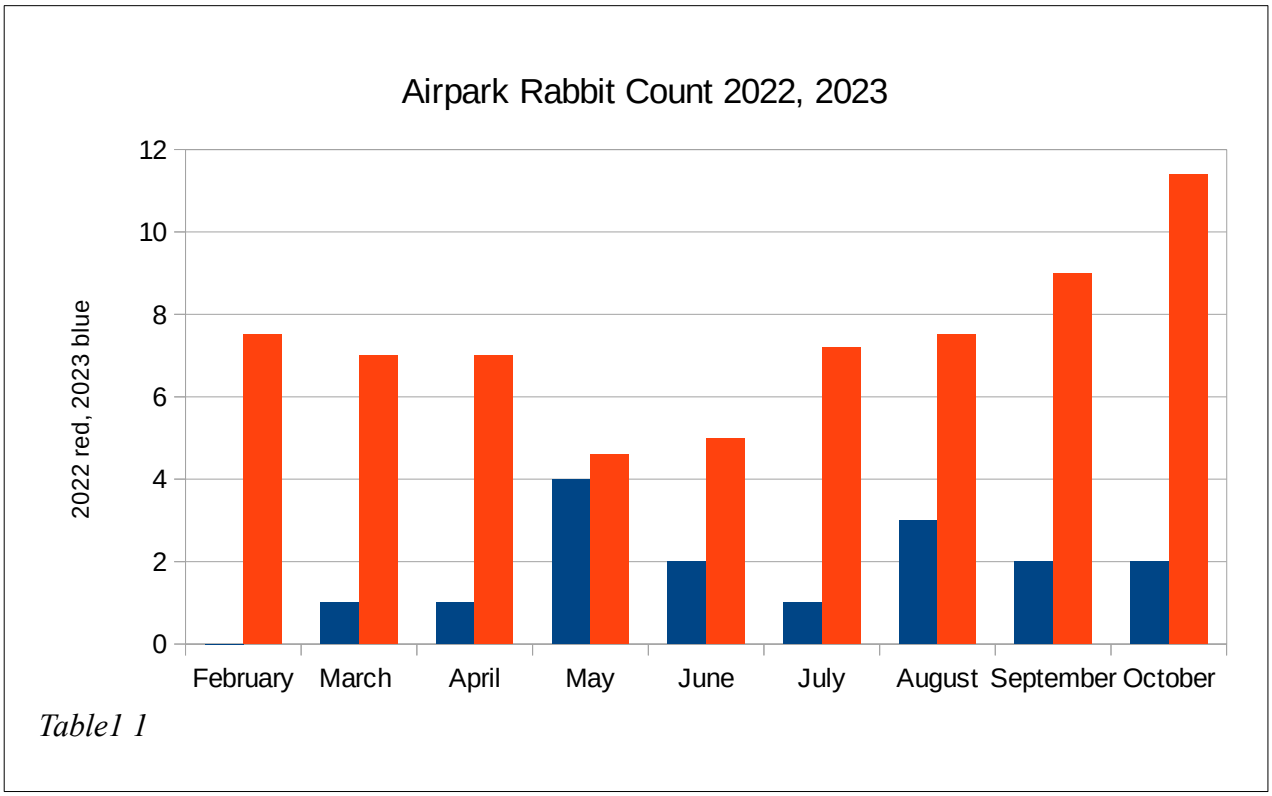

Table1 1

This year we saw a disease affect the rabbits in the Airpark. We noticed rabbit mortality early in the new year. By early February the local SPCA confirmed that Rabbit Hemorrhagic Disease (RHD) had returned. Samples had been submitted to the Provincial Wildlife Veterinarian and tested positive in their lab. They commented that given the broader pattern across North America this finding had been expected. In the Airpark virtually all of the European rabbits were wiped out. However the North American cottontails survived, at least in small numbers. Over the summer, the numbers of European rabbits were increasing once again. We are monitoring the rabbit numbers with a weekly count done by one of our members who counts rabbits observed in the Airpark from D's Cafe to the Rotary Playground. This gives a sample of the rabbit numbers. The graph (table 1) shows the dramatic effect of RHD on the rabbit population in the Airpark comparing 2022 in **red** with 2023 in **blue**. We hope over time the graphed data will give us a better idea of population trends for the rabbits.

There are no native rabbits on Vancouver Island. The eastern cottontail (Sylvilagus floridanus Allan) was introduced to the Sooke of Vancouver Island area in 1964. The rabbits found in the Airpark come in many colours, shapes, and sizes. The Eastern Cottontail is certainly common but most of the rabbits observed are various domestic varieties of the European Rabbit (*Oryctolagus cuniculus L.*) which have been intentionally released into the Park by irresponsible pet owners who no longer wish to care for their pets.

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. No plants were observed growing in the Airpark this year

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Figure 6: Giant hogweed

Himalayan Blackberry

The Himalayan blackberry is the invasive plant which presents us with the most challenge to control. It is a vigorous and aggressive plant, well armed with thorns, that can totally dominate a given area and exclude all other plants. We have had some success in controlling it in small areas. This requires continuous attention as the plant is constantly reseeding or spreading through its roots. For the large dense thickets, we get the City crews to cut with a large bush cutting machine. Once that is done our volunteers can maintain the site using handtools.

Figure 7: The three volunteers are using hand tools to keep the blackberry from returning.

We have had to prioritize our control efforts in the Airpark, as we lack the people power and time to do a full control throughout the Park. We concentrate efforts on areas where either CV Nature or the City have new plantings. The area in Figure 7 is good example where we are working closely with the City. They did the initial blackberry thicket removal and subsequent tree planting. We are maintaining it free from returning blackberry, as well as planting shrubs in the same area. The map in Appendix I shows the areas where we remove all blackberry on a regular basis. Due to the seed source and spreading roots this must be done several times a year to keep an area free from returning blackberry. We enlarge our blackberry-free areas each year by expanding the boundaries of our working areas rather than jumping to new locations.

Plant Care

Camas Planting Camas is the iconic plant associated with Garry oak meadows. It has striking blue flowers early in Spring and forms a bulb which traditionally was a carbohydrate food source for indigenous peoples. We recognize its importance and continue to plant new bulbs every year. We have been fortunate in sourcing a local supply of camas bulbs. We have fenced all our Camas plots with a few exceptions, as protection from rabbit browsing. We have planted some widely spaced bulbs without protection and are closely monitoring these plants for damage and survival rates. Currently we have observed browsed plants surviving but not producing flowers. This make sense as the damaged plants are directing their energy supplies towards regrowing the browsed vegetation 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 weeds and seed in the soil under the poly. The poly is removed in the autumn and the

Figure 7: Camas plot 1: *Blooming camas with Garry oak in background.*

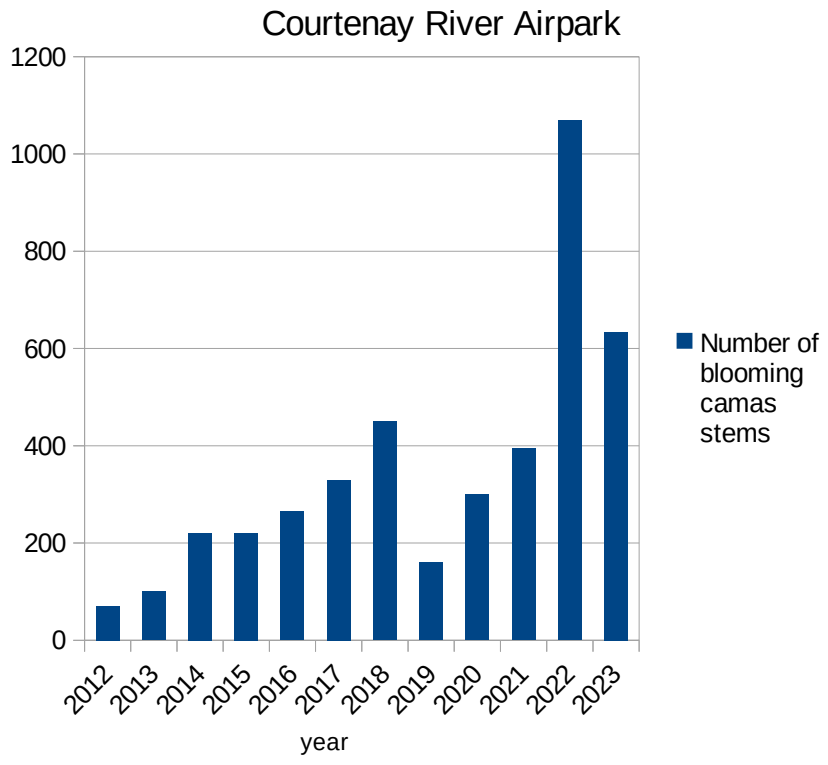

Table2

ground is allowed to take in moisture from the fall rains before the camas bulbs are planted. We monitor the amount of camas by counting the number of blooming stems. It takes several years before a camas plant blooms and the immature plants are difficult to identify until that time.

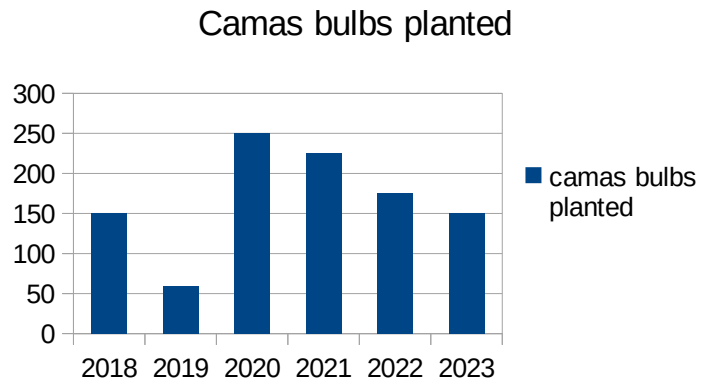

Table3

Our numbers of blooming camas for 2023 (Table 2) are up overall but less than in 2022. That year we had a cool wet spring which really helped the Camas thrive. We keep track of the number of camas bulbs planted each year. This year's number of planted bulbs (table 3) was slightly down. I have not differentiated between great and common camas for this number. The number of common camas bulbs planted is much greater than the great camas bulbs.

Figure 8 Memorial Garry oak

Special Plantings

In March, one large (3m) Garry oak was planted in the Airpark. This tree was planted in memory of Bill Heidrick and joins the two memorial Garry oaks planted in 2022. Both these trees are doing fine and no addition maintenance is anticipated. As the C ity has requested, no memorial plaques or signs will be installed.

Other Plantings

Last year we planted some Henderson's checker-mallow(Appendix I) 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 due to high tides. This has smothered some of the plants in that area. The plants which are blue listed in BC are thriving and flowering at this new site. More rhizomes were planted this year. This plant grows in the upper tidal zone. I propagate this plant in my home garden from locally collected seed.

Figure 9: Flowering Henderson's checker-mallow (pink) in the background.

Figure 10: The pink flowers are seablush which has grown from sown seed .

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 bunch grass well suited to the challenging conditions in the Airpark.

Figure 11: Oregon sunshine is spreading outside of the fenced plot where it was established.

Other plants which seem to be establishing themselves in the Airpark are Colomia spp. and Oregon sunshine (fig.11). These are both spreading beyond the fenced areas where they were originally planted. In October 2022 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. The pink in Figure 10 is seablush which was sucessfully established. This year a seed mixture (Appendix III) which included Roemer's fescue, bicoloured lupine, seablush, spring gold, gumweed, and Hooker's onion was mixed with sand and peat moss before being sown on open areas where the thatch had been removed. Much of the seed had been collected locally by our volunteers, while the remainder was purchased from Northwest Meadowscapes in Port Townsend Wa..

Plant Maintenance

While historically we have concentrated on establishing and nurturing native plants, some of our maintenance is changing. Some shrubs are getting too large and spreading so that they are interfering with other native plantings. Remember, our goal is creating a meadow, not an impenetrable jungle. Two shrubs in particular stand out for their vigour in the Airpark site. They are Nootka rose and tall

Oregon grape. These two native plants have many desirable qualities such as producing food for people and wildlife. However, these shrubs can also spread rapidly into areas where we don't want them. This is especially the case for Nooka rose which sends out long propagating roots and will make a thicket which serves as great habitat for invasive rabbits to hide in. This year we have done some limited removal of plants that have spread beyond their welcome. For the most part, these are areas where we have planted smaller or less vigorous native plants.

Figure 12: Gerry S. one of our volunteers is cutting back the small Oregon grape that has sprouted from the roots of the mother shrub which is in the background.

Figure 13: Bob H. shows the long propagating root on the Nootka rose

In the spring we a do a general cleanup and weeding around our most visible shrubs and trees. Small amounts of fertilizer may be applied at this time. The Garry oaks have responded very well to these treatments.
Due to rabbits browsing, stucco wire cages are still placed as protection around most of our plantings. 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 plots which serve as controls. We hope the wire fencing in the Airpark is a temporary measure and in time it can be removed as the rabbit population stabilizes.

This year the City of Courtenay had crew which watered many of the trees and shrubs that we had planted together in the previous year (2022). It seems to have been successful in this drought year as no tree or shrub mortalities have been observed up to now.

Social Problems

The homeless population in Courtenay continues to grow and according to the local paper (Record) it is close to 300 now. While there has been some camping in the Park the Bylaw Enforcement Officers have been diligent and the problems have been few. There was one small fire reported this year in the bush behind the children's playground. With our more frequent drought conditions this could have been hazardous. Working in our favour is the ever increasing popularity of the Courtenay River Walkway. With the completion of the Ocean Front Village complex we are seeing even more walkers enjoying this park. With more eyes on the Park, I am hoping that vandalism and public drug use should become less frequent.

Figure 15: Garbage dumped in the Park.

Littering has not been a real problem this year with a few exceptions. I was concerned when the City removed a litter barrel which was located where the totem pole is now situated. However, I have not noticed any appreciable increase in littering due to this. Unfortunately, this year there was some vandalism (Fig.14) to some new plantings in front of the viewing platform. I hope this was only an isolated incident.

Figure 14: Many young trees from 2021's planting by lookout had their tops broken.

Volunteer Statistics

For close to 10 years I have been keeping track of our volunteers hours spent 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 average number of hours per year. This graph (Table 4) reflects only the hours spent in the City of Courtenay Airpark. For a volunteer effort our work hours have been quite stable over the years.

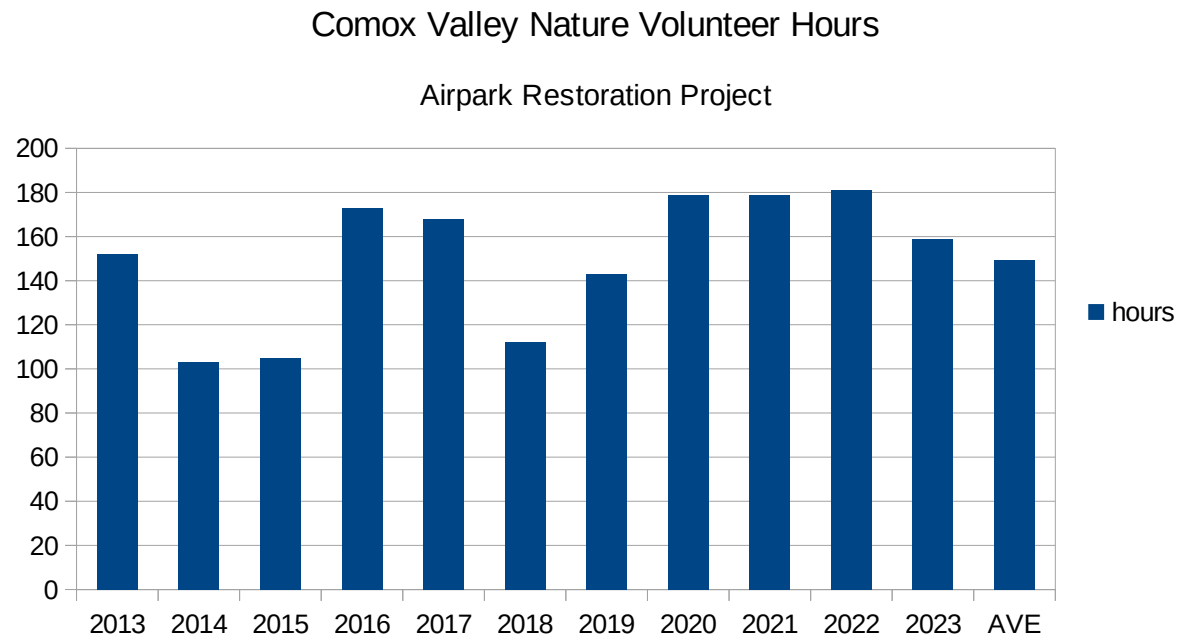

Table4

Looking back

*Figure 12: **Then 2000** one of the first Garry oaks planted, being mapped with GPS.*

Our volunteers have been working in the Airpark for over 20 years and during this time we have witnessed some remarkable changes in the landscape. While nature has done most of the heavy lifting, I hope we have gently guided her in a direction that is beneficial to the ecosystem and pleasing to the citizens using the Park. The changes that an ecosystem undergoes over time is called succession. It is what makes all living systems dynamic. It is often overlooked by humans as we tend to concentrate on the here and now. I hope these photos remind us of the importance honouring our roots and history. The Garry oak is often dismissed as being a slow grower which has limited use in the urban landscape. On deep-soil sites like this one, they have good growth as this tree which was planted in the Airpark 23 years ago shows(Fig.12 and Fig 13)

*Figure 13: **Now 2023** The same Garry oak as Fig. 12 Note the same trailer and power pole in the background.*

One of the first invasive plants we tackled in the Airpark was Scotch broom. It is relatively easy to control and virtually none can be found today in the Airpark. One of the more difficult invasive plants to control is tansy which grows on the same site where the late Ruth Masters (Figure 14) is seen working over 20 years ago. We are controlling the tansy by cutting it four times a year. The site (Fig.15) has had extensive native plantings on it. They include Garry oak, oceanspray, Oregon grape and red-flowering currant. The vegetation along the shoreline (mainly Pacific willow) has grown quickly in 20 years.

*Figure 14: **Then** - Ruth Masters cutting Scotch broom 1998*

*Figure 15: **Now** This is the same location 2023*

Looking Forward (2023)

I start some of the plants we use in this project in my home garden. I have been growing Deltoid Balsamroot in my garden for the last two years and plan to transplant these plants early in the spring of 2024. Although this is a listed species, it has not proven difficult to propagate. It remains to be seen how it fares in the Airpark, as it has a very limited distribution on Vancouver Island. I also plan to start some western goldenrod in my greenhouse to plant in the Spring.

I hope to do a bit of 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 have met with the trip coordinator with CV Nature and will start with Club members before offering these tours to the general public. Many of the people we meet while working in the Airpark are newcomers to the Comox Valley who have limited knowledge of the native flora, fauna, geography and history. I hope this can get people interested in taking on a more active role in our parks and natural areas.

We plan to carry on removing invasive species and shrinking the boundaries of where they dominate, while expanding the areas where native species are thriving (Appendix I). 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 where 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.

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, Karen Cummins, and Jack Bindernagel. The Restoration Project is coordinated by Karen Cummins and it has been my pleasure to work with her.

Appendix I

Blackberry Control Areas

Appendix II
2023 Plant List

Forbs

Common camas	*Camassia quamash*	124 bulbs
Great camas	*Camassia leichtlinii*	*2*0 bulbs
Hookers onion	*Allium acuminatum*	20 bulbs
Nodding onion	*Allium cernuum*	20 bulbs
Henderson's checker- mallow	*Sidalcea hendersonii*	8 rhizomes
Collomia	*Collomia grandiflora,*	4 nursery pack
Roemers fescue	*Festuca roemeri*	5 x nursery pack
Harvest brodiaea	*Brodiaea coronaria*	15 bulbs
Bicolored lupine	*Lupinus bicolor*	12 nursery pack

Shrubs

Evergreen huckleberry	*Vaccinium ovatum*	*2*
Indian plum	Oemleria ceasiformis	2
Ocean spray	Holodiscus discolor	3
Red-flowering currant	*Ribes sanguineum*	3
Beaked hazelnut	*Corylus cornuta*	*2*

Trees

Garry Oak	Quercus Garryana	1 - 3m

Appendix III
Seed Mixture List 2023

Roemers fescue	*Festuca roemeri*
Bicolored lupine	*Lupinus bicolor*
Seablush	*Plectritis congesta*
Spring gold	*Crocidium multicaule*
Gumweed	*Grindelia integrifolia*
Nodding onion	*Allium cernuum*
Red maids	*Calendrinia ciliata*
Yellow rattle	*Rhinanthus minor*
Canada goldenrod	Solidago canadensis